CB Coupler Box and CS Coupler Strip
Reinforcement Continuity Systems
Fast and safe to install without manual bar bending
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CB Coupler Box
Simple, fast, safe reinforcement continuity

Ancon CB Coupler Boxes simplify the continuity of reinforcement at concrete construction joints. They allow engineers to design slab-to-wall connections without the traditional restrictions on bar length and bar diameter of re-bend/pull-out continuity systems and help contractors to eliminate manual bar straightening on site.

The CB Coupler Box utilises the Ancon CARES-approved CXL mechanical rebar connection system. CXL couplers are integral to the CB box and, once the thread protection is removed, accept CXL parallel-threaded reinforcing bars (see page 5).

The box is cast into a concrete wall, and when the formwork is struck and the box lid and thread protection are removed, the CXL continuation bars are simply screwed into the CXL couplers when required on site, creating a strong, secure connection with the wall. The steel casing remains embedded in the wall and fills with concrete when the next section is poured; a rebated dimpled surface provides an effective shear key in accordance with EC2.

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</table>

Other box lengths and bar centres are available
Standard Coupler Box Range

### Coupler Box 12T/12C
- Ø12 Tension Bar
- Ø12 Compression Bar

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Box Width W</th>
<th>Stirrup Width B</th>
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<tbody>
<tr>
<td>CB150-12T/12C</td>
<td>150</td>
<td>98</td>
</tr>
<tr>
<td>CB170-12T/12C</td>
<td>170</td>
<td>118</td>
</tr>
<tr>
<td>CB190-12T/12C</td>
<td>190</td>
<td>139</td>
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<tr>
<td>CB220-12T/12C</td>
<td>220</td>
<td>170</td>
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<tr>
<td>CB250-12T/12C</td>
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<td>200</td>
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### Coupler Box 16T/12C
- Ø16 Tension Bar
- Ø12 Compression Bar

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Box Width W</th>
<th>Stirrup Width B</th>
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<tbody>
<tr>
<td>CB150-16T/12C</td>
<td>150</td>
<td>98</td>
</tr>
<tr>
<td>CB170-16T/12C</td>
<td>170</td>
<td>118</td>
</tr>
<tr>
<td>CB190-16T/12C</td>
<td>190</td>
<td>139</td>
</tr>
<tr>
<td>CB220-16T/12C</td>
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<td>170</td>
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<tr>
<td>CB250-16T/12C</td>
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### Coupler Box 16T/16C
- Ø16 Tension Bar
- Ø16 Compression Bar

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Box Width W</th>
<th>Stirrup Width B</th>
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<tbody>
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<td>CB220-16T/16C</td>
<td>220</td>
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</tr>
<tr>
<td>CB250-16T/16C</td>
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<td>200</td>
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</tbody>
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### Coupler Box 20T/16C
- Ø20 Tension Bar
- Ø16 Compression Bar

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Box Width W</th>
<th>Stirrup Width B</th>
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<tbody>
<tr>
<td>CB220-20T/16C</td>
<td>220</td>
<td>180</td>
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<tr>
<td>CB250-20T/16C</td>
<td>250</td>
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### Coupler Box - Hook Type

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Box Width W</th>
<th>Box Depth T</th>
<th>Stirrup Width B</th>
<th>Stirrup Length C</th>
<th>Coupler Type</th>
<th>Overall Height H</th>
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<tbody>
<tr>
<td>CB85-12H</td>
<td>85</td>
<td>15</td>
<td>72</td>
<td>125</td>
<td>CXL12</td>
<td>170</td>
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<tr>
<td>CB85-16H</td>
<td>85</td>
<td>15</td>
<td>98</td>
<td>130</td>
<td>CXL16</td>
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### Coupler Box - RA Type

<table>
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<th>Product Reference</th>
<th>Box Width W</th>
<th>Box Depth T</th>
<th>Stirrup Length Li</th>
<th>Coupler Type</th>
<th>Overall Height H</th>
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<tbody>
<tr>
<td>CB85-12RA</td>
<td>85</td>
<td>15</td>
<td>200</td>
<td>CXL12</td>
<td>170</td>
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<tr>
<td>CB85-16RA</td>
<td>85</td>
<td>15</td>
<td>380</td>
<td>CXL16</td>
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<tr>
<td>CB85-20RA</td>
<td>85</td>
<td>17</td>
<td>570</td>
<td>CXL20</td>
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<tr>
<td>CB85-25RA</td>
<td>85</td>
<td>21</td>
<td>1110</td>
<td>CXL25</td>
<td>280</td>
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</table>

**Notes:** Li leg lengths based on C32/40 concrete and couplers at 150mm centres. All dimensions are millimetres.
CS Coupler Strip

Simple, fast, safe reinforcement continuity for curved walls

Ancon CS Coupler Strips offer all the benefits of CB Coupler Boxes and are specifically designed to simplify rebar continuity at joints where walls are curved on plan. The flexible steel strip used to carry the couplers is nailed directly to curved shuttering.

The CS Coupler Strip utilises the Ancon CARES-approved CXL mechanical rebar coupler system. CXL couplers are integral to the CS Strip and accept CXL parallel-threaded reinforcing bars.

The strip is cast into a concrete wall, and when the formwork is struck and the 6mm rebate former and thread protection are removed, the CXL continuation bars are simply screwed into the CXL couplers when required on site, creating a strong, secure connection with the wall. The rebate fills with concrete when the next section is poured, providing a shear key in accordance with EC2.

Coupler Strip Range

Coupler Strip ø12

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Coupler Type</th>
<th>Width W</th>
<th>Length Li</th>
<th>Height H</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS12RA</td>
<td>CXL 12</td>
<td>50</td>
<td>200</td>
<td>161</td>
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</table>

Coupler Strip ø16

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Coupler Type</th>
<th>Width W</th>
<th>Length Li</th>
<th>Height H</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS16RA</td>
<td>CXL 16</td>
<td>50</td>
<td>380</td>
<td>161</td>
</tr>
</tbody>
</table>

Coupler Strip ø20

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Coupler Type</th>
<th>Width W</th>
<th>Length Li</th>
<th>Height H</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS20RA</td>
<td>CXL 20</td>
<td>50</td>
<td>570</td>
<td>210</td>
</tr>
</tbody>
</table>

Coupler Strip ø25

<table>
<thead>
<tr>
<th>Product Reference</th>
<th>Coupler Type</th>
<th>Width W</th>
<th>Length Li</th>
<th>Height H</th>
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</thead>
<tbody>
<tr>
<td>CS25RA</td>
<td>CXL 25</td>
<td>60</td>
<td>1110</td>
<td>265</td>
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</tbody>
</table>

Notes: Length Li based on couplers at 150mm centres and grade C32/40 concrete
All dimensions are in mm
Ancon CXL Continuation Bars

Unlike re-bend continuity systems where bar lengths are restricted to the box dimensions, there is virtually no restriction on continuation bar length with either CB Coupler Boxes or CS Coupler Strips.

Grade B500B or B500C continuation bars, threaded with a CXL metric thread, are supplied by Ancon in 12mm, 16mm, 20mm and 25mm diameter. The CXL system is CARES approved and produces a full strength joint. The bar end is cut square and enlarged by cold forging. This increases the core diameter of the threaded portion of the bar to ensure that the strength of the bar is maintained. A parallel metric thread is applied to the enlarged bar end. A 12mm bar is provided with an M16 thread, a 16mm bar with an M20 thread, a 20mm bar with an M24 thread and a 25mm bar with an M30 thread.

Bar lengths to BS EN 1992:1-1 (Eurocode 2) are given in the tables below.

### Top Reinforcement to Eurocode 2

<table>
<thead>
<tr>
<th>Bar Diameter</th>
<th>Thread Size</th>
<th>EC2 Full Tension Lap* C32/40</th>
<th>Minimum Length L₁, Required C32/40</th>
<th>Minimum Bar Length Required Good Bond</th>
<th>Minimum Bar Length Required Bad Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>M16</td>
<td>630</td>
<td>670</td>
<td>16</td>
<td>690</td>
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<tr>
<td>16</td>
<td>M20</td>
<td>830</td>
<td>870</td>
<td>20</td>
<td>890</td>
</tr>
<tr>
<td>20</td>
<td>M24</td>
<td>1040</td>
<td>1082</td>
<td>24</td>
<td>1110</td>
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<tr>
<td>25</td>
<td>M30</td>
<td>1300</td>
<td>1346</td>
<td>30</td>
<td>1380</td>
</tr>
</tbody>
</table>

*Assumes contact lap (a₂=1) and 100% of bar lapped at one location.

### Bottom Reinforcement to Eurocode 2

<table>
<thead>
<tr>
<th>Bar Diameter</th>
<th>Thread Size</th>
<th>EC2 Tension Lap* C32/40</th>
<th>Minimum Length L₂, Required C32/40</th>
<th>Thread Length</th>
<th>Minimum Bar Length Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>M16</td>
<td>630</td>
<td>670</td>
<td>16</td>
<td>690</td>
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<tr>
<td>16</td>
<td>M20</td>
<td>830</td>
<td>870</td>
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<tr>
<td>20</td>
<td>M24</td>
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<td>25</td>
<td>M30</td>
<td>1300</td>
<td>1346</td>
<td>30</td>
<td>1380</td>
</tr>
</tbody>
</table>

*Assumes contact lap (a₂=1) and 100% of bar lapped at one location.

Note: Good bond and bad bond conditions as defined in BS EN 1992-1-1 figure 8.2.

C32/40 concrete and couplers at 150mm centres.
Slab reinforcement should be installed to the Engineer’s details and the slab is cast.

The Coupler Box should be orientated according to the instructions on the label. Position as required. The complete unit is nailed to the formwork or alternatively wired back to the main reinforcement cage. Other wall reinforcement should be installed to the Engineer’s details and the concrete is cast.

Once the concrete has reached sufficient strength, the formwork is removed to reveal the box face. When installation of the continuation bars is required, the box lid and coupler bolts are removed, revealing the internal threads.

Install the Ancon CXL continuation bars ensuring no more than 2-4mm of thread is left exposed.

Slab reinforcement should be installed to the Engineer’s details and the slab is cast to complete the application.
Slab reinforcement should be installed to the Engineer’s details and the slab is cast to complete the application.

The Coupler Strip should be orientated as required. The complete unit is flexed against the curved formwork and either nailed in position or alternatively wired back to the main reinforcement cage. Other wall reinforcement should be installed to the Engineer’s details and the concrete is cast.

Once the concrete has reached sufficient strength, the formwork is removed to reveal the 6mm thick corrugated plastic rebate former. When installation of the continuation bars is required, the rebate former and the recessed caps protecting the threads are removed, revealing the internal threads of the couplers.

Install the Ancon CXL continuation bars ensuring no more than 2-4mm of thread is left exposed.

Slab reinforcement should be installed to the Engineer’s details and the slab is cast to complete the application.
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