Dextra

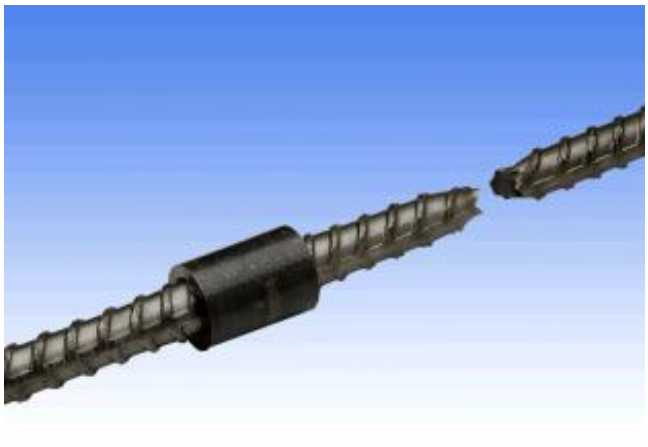
# BARTEC PRODUCT DATASHEET

## ULTIMATE SPLICING SYSTEM

### 1. PRODUCT DESCRIPTION

The BARTEC® reinforcing bar end preparation system is a patented cold-upsetting and threading process that guarantees an ultimate tensile strength of the bar connection larger than that of the parent bar.

The BARTEC® system uses isometric parallel threads, so its mechanical performance in compression equals that in tension.



The BARTEC® system is the easiest way of connecting two bars that cannot be turned, a feature known as “Position splicing”.

The BARTEC® system conveniently uses the same coupler to do standard splices or position splices. The difference between both splices is limited to the length of the thread done on the bar.

The same bar end preparation can also accommodate an anchor plate in order to create a headed bar.

BARTEC® mechanical connections have been designed to far surpass the requirements of all International codes and standards:

The BARTEC® splicing system achieves full strength of reinforcement bars grade 60 in the most demanding definition of “full strength”, which is to prove an ultimate tensile strength higher than the actual ultimate tensile strength of the bar.

It does so by having a thread engagement length superior to the 0.8d of standard ISO screw and nut systems, and by not reducing the cross-section area of the bar.

The surface condition of BARTEC® couplers and anchor plates conforms to ACI 318 § 7.4.2, ACI 349 § 7.4, ASME Section III Division 2 § CC-4360 and B.S. 5400 Part 7 § 4.5. Weldable couplers furthermore conform to ANSI/AWS D1.1-88 § 3.2.1.

Bartec® couplers and anchor plates can be galvanized or epoxy-coated by any means. Their internal threads must be protected before processing.

Dextra

BARTEC PRODUCT DATASHEET

ULTIMATE SPLICING SYSTEM

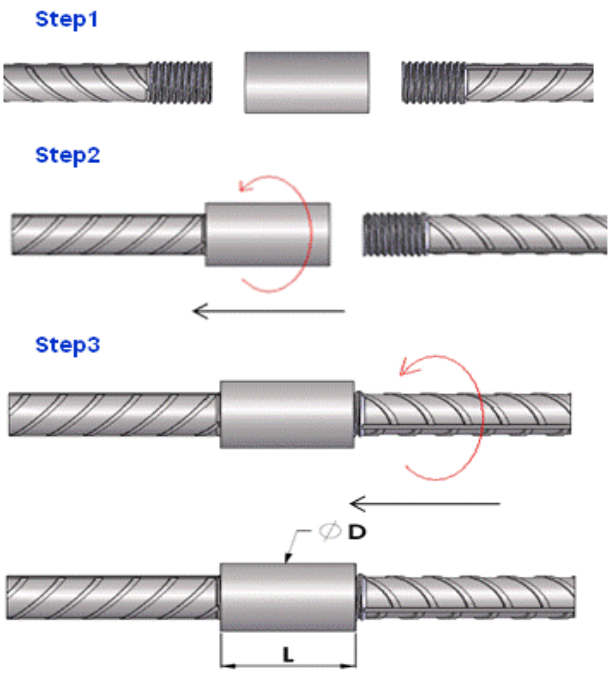
## 2. MECHANICAL SPLICES

The BARTEC® mechanical splice system consists in enlarging the reinforcing bar ends by cold-upsetting prior to threading them. The bars are cut square before the enlarging operation. The combination of the square cutting and the cold-upsetting reduces the length of the bar by approximately 1 ½" to 3" on each end, depending on the bar size. Extra-long threads are used to assist alignment, or when joining bars that cannot be turned. All applications can thus be fulfilled by only one model of coupler, thereby reducing inventory management to a minimum.

Bar end preparation must be done exclusively with machines provided by Dextra. Consult us for technical details of our range of machinery (Please specify the minimum and maximum bar sizes that you need to process).

### STANDARD SPLICES (Type A)

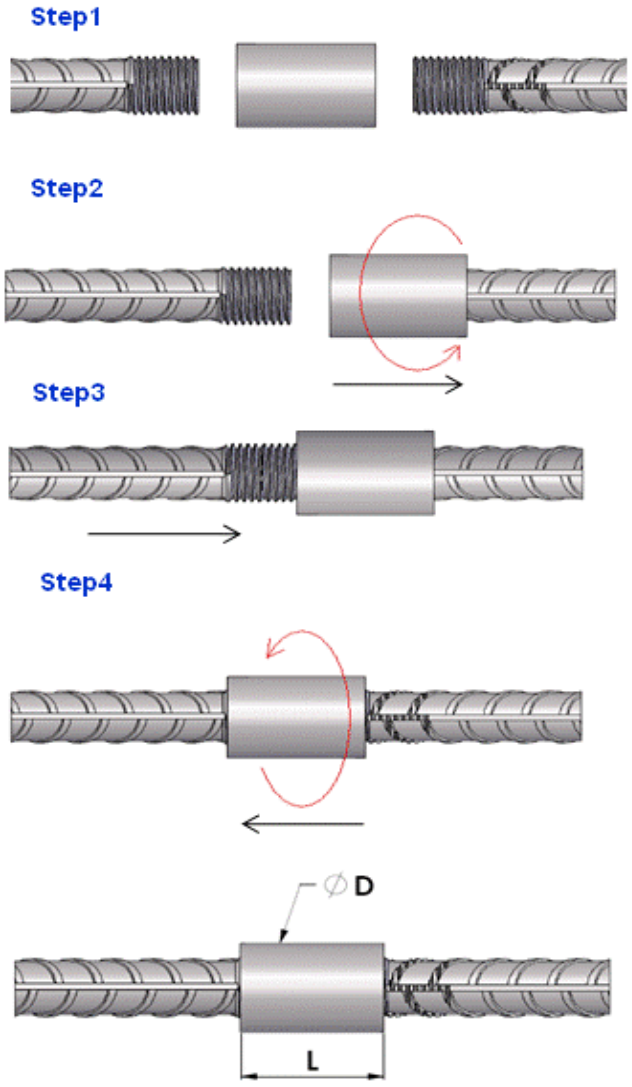
Standard BARTEC® splices are accomplished by use of a standard female coupler matching the thread size made on the bars.




See Assembly instruction n° AI-BT02E.

### POSITION SPLICES (Type B & C)

When both bars would be a burden to rotate, for example because of their size or length, the BARTEC® splice system simply extends the thread onto the deformations of the bar, thereby enabling the coupler to be fully screwed onto it. It is then unscrewed from one bar and back onto the second bar to accomplish the connection.




Position splice type B

See Assembly instruction n° AI-BT03E.

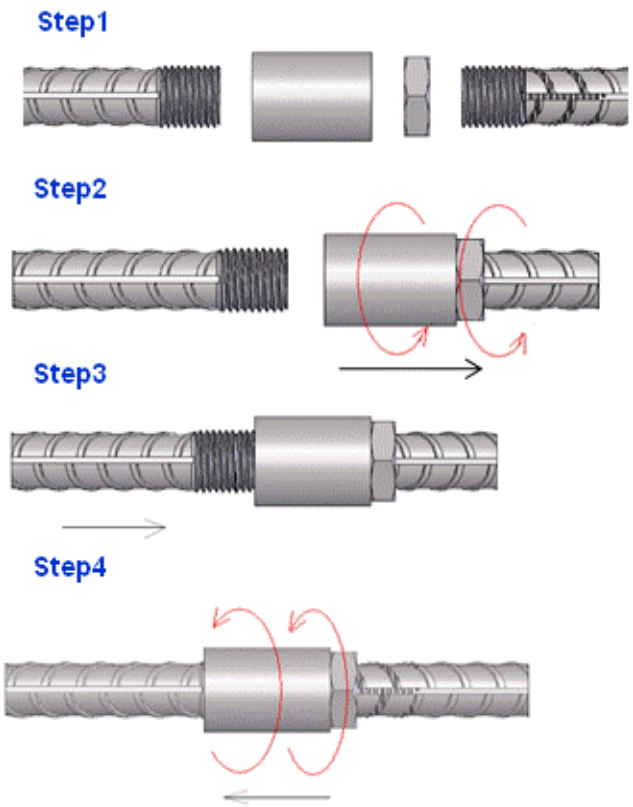
Dextra

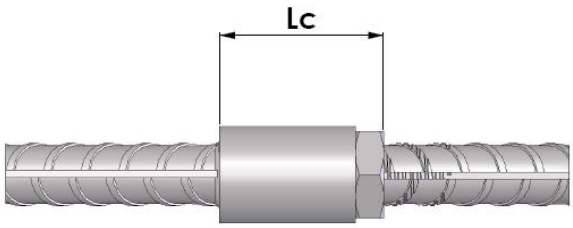
# BARTEC PRODUCT DATASHEET

## ULTIMATE SPLICING SYSTEM

| Bar size | | Model | Product code Bartec® Standard coupler | Outside dimensions | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | D | | LA | | Lc | |
| US | Canada | | | in | mm | in | mm | in | mm |
| #4 | - | B#4 | FPBS0414001 | 15/16" | 24 | 1 1/4" | 32 | 1 9/16" | 39 |
| #5 | 15M | B#5 | FPBS0520001 | 1 1/8" | 28 | 1 3/4" | 45 | 2 1/16" | 53 |
| #6 | 20M | B#6 | FPBS0624001 | 1 1/4" | 32 | 2 1/8" | 54 | 2 1/2" | 64 |
| #7 | - | B#7 | FPBS0727001 | 1 9/16" | 40 | 2 3/8" | 60 | 2 7/8" | 74 |
| #8 | 25M | B#8 | FPBS0830001 | 1 11/16" | 42 | 2 5/8" | 67 | 3 1/8" | 79 |
| #9 | 30M | B#9 | FPBS0933001 | 1 7/8" | 48 | 2 7/8" | 73 | 3 9/16" | 90 |
| #10 | - | B#10 | FPBS1036001 | 2 1/16" | 52 | 3 1/16" | 78 | 3 11/16" | 93 |
| #11 | 35M | B#11 | FPBS1139001 | 2 3/8" | 60 | 3 3/8" | 86 | 4 1/16" | 103 |
| #14 | 45M | B#14 | FPBS1445001 | 2 3/4" | 70 | 3 13/16" | 97 | 4 9/16" | 115 |
| #18 | 55M | B#18 | FPBS1860001 | 3 9/16" | 90 | 5 1/16" | 128 | 6" | 152 |

**Table 1:** Dimensions of Bartec∅ Standard and Position splices




Position splice type C

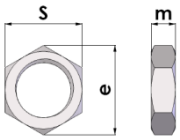
See Assembly instruction n° AI-BT04E.

Type C position splices are type B connections where the thread has been further extended to accommodate a lock nut. They are ideal when the second bar is bent and must be oriented in a specific direction.

Dextra

BARTEC PRODUCT DATASHEET

ULTIMATE SPLICING SYSTEM




**Bartec® lock nuts**

| Bar size | | Model | Product code Bartec® Hexagonal lock nut | Approximate external dimensions | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | e | | s | | m | |
| US | Canada | | | in | mm | in | mm | in | mm |
| #4 | - | LN M14 | FPBL1214001 | 15/16” | 24 | 7/8" | 22 | 1/4” | 7 |
| #5 | 15M | LN M20 | FPBL1620001 | 1 1/16” | 27 | 15/16” | 24 | 5/16” | 8 |
| #6 | 20M | LN M24 | FPBL2024001 | 1 5/16” | 33 | 1 3/16” | 30 | 3/8” | 10 |
| #7 | - | LN M27 | FPBL2227001 | 1 3/4” | 45 | 1 5/8” | 41 | 9/16” | 14 |
| #8 | 25M | LN M30 | FPBL2530001 | 1 9/16" | 40 | 1 7/16” | 36 | 1/2” | 12 |
| #9 | 30M | LN M33 | FPBL2833001 | 2 3/16” | 55 | 2” | 50 | 11/16” | 17 |
| #10 | - | LN M36 | FPBL1036001 | 2” | 51 | 1 13/16” | 46 | 9/16” | 15 |
| #11 | 35M | LN M39 | FPBL3439001 | 2 3/16” | 55 | 2” | 50 | 11/16” | 17 |
| #14 | 45M | LN M45 | FPBL1445001 | 2 7/16” | 61 | 2 3/16” | 55 | 11/16” | 18 |
| #18 | 55M | LN M60 | FPBL1860001 | 3 1/4” | 83 | 2 15/16” | 75 | 15/16” | 24 |

**Table 2:** Dimensions of Bartec∅ Hexagonal Lock Nuts

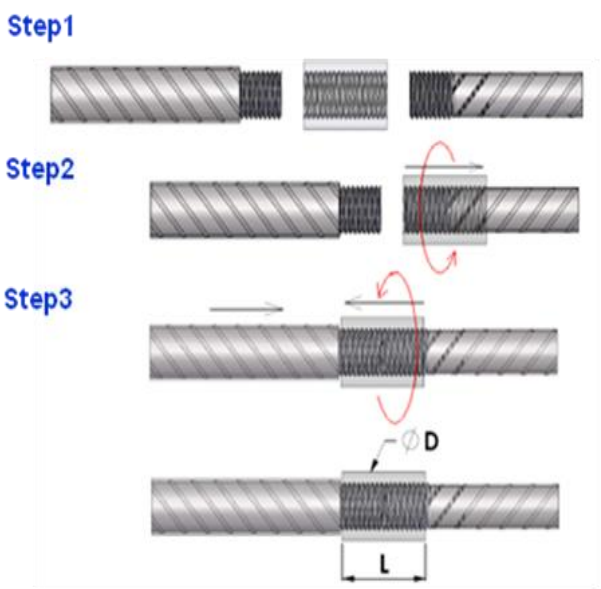
Dextra

# BARTEC PRODUCT DATASHEET

## ULTIMATE SPLICING SYSTEM

### TRANSITION SPLICES

When there is a need to splice bars of different sizes It is allowable in most cases (Ref table 3 below) to reduce the size of the larger bar and to use a standard coupler.



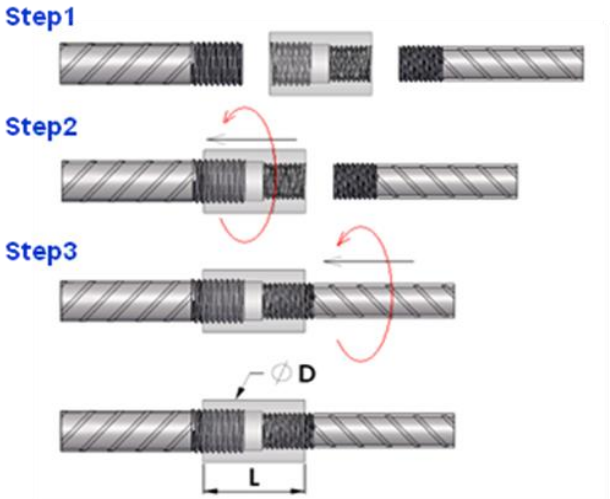

| Transition | Feasibility | Thread |
|---|---|---|
| #5/#4 | OK | M14 on # 5 |
| #7/#5 | | M20 on # 7 |
| #8/#6 | | M24 on # 8 |
| #9/#7 | | M27 on # 9 |
| #10/#8 | | M30 on #10 |
| #11/#9 | | M33 on #11 |
| #6/#5 | NO. The larger bar is not large enough to accommodate the Bartec® thread. Use of a transition coupler is necessary. | |
| #7/#6 | | |
| #8/#7 | | |
| #9/#8 | | |
| #10/#9 | | |
| #11/#10 | | |
| #14/#10 | NO. | |
| #14/#11 | | |
| #18/#11 | | |
| #18/#14 | | |

**Table 3:** Bartec∅ Direct Transitions

Other size combinations are available upon request. Contact us.

However the BARTEC® system also proposes special transition couplers that conveniently avoid the difficult task of planning in advance the need of transitions.

See Assembly instruction n° AI-BT05E.




| Bar size | Model | Product code Bartec® Transition coupler | Approximated external dimensions | | | |
|---|---|---|---|---|---|---|
| | | | D | | L | |
| | | | in | mm | in | mm |
| #5/#4 | TC#5 - #4 | FPBT0504001 | 1 1/8” | 28 | 1 3/4” | 44 |
| #6/#5 | TC#6 - #5 | FPBT0605001 | 1 1/4” | 32 | 2 3/16” | 56 |
| #7/#6 | TC#7 - #6 | FPBT0706001 | 1 9/16” | 40 | 2 7/16” | 61 |
| #8/#5 | TC#8 - #5 | FPBT0805001 | 1 11/16” | 42 | 2 1/2” | 64 |
| #8 #6 | TC#8 - #6 | FPBT0806001 | 1 11/16” | 42 | 2 11/16” | 68 |
| #8/#7 | TC#8 - #7 | FPBT0807001 | 1 11/16” | 42 | 2 13/16” | 71 |
| #9/#5 | TC#9 - #5 | FPBT0905001 | 1 7/8” | 48 | 2 5/8” | 67 |
| #9/#6 | TC#9 - #6 | FPBT0906001 | 1 7/8” | 48 | 2 13/16” | 71 |
| #9/#7 | TC#9 - #7 | FPBT0907001 | 1 7/8” | 48 | 2 15/16” | 74 |
| #9/#8 | TC#9 - #8 | FPBT0908001 | 1 7/8” | 48 | 3 1/16” | 77 |
| #10/#5 | TC#10 - #5 | FPBT1005001 | 2 1/16” | 52 | 2 11/16” | 68 |
| #10/#6 | TC#10 - #6 | FPBT1006001 | 2 1/16” | 52 | 2 13/16” | 72 |
| #10/#7 | TC#10 - #7 | FPBT1007001 | 2 1/16” | 52 | 2 15/16” | 75 |
| #10/#8 | TC#10 - #8 | FPBT1008001 | 2 1/16” | 52 | 3 1/16” | 78 |
| #10/#9 | TC#10 - #9 | FPBT1009001 | 2 1/16” | 52 | 3 3/16” | 81 |
| #11/#5 | TC#11 - #5 | FPBT1105001 | 2 3/8” | 60 | 2 15/16” | 75 |
| #11/#6 | TC#11 - #6 | FPBT1106001 | 2 3/8” | 60 | 3 1/8” | 79 |
| #11/#7 | TC#11 - #7 | FPBT1107001 | 2 3/8” | 60 | 3 1/4” | 82 |
| #11/#8 | TC#11 - #8 | FPBT1108001 | 2 3/8” | 60 | 3 3/8” | 85 |
| #11/#9 | TC#11 - #9 | FPBT1109001 | 2 3/8” | 60 | 3 1/2” | 88 |
| #11/#10 | TC#11 - #10 | FPBT1110001 | 2 3/8” | 60 | 3 9/16” | 91 |
| #14/ #9 | TC#14 - #9 | FPBT1409001 | 2 3/4” | 70 | 3 5/8” | 92 |
| #14/#10 | TC#14 - #10 | FPBT1410001 | 2 3/4” | 70 | 3 3/4” | 95 |
| #14/#11 | TC#14 - #11 | FPBT1411001 | 2 3/4” | 70 | 3 7/8” | 98 |
| #18/#11 | TC#18 - #11 | FPBT1811001 | 3 9/16” | 90 | 4 9/16” | 115 |
| #18/#14 | TC#18 - #14 | FPBT1814001 | 3 9/16” | 90 | 4 3/4” | 121 |

**Table 4:** Dimensions of Bartec∅ Transition couplers

Dextra

**BARTEC PRODUCT DATASHEET**

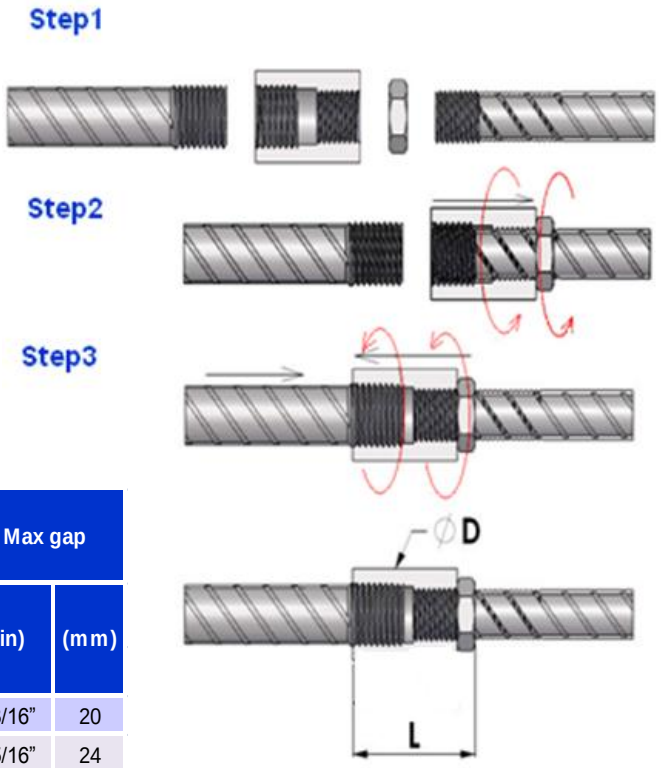
**ULTIMATE SPLICING SYSTEM**

## POSITION-TRANSITION SPLICES

BARTEC® Position-Transition couplers are the solution to connect bars of different sizes that both cannot be rotated.

The principle is similar to the position splices, but the Position-Transition coupler is longer than the Transition coupler, as it can bridge a gap when the two bars cannot be brought in butt-to-butt contact. The gap between the two bar ends should not exceed the values in table 6.

See Assembly instruction n° AI-BT15E




| Bar size | Model | Product code Bartec® Position Transition coupler | Approximated external dimensions | | | | Max gap | |
|---|---|---|---|---|---|---|---|---|
| | | | D | | L | | (in) | (mm) |
| | | | in | mm | in | mm | | |
| #5/#4 | PT#5-#4 | FPBP0504001 | 1 1/8” | 28 | 2 1/8” | 54 | 13/16” | 20 |
| #6/#5 | PT#6-#5 | FPBP0605001 | 1 1/4” | 32 | 2 11/16” | 68 | 15/16” | 24 |
| #7/#6 | PT#7-#6 | FPBP0706001 | 1 9/16” | 40 | 3 1/16” | 78 | 1 1/16” | 27 |
| #8/#5 | PT#8-#5 | FPBP0805001 | 1 11/16” | 42 | 3 3/16” | 80 | 1 3/16” | 30 |
| #8/#6 | PT#8-#6 | FPBP0806001 | 1 11/16” | 42 | 3 5/16” | 84 | 1 3/16” | 30 |
| #8/#7 | PT#8-#7 | FPBP0807001 | 1 11/16” | 42 | 3 7/16” | 87 | 1 3/16” | 30 |
| #9/#5 | PT#9-#5 | FPBP0905001 | 1 7/8” | 48 | 3 3/8” | 86 | 1 5/16” | 33 |
| #9/#6 | PT#9-#6 | FPBP0906001 | 1 7/8” | 48 | 3 9/16” | 90 | 1 5/16” | 33 |
| #9/#7 | PT#9-#7 | FPBP0907001 | 1 7/8” | 48 | 3 11/16” | 93 | 1 5/16” | 33 |
| #9/#8 | PT#9-#8 | FPBP0908001 | 1 7/8” | 48 | 3 13/16” | 96 | 1 5/16” | 33 |
| #10/#5 | PT#10-#5 | FPBP1005001 | 2 1/16” | 52 | 3 5/8” | 92 | 1 7/16” | 36 |
| #10/#6 | PT#10-#6 | FPBP1006001 | 2 1/16” | 52 | 3 13/16” | 96 | 1 7/16” | 36 |
| #10/#7 | PT#10-#7 | FPBP1007001 | 2 1/16” | 52 | 3 7/8” | 99 | 1 7/16” | 36 |
| #10/#8 | PT#10-#8 | FPBP1008001 | 2 1/16” | 52 | 4” | 102 | 1 7/16” | 36 |
| #10/#9 | PT#10-#9 | FPBP1009001 | 2 1/16” | 52 | 4 1/8” | 105 | 1 7/16” | 36 |
| #11/#5 | PT#11-#5 | FPBP1105001 | 2 3/8” | 60 | 3 7/8” | 98 | 1 9/16” | 39 |
| #11/#6 | PT#11-#6 | FPBP1106001 | 2 3/8” | 60 | 4” | 102 | 1 9/16” | 39 |
| #11/#7 | PT#11-#7 | FPBP1107001 | 2 3/8” | 60 | 4 1/8” | 105 | 1 9/16” | 39 |
| #11/#8 | PT#11-#8 | FPBP1108001 | 2 3/8” | 60 | 4 1/4” | 108 | 1 9/16” | 39 |
| #11/#9 | PT#11-#9 | FPBP1109001 | 2 3/8” | 60 | 4 3/8” | 111 | 1 9/16” | 39 |
| #11/#10 | PT#11-#10 | FPBP1110001 | 2 3/8” | 60 | 4 1/2” | 114 | 1 9/16” | 39 |
| #14/#9 | PT#14-#9 | FPBP1409001 | 2 3/4” | 70 | 4 7/8” | 123 | 1 3/4” | 45 |
| #14/#10 | PT#14-#10 | FPBP1410001 | 2 3/4” | 70 | 4 15/16” | 126 | 1 3/4” | 45 |
| #14/#11 | PT#14-#11 | FPBP1411001 | 2 3/4” | 70 | 5 1/16” | 129 | 1 3/4” | 45 |
| #18/#11 | PT#18-#11 | FPBP1811001 | 3 9/16” | 90 | 6 1/4” | 159 | 2 3/8” | 60 |
| #18/#14 | PT#18-#14 | FPBP1814001 | 3 9/16” | 90 | 6 1/2” | 165 | 2 3/8” | 60 |

**Table 5:** Dimensions of Bartec∅ Position-Transition couplers

Dextra

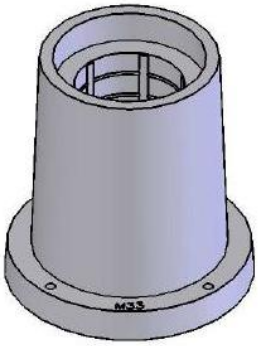
BARTEC PRODUCT DATASHEET

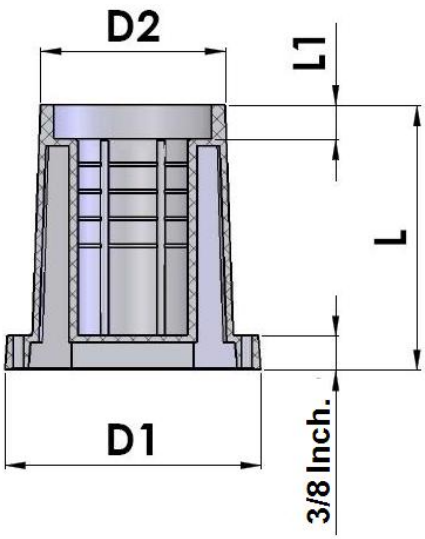
ULTIMATE SPLICING SYSTEM

## POCKET FORMERS

Pocket formers are plastic accessories that fit the threads of BARTEC® bars in order to form a reservation in the concrete. They can be nailed to a wooden formwork through the holes in their flange.

Simple extraction tools are available : Contact us.






It is advisable to apply a mould-release agent to the pocket formers prior to concreting. Simply use the same agent as for the formworks.

| Bar size | | Model | Product code Pocket formers | Approximate external dimensions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | D1 | | D2 | | L | | L1 | |
| US | Canada | | | in | mm | in | mm | in | mm | in | mm |
| #5 | 15M | PFM20 | FPPF1620001 | 2 5/8" | 67 | 1 13/16" | 46 | 2 1/2" | 64 | 1/4" | 6 |
| #8 | 25M | PFM30 | FPPF2530001 | 3" | 76 | 2 3/16" | 55 | 3 1/16" | 78 | 3/8" | 10 |
| #10 | - | PFM36 | FPPF3236001 | 3 9/16" | 91 | 2 13/16" | 71 | 3 1/4" | 82 | 3/8" | 10 |
| #14 | 45M | PFM45 | FPPF4045001 | 4 1/16" | 103 | 3 1/4" | 82 | 3 1/4" | 82 | 3/8" | 10 |

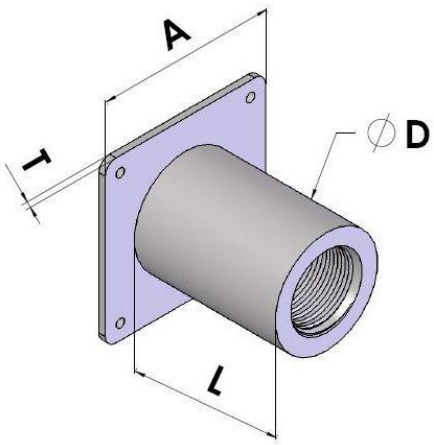
**Table 6** : Dimensions of Pocket formers

**FORM FIXERS**

Form fixers are standard couplers fitted with a square flange that can be nailed to a wooden formwork to facilitate positioning of reinforcement. It may be tack- welded, pressed or clipped to the coupler.

The connection between the coupler and the flange is not structural.

They are available for bar diameters # 4 through #11.




| Bar size | | Model | Product code Bartec® Form fixer | Approximate external dimensions | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | | D | | L | | T | |
| US | Canada | | | in | mm | in | mm | in | mm | in | mm |
| #4 | - | BF#4 | FPBO1214001 | 2 3/8" | 60 | 13/16" | 20 | 1 1/8" | 28 | 1/16" | 2 |
| #5 | 15M | BF#5 | FPBO1620001 | 2 3/8" | 60 | 1 1/8" | 28 | 1 9/16" | 40 | 1/16" | 2 |
| #6 | 20M | BF#6 | FPBO2024001 | 2 3/8" | 60 | 1 3/8" | 34 | 1 7/8" | 48 | 1/16" | 2 |
| #7 | - | BF#7 | FPBO2227001 | 2 3/8" | 60 | 1 7/16" | 36 | 2 1/8" | 54 | 1/16" | 2 |
| #8 | 25M | BF#8 | FPBO2530001 | 2 3/8" | 60 | 1 11/16" | 42 | 2 3/8" | 60 | 1/16" | 2 |
| #9 | 30M | BF#9 | FPBO2833001 | 2 15/16" | 75 | 1 7/8" | 48 | 2 5/8" | 66 | 1/8" | 3 |
| #10 | - | BF#10 | FPBO1036001 | 2 15/16" | 75 | 2 1/16" | 52 | 3 1/16" | 78 | 1/8" | 3 |
| #11 | 35M | BF#11 | FPBO3439001 | 2 15/16" | 75 | 2 3/8" | 60 | 3 1/16" | 78 | 1/8" | 3 |

**Table 7:** Dimensions of Bartec∅ Form fixers

Dextra

BARTEC PRODUCT DATASHEET

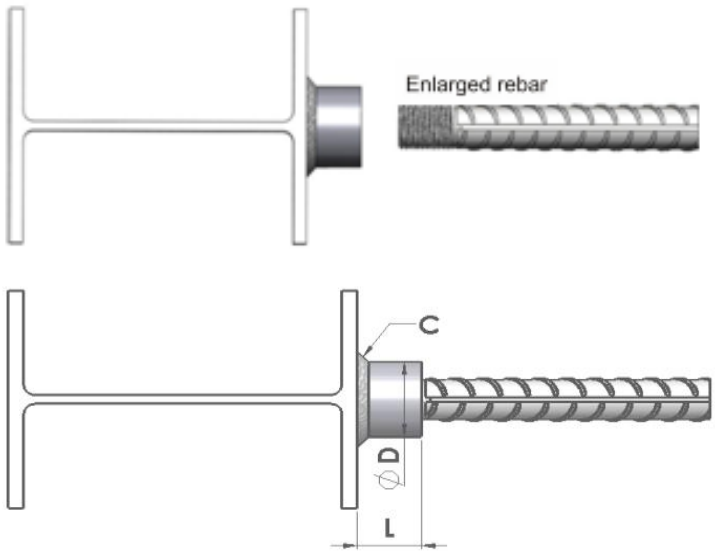
ULTIMATE SPLICING SYSTEM

**WELDABLE COUPLERS**

For composite construction where concrete reinforcement bars must be welded to a steel structure, BARTEC® weldable couplers must be used.

This is a nut made of weldable-grade steel that bears a large chamfer suitable for single bevel butt welding.

See Assembly instruction n° AI-CW01E.




| Bar size | | Model | Product code Bartec® Weldable coupler | Approximate external dimensions | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | D | | L | | C | |
| US | Canada | | | in | mm | in | mm | in | mm |
| #4 | - | WC M14 | FPWC1214001 | 7/8” | 22 | 5/8” | 16 | 1/8” | 3 |
| #5 | 15M | WC M20 | FPWC1620001 | 1” | 25 | 15/16” | 23 | 3/16” | 4 |
| #6 | 20M | WC M24 | FPWC2024001 | 1 1/4” | 32 | 1 1/16” | 27 | 3/16” | 5 |
| #7 | - | WC M27 | FPWC2227001 | 1 1/4” | 32 | 1 3/16” | 30 | 1/4” | 6 |
| #8 | 25M | WC M30 | FPWC2530001 | 1 9/16” | 40 | 1 3/8” | 34 | 1/4” | 6 |
| #9 | 30M | WC M33 | FPWC2833001 | 1 3/4” | 45 | 1 7/16” | 37 | 5/16” | 8 |
| #10 | - | WC M36 | FPWC1036001 | 2” | 50 | 1 9/16” | 39 | 5/16” | 8 |
| #11 | 35M | WC M39 | FPWC3439001 | 2 1/4” | 57 | 1 11/16” | 43 | 5/16” | 8 |
| #14 | 45M | WC M45 | FPWC1445001 | 2 1/2” | 64 | 1 15/16” | 49 | 1/2” | 12 |
| #18 | 55M | WC M60 | FPWC1860001 | 3 9/16” | 90 | 2 3/4” | 70 | 9/16” | 14 |

**Table 8:** Dimensions of Bartec∅ weldable couplers

Dextra

BARTEC PRODUCT DATASHEET

ULTIMATE SPLICING SYSTEM

## STAINLESS STEEL COUPLERS

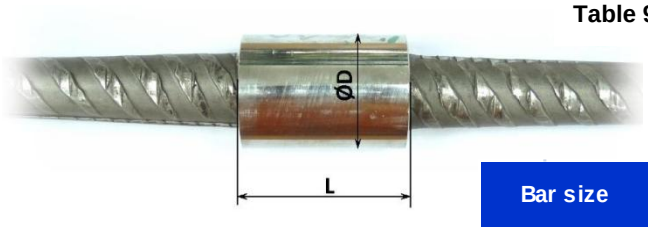
BARTEC® US stainless steel couplers, made of grade S31803 (2205) as per ASTM A276 are designed to splice ASTM A955 grade 60 stainless steel reinforcement bars.

BARTEC® austenitic stainless steel couplers are made of grade S316L or 431 as per ASTM A276.
BARTEC® duplex stainless steel couplers are made of grade S31803 (2205) as per ASTM A276.

Stainless steel bars and couplers should be handled with care. Refer to specific instructions in our Bar End Preparation Quality Manual.

| Bar size | | Model | Product code Bartec® Austenitic Stainless steel | Approximated external dimensions | | | |
|---|---|---|---|---|---|---|---|
| | | | | D | | L | |
| US | Canada | | | in | mm | in | mm |
| #4 | - | BAS14 | FPSB1214003 | 15/16” | 24 | 1 1/8” | 28 |
| #5 | 15M | BAS20 | FPSB1620003 | 1 3/16” | 30 | 1 9/16” | 40 |
| #6 | 20M | BAS24 | FPSB2024003 | 1 3/8” | 35 | 1 7/8” | 48 |
| #7 | - | BAS27 | FPSB2227003 | 1 9/16” | 40 | 2 1/8” | 54 |
| #8 | 25M | BAS30 | FPSB2530003 | 1 3/4” | 45 | 2 3/8” | 60 |
| #9 | 30M | BAS33 | FPSB2833003 | 2” | 50 | 2 5/8” | 66 |
| #10 | - | BAS36 | FPSB3236003 | 2 3/16” | 55 | 2 13/16” | 72 |
| #11 | 35M | BAS42 | FPSB3642003 | 2 9/16” | 65 | 3 5/16” | 84 |
| #14 | 45M | BAS48 | FPSB4348003 | 2 15/16” | 75 | 3 13/16” | 96 |

**Table 9** : Dimensions of Bartec Austenitic stainless steel couplers




| Bar size | | Model | Product code Bartec® Duplex Stainless steel | Approximated external dimensions | | | |
|---|---|---|---|---|---|---|---|
| | | | | D | | L | |
| US | Canada | | | in | mm | in | mm |
| #4 | - | BDS14 | FPSB1214002 | 13/16” | 20 | 1 1/8” | 28 |
| #5 | 15M | BDS20 | FPSB1620002 | 1 1/8” | 28 | 1 9/16” | 40 |
| #6 | 20M | BDS24 | FPSB2024002 | 1 3/8” | 34 | 1 7/8” | 48 |
| #7 | - | BDS27 | FPSB2227002 | 1 1/2" | 38 | 2 1/8” | 54 |
| #8 | 25M | BDS30 | FPSB2530002 | 1 9/16” | 40 | 2 3/8” | 60 |
| #9 | 30M | BDS33 | FPSB2833002 | 1 3/4” | 45 | 2 5/8” | 66 |
| #10 | - | BDS36 | FPSB3236002 | 2” | 50 | 2 13/16” | 72 |
| #11 | 35M | BDS42 | FPSB3642002 | 2 1/4” | 57 | 3 5/16” | 84 |
| #14 | 45M | BDS48 | FPSB4348002 | 2 3/4” | 70 | 3 13/16” | 96 |

**Table 10** : Dimensions of Bartec Duplex stainless steel couplers

## CRYOGENIC COUPLERS

For the splicing of cryogenic reinforcing bars, Bartec® austenitic stainless steel couplers are recommended.

## 3. HEADED BARS

Development of reinforcement is the main use of headed bars : They conveniently replace hooked bars as end anchorages in congested areas. They can also be used to reduce lapping length, or as confinement or shear reinforcement where placing of stirrups is difficult.

Typical applications include exterior beam-column connections, roof corners, pile feet, pile caps, cantilevered members, corbels, etc.

Just like hooked bars, headed bars provide end anchorage by a combination of bond and end bearing on the concrete. But headed bars bond better with the concrete because, for a given embedment length, the straight portion of a headed bar is longer than that of a hook, due to the bending radius of the hook. Under cyclic loading headed bars therefore display a smaller slip relative to the concrete than hooked bars do.

Bartec® Standard mechanical anchorages are circular in shape. Two sizes of heads are proposed. Other head sizes can be manufactured upon request to fit the application requirements.

The small heads, with a net bearing area of four times the cross-section area of the reinforcing bar, work with a combination of head bearing capacity and bond. The minimum anchorage length required to provide the bond must be computed according to the code provisions by the structural engineer, depending on the grade of reinforcement and the class of concrete. Again, due to the absence of a bending radius, the development length of a headed bar is typically shorter than that of a hook.

The large heads, with a net bearing area of nine times the cross-section area of the reinforcing bar, are designed to develop the yield strength of the bars The structural engineer must verify the bearing strength according to the code provisions. If the concrete strength is insufficient, stirrups can be added to confine the concrete beneath the head.

Heads larger than four times the cross-section area of the reinforcing bar allow designs where the critical section is closer to the head than the development length would allow.

The embedment length should however not be less than 8 times the bar diameter or 6”, whichever is greater.

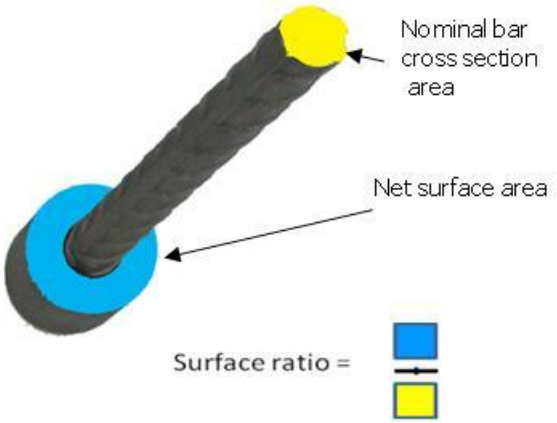
In beam-column connections, headed bars in beam reinforcement should extend to the far side of the column core. In roof corners, the column heads should be located above the beam bars. In both cases this detailing arrangement will provide space for an additional layer of transverse reinforcement, which will further improve the capacity of the anchorage.

Headed bars can be arranged close to one another : the clear spacing between two bars should not be less than 4 times the bar diameter. Tests have shown that the overlapping of compression cones does not reduce the effectiveness of the anchorage.

For applications in seismic design, or whenever stress reversal can be expected, the development length in compression should be checked too. Full-scale cyclic tests of beam-column connections reinforced with headed bars have shown that push-out of the concrete behind the head does not occur until a drift ratio of 6%.

Consult us for more information. The information that should be provided with the enquiry is : the application, the governing code, the reinforcing bar grade and diameter, the concrete compressive strength, the bar spacing and the concrete cover.

See Assembly instruction n° AI-BT12E.



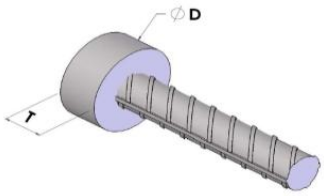
Dextra

# BARTEC PRODUCT DATASHEET

## ULTIMATE SPLICING SYSTEM

| Bar size | | Model | Product code Bartec® Small anchor plate | Approximate external dimensions Small round head | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ∅D | | T | | Net surface area | | Surface ratio | |
| US | Canada | | | in | mm | in | mm | $in^2$ | mm | $in^2$ | mm |
| #4 | - | BEASC#4 | FPEC1214003 | 1 3/16” | 30 | 9/16” | 14 | 0.86 | 553 | 0.21 | 4.29 |
| #5 | 15M | BEASC#5 | FPEC1620003 | 1 1/2” | 38 | 13/16” | 20 | 1.27 | 820 | 0.32 | 4.12 |
| #6 | 20M | BEASC#6 | FPEC0624003 | 1 3/4” | 45 | 15/16” | 24 | 1.76 | 1,138 | 0.44 | 4.01 |
| #7 | - | BEASC#7 | FPEC2227003 | 2 1/16” | 52 | 1 1/16” | 27 | 2.40 | 1,551 | 0.60 | 4.01 |
| #8 | 25M | BEASC#8 | FPEC2530003 | 2 3/8” | 60 | 1 3/16” | 30 | 3.29 | 2,121 | 0.82 | 4.16 |
| #9 | 30M | BEASC#9 | FPEC2833003 | 2 3/4” | 70 | 1 5/16” | 33 | 4.64 | 2,993 | 1.16 | 4.64 |
| #10 | - | BEASC#10 | FPEC1036003 | 2 15/16” | 75 | 1 7/16” | 36 | 5.27 | 3,400 | 1.32 | 4.15 |
| #11 | 35M | BEASC#11 | FPEC1139003 | 3 3/8” | 85 | 1 9/16” | 39 | 6.94 | 4,480 | 1.74 | 4.45 |
| #14 | 45M | BEASC#14 | FPEC1445003 | 3 15/16” | 100 | 1 3/4” | 45 | 9.71 | 6,264 | 2.43 | 4.31 |
| #18 | 55M | BEASC#18 | FPEC1860003 | 5 1/8” | 130 | 2 3/8” | 60 | 16.19 | 10,446 | 4.05 | 4.05 |

**Table 11:** Dimensions of Bartec∅ Small Mechanical Anchorages
(Net bearing area at least 4 times the nominal cross-section area of the bar)




| Bar size | | Model | Product code Bartec® Large anchor plate | Approximated external dimensions Large round head | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ØD | | T | | Net surface area | | Surface ratio | |
| US | Canada | | | in | mm | in | mm | $in^2$ | mm | $in^2$ | mm |
| #4 | - | BEALC#4 | FPEC0414001 | 1 11/16” | 42 | 9/16” | 14 | 1.91 | 1,232 | 0.51 | 9.55 |
| #5 | 15M | BEALC#5 | FPEC0520001 | 2 1/16” | 52 | 13/16” | 20 | 2.80 | 1,810 | 0.75 | 9.09 |
| #6 | 20M | BEALC#6 | FPEC0624001 | 2 9/16” | 65 | 15/16” | 24 | 4.44 | 2,866 | 1.19 | 10.09 |
| #7 | - | BEALC#7 | FPEC0727001 | 2 15/16” | 75 | 1 1/16” | 27 | 5.96 | 3,845 | 1.60 | 9.94 |
| #8 | 25M | BEALC#8 | FPEC0830001 | 3 3/8” | 85 | 1 3/16” | 30 | 7.70 | 4,968 | 2.07 | 9.74 |
| #9 | 30M | BEALC#9 | FPEC0933001 | 3 3/4” | 95 | 1 5/16” | 33 | 9.66 | 6,233 | 2.60 | 9.66 |
| #10 | - | BEALC#10 | FPEC1036001 | 4 1/8” | 105 | 1 7/16” | 36 | 11.84 | 7,641 | 3.18 | 9.33 |
| #11 | 35M | BEALC#11 | FPEC1139001 | 4 9/16” | 115 | 1 9/16” | 39 | 14.25 | 9,192 | 3.83 | 9.14 |
| #14 | 45M | BEALC#14 | FPEC1445001 | 5 1/2” | 140 | 1 3/4” | 45 | 21.40 | 13,803 | 5.75 | 9.51 |
| #18 | 55M | BEALC#18 | FPEC1860001 | 7 5/16” | 185 | 2 3/8” | 60 | 37.28 | 24,053 | 10.02 | 9.32 |

**Table 12:** Dimensions of Bartec∅ Large Mechanical Anchorages
(Net bearing area at least 9 times the nominal cross-section area of the bar)

Dextra

BARTEC PRODUCT DATASHEET

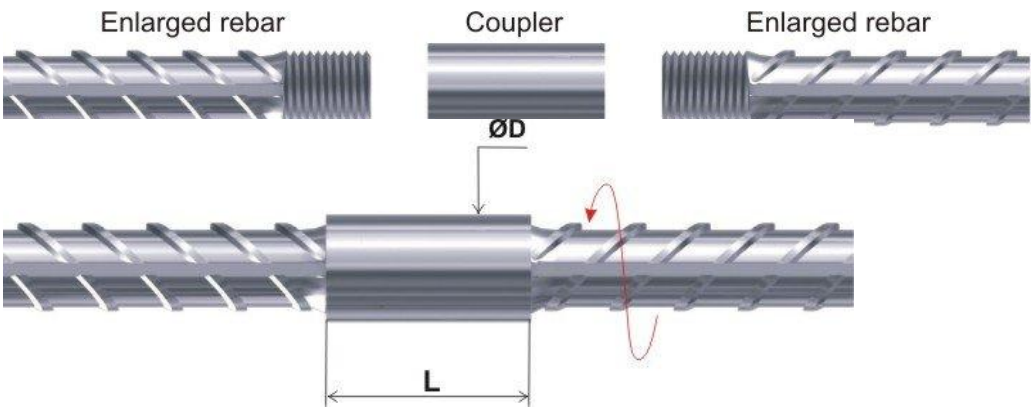
ULTIMATE SPLICING SYSTEM

## COUPLERS AND END ANCHORS FOR HIGH-STRENGTH BARS

Grade 100 ASTM A1035 reinforcing bars can be mechanically spliced or made as headed bars with this specific product range. Their design ensures that failure under tensile load will occur away from the splice or head, as recommended by ACI ITG6 design guideline.

| Bar size | | Model | Product code Bartec® Standard coupler | Outside dimensions | | | |
|---|---|---|---|---|---|---|---|
| | | | | ∅D | | L | |
| US | Canada | | | in | mm | in | mm |
| #4 | - | B#4 | FPBM0414001 | 1" | 25 | 2 3/16" | 56 |
| #5 | 15M | B#5 | FPBM0520001 | 1 3/16" | 30 | 2 5/16" | 59 |
| #6 | 20M | B#6 | FPBM0624001 | 1 3/8" | 35 | 2 13/16" | 72 |
| #7 | - | B#7 | FPBM0727001 | 1 9/16" | 40 | 2 13/16" | 72 |
| #8 | 25M | B#8 | FPBM0830001 | 1 3/4" | 44.5 | 3 5/16" | 84 |
| #9 | 30M | B#9 | FPBM0933001 | 1 7/8" | 48 | 2 5/16" | 84 |
| #10 | - | B#10 | FPBM1036001 | 2 3/16" | 56 | 3 9/16" | 90 |
| #11 | 35M | B#11 | FPBM1142001 | 2 7/16" | 62 | 3 15/16" | 100 |
| #14 | 45M | B#14 | FPBM1448001 | 3 1/4" | 83 | 4 3/4" | 120 |
| #18 | 55M | B#18 | FPBM1859001 | 3 3/4" | 95 | 5 15/16" | 150 |

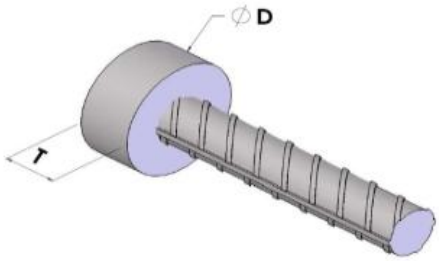
**Table 13:** Dimensions of Bartec∅ couplers for high-strength bars



Dextra

# BARTEC PRODUCT DATASHEET

## ULTIMATE SPLICING SYSTEM




| Bar size | | Model | Product code Bartec® Small anchor plate | Approximate external dimensions -- Small round head | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ∅D | | T | | Net surface area | | Surface ratio | |
| US | Canada | | | in | mm | in | mm | $in^2$ | mm | $in^2$ | mm |
| #4 | - | #4 | FPEC0414005 | 1 3/16” | 30 | 1 1/8” | 28 | 0.86 | 553 | 0.21 | 4.29 |
| #5 | 15M | #5 | FPEC0520005 | 1 1/2” | 38 | 1 3/16” | 30 | 1.27 | 820 | 0.32 | 4.12 |
| #6 | 20M | #6 | FPEC0624005 | 1 3/4” | 45 | 1 7/16” | 36 | 1.76 | 1,138 | 0.44 | 4.01 |
| #7 | - | #7 | FPEC0727005 | 2 1/16” | 52 | 1 7/16” | 36 | 2.40 | 1,551 | 0.60 | 4.01 |
| #8 | 25M | #8 | FPEC0830005 | 2 3/8” | 60 | 1 11/16” | 42 | 3.29 | 2,121 | 0.82 | 4.16 |
| #9 | 30M | #9 | FPEC0933005 | 2 3/4” | 70 | 1 11/16” | 42 | 4.64 | 2,993 | 1.16 | 4.64 |
| #10 | - | #10 | FPEC1036005 | 2 15/16” | 75 | 1 3/4” | 45 | 5.27 | 3,400 | 1.32 | 4.15 |
| #11 | 35M | #11 | FPEC1142005 | 3 3/8” | 85 | 2” | 50 | 6.65 | 4,289 | 1.66 | 4.21 |
| #14 | 45M | #14 | FPEC1448005 | 3 15/16” | 100 | 2 3/8” | 60 | 9.37 | 6,044 | 2.34 | 4.16 |
| #18 | 55M | #18 | FPEC1859005 | 5 1/8” | 130 | 2 15/16” | 75 | 16.34 | 10,539 | 4.08 | 4.08 |

**Table 14:** Dimensions of Bartec∅ Small Mechanical Anchorages for A1035 high-strength reinforcing bars
(Net bearing area at least 4 times the nominal cross-section area of the bar)

| Bar size | | Model | Product code Bartec® Large anchor plate | Approximate external dimensions -- Large round head | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ØD | | T | | Net surface area | | Surface ratio | |
| US | Canada | | | in | mm | in | mm | $in^2$ | mm | $in^2$ | mm |
| #4 | - | #4 | FPEC0414006 | 1 11/16” | 42 | 1 1/8” | 28 | 1.91 | 1,232 | 0.51 | 9.55 |
| #5 | 15M | #5 | FPEC0520006 | 2 1/16” | 52 | 1 3/16” | 30 | 2.80 | 1,810 | 0.75 | 9.09 |
| #6 | 20M | #6 | FPEC0624006 | 2 9/16” | 65 | 1 7/16” | 36 | 4.44 | 2,866 | 1.19 | 10.09 |
| #7 | - | #7 | FPEC0727006 | 2 15/16” | 75 | 1 7/16” | 36 | 5.96 | 3,845 | 1.60 | 9.94 |
| #8 | 25M | #8 | FPEC0830006 | 3 3/8” | 85 | 1 11/16” | 42 | 7.70 | 4,968 | 2.07 | 9.74 |
| #9 | 30M | #9 | FPEC0933006 | 3 3/4” | 95 | 1 11/16” | 42 | 9.66 | 6,233 | 2.60 | 9.66 |
| #10 | - | #10 | FPEC1036006 | 4 1/8” | 105 | 1 3/4” | 45 | 11.84 | 7,641 | 3.18 | 9.33 |
| #11 | 35M | #11 | FPEC1142006 | 4 3/4” | 120 | 2” | 50 | 15.38 | 9,924 | 4.13 | 9.75 |
| #14 | 45M | #14 | FPEC1448006 | 5 1/2” | 140 | 2 3/8” | 60 | 21.06 | 13,584 | 5.66 | 9.35 |
| #18 | 55M | #18 | FPEC1859006 | 7 5/16” | 185 | 2 15/16” | 75 | 37.43 | 24,146 | 10.06 | 9.36 |

**Table 15:** Dimensions of Bartec∅ Large Mechanical Anchorages for A1035 high-strength reinforcing bars
(Net bearing area at least 9 times the nominal cross-section area of the bar)

## 4. BAR ENDS PREPARATION

Reinforcing bars are individually prepared by having a BARTEC® thread made on one or both of their ends by a Dextra machine. The machine is preferably installed at a fabricator's workshop. Bar end preparation instructions provided by Dextra must be followed.

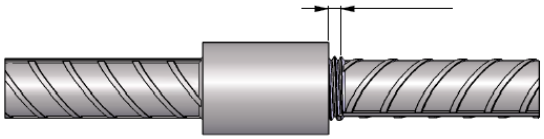
## 5. INSTALLATION

The mechanical connection is achieved by screwing the coupler onto one bar, and then screwing in the second bar. Contrary to taper threads, no torque wrench is necessary, and mis-assembly by crossing threads is impossible. Assembly instructions provided by Dextra must be followed. Isometric parallel threads have equal resistance in tension and compression.

Therefore the tensile performance of the BARTEC® splice will not be affected if the two bars are not in butt-to-butt contact. Since the safety ratio on the thread engagement length is designed to be at least two pitches, a gap between both bars is admissible.

Visual inspection of the splice is easily accomplished :

*Maximum 2 pitches visible outside the coupler*



Bar that is not properly aligned may still be connected if this misalignment is within reasonable limits, depending on the length of bar and on their stiffness.

Large bars must always be properly aligned.

| Bar size | Approximate admissible misalignment (mm) | |
|---|---|---|
| | Bars < 6 mm | Bars >= 6 mm |
| #4 to #5 | 10 | 18 |
| #6 to #7 | 10 | 15 |
| #8 to #9 | 8 | 15 |
| #10 to #14 | 5 | 0 |

**Table 16 :** Approximate admissible misalignment

## 6. COLOR IDENTIFICATION

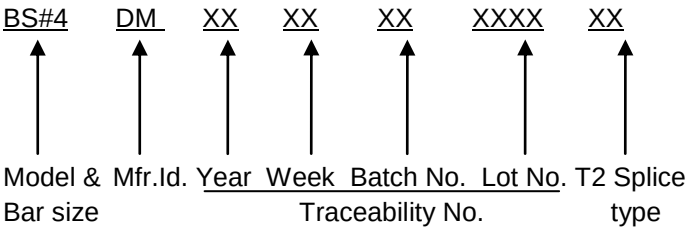
The plastic caps that protect the threads of BARTEC® couplers are colored to enable a quick identification of the bar size and prevent miss-matching of threads:

| Bar size | | Thread size | Color |
|---|---|---|---|
| US | Canada | | |
| #4 | - | M14x2.0 | Yellow |
| #5 | 15M | M20x2.5 | Lavender |
| #6 | 20M | M24x3.0 | Orange |
| #7 | - | M27x3.0 | Red |
| #8 | 25M | M30x3.5 | Clear |
| #9 | 30M | M33x3.5 | Brown |
| #10 | - | M36x3.0 | Pink |
| #11 | 35M | M39x4.0 | Yellow |
| #14 | 45M | M45x3.5 | Blue |
| #18 | 55M | M60x4.0 | Black |

**Table 17 :** Color of plastic caps

## 7. IDENTIFICATION & TRACEABILITY

Each connection is marked with the following symbols that enable to trace it back to each raw material and production batch data. Marking on coupler circumference:




| Type of splice | Marking number begin with |
|---|---|
| Standard splice | B#8DM |
| Lock nut | LN12#4DM |
| Transition splice | TC#10#9DM |
| Stainless | BAS12#4DM |
| | BDS12#4DM |
| Weldable | CW20DM |
| Small end anchor | BEALC16#5DM |

**Table 18 :** Marking on coupler

## 8. PACKING

Pocket formers are packed in carton boxes. Other products are packed in wooden crates that can be lifted by a forklift.

| Type box | Inside W x L x H | | Outside W x L x H | | Weight | |
|---|---|---|---|---|---|---|
| | $in^3$ | $mm^3$ | $in^3$ | $mm^3$ | lb | kg |
| A | 16x20x6 | 50x40x15 | 17x21x10 | 56x46x28 | 33 | 15 |
| B | 16x20x10.5 | 50x40x27 | 17x21x16 | 56x46x40 | 44 | 20 |
| C | 28x28x20 | 70x70x50 | 29x29x25 | 74x74x63 | 99 | 45 |
| D | 32x42x26 | x105x80x65 | 33x44x31 | 110x86x78 | 165 | 75 |
| E | 32x42x22 | 105x80x55 | 34x44x27 | 220x86x68 | 154 | 70 |
| I | 76.6x116.6x14.0 | 76.6x116.6x14.0 | 83.4x123.4x32.7 | 83.4x123.4x32.7 | 77 | 35 |

**Table 19:** Wooden crates dimensions

| Carton box size W x L x H ($in^3$) | W x L x H (mm) | Weight | |
|---|---|---|---|
| | | lb | kg |
| 16x16x8 | 400x400x200 | 2.20 | 1 |
| 16x16x16 | 400x400x400 | 2.20 | 1 |
| 13x17x27 | 320x430x680 | 2.20 | 1 |

**Table 20:** Carton boxes dimensions

Note: The weight of the crates varies depending on ambient humidity.

Please ensure that order quantities are a multiple of the packaging quantities stated in the table below :

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

**Bartec® Standard couplers :**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPBS0414001 | 1,000 | A | 183 | 83 | 216 | 98 |
| #5 | 15M | FPBS0520001 | 1,000 | B | 278 | 126 | 322 | 146 |
| #6 | 20M | FPBS0624001 | 1,000 | C | 401 | 182 | 500 | 227 |
| #7 | - | FPBS0727001 | 1,000 | C | 794 | 360 | 893 | 405 |
| #8 | 25M | FPBS0830001 | 1,000 | C | 919 | 417 | 1,018 | 462 |
| #9 | 30M | FPBS0933001 | 1,000 | C | 1,367 | 620 | 1,466 | 665 |
| #10 | - | FPBS1036001 | 1,000 | E | 1,658 | 752 | 1,812 | 822 |
| #11 | 35M | FPBS1139001 | 500 | E | 1,345 | 610 | 1,499 | 680 |
| #14 | 45M | FPBS1445001 | 500 | D | 2,047 | 929 | 2,212 | 1,004 |
| #18 | 55M | FPBS1860001 | 250 | D | 2,111 | 958 | 2,276 | 1,033 |

**Bartec® Hexagonal Lock Nuts :**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPBL1214001 | 1,000 | I | 32 | 15 | 110 | 50 |
| #5 | 15M | FPBL1620001 | 1,000 | I | 29 | 13 | 106 | 48 |
| #6 | 20M | FPBL2024001 | 1,000 | I | 62 | 28 | 140 | 63 |
| #7 | - | FPBL2227001 | 1,000 | I | 203 | 92 | 280 | 127 |
| #8 | 25M | FPBL2530001 | 1,000 | I | 97 | 44 | 174 | 79 |
| #9 | 30M | FPBL2833001 | 1,000 | I | 366 | 166 | 443 | 201 |
| #10 | - | FPBL1036001 | 1,000 | I | 209 | 95 | 287 | 130 |
| #11 | 35M | FPBL3439001 | 1,000 | I | 286 | 130 | 363 | 165 |
| #14 | 45M | FPBL1445001 | 1,000 | I | 319 | 145 | 396 | 180 |
| #18 | 55M | FPBL1860001 | 1,000 | I | 811 | 368 | 888 | 403 |

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

**Bartec® Transition couplers:**

| Bar size US | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|
| | | | | lb | kg | lb | kg |
| #5-#4 | FPBT0504001 | 250 | A | 76 | 35 | 109 | 50 |
| #6-#5 | FPBT0605001 | 250 | A | 114 | 52 | 147 | 67 |
| #7-#6 | FPBT0706001 | 250 | B | 215 | 98 | 259 | 118 |
| #8-#5 | FPBT0805001 | 250 | B | 249 | 113 | 293 | 133 |
| #8-#6 | FPBT0806001 | 250 | B | 256 | 116 | 300 | 136 |
| #8-#7 | FPBT0807001 | 250 | B | 256 | 116 | 300 | 136 |
| #9-#5 | FPBT0905001 | 250 | C | 354 | 161 | 453 | 206 |
| #9-#6 | FPBT0906001 | 250 | C | 370 | 168 | 469 | 213 |
| #9-#7 | FPBT0907001 | 250 | C | 375 | 170 | 474 | 215 |
| #9-#8 | FPBT0908001 | 250 | C | 378 | 172 | 477 | 217 |
| #10-#5 | FPBT1005001 | 250 | C | 417 | 189 | 516 | 234 |
| #10-#6 | FPBT1006001 | 250 | C | 437 | 198 | 536 | 243 |
| #10-#7 | FPBT1007001 | 250 | C | 447 | 203 | 546 | 248 |
| #10-#8 | FPBT1008001 | 250 | C | 454 | 206 | 553 | 251 |
| #10-#9 | FPBT1009001 | 250 | C | 455 | 206 | 554 | 251 |
| #11-#5 | FPBT1105001 | 250 | C | 653 | 296 | 752 | 341 |
| #11-#6 | FPBT1106001 | 250 | C | 686 | 311 | 785 | 356 |
| #11-#7 | FPBT1107001 | 250 | C | 705 | 320 | 804 | 365 |
| #11-#8 | FPBT1108001 | 250 | C | 721 | 327 | 820 | 372 |
| #11-#9 | FPBT1109001 | 250 | C | 731 | 332 | 830 | 377 |
| #11-#10 | FPBT1110001 | 250 | C | 731 | 332 | 830 | 377 |
| #14-#9 | FPBT1409001 | 250 | C | 1,070 | 485 | 1,169 | 530 |
| #14-#10 | FPBT1410001 | 250 | C | 1,084 | 492 | 1,183 | 537 |
| #14-#11 | FPBT1411001 | 250 | C | 1,090 | 494 | 1,189 | 539 |
| #18-#11 | FPBT1811001 | 250 | C | 2,158 | 979 | 2,257 | 1024 |
| #18-#14 | FPBT1814001 | 250 | E | 2,220 | 1,007 | 2,374 | 1,077 |

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

**Bartec® Position-Transition couplers:**

| Bar size US | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|
| | | | | lb | kg | lb | kg |
| #5/#4 | FPBP0504001 | 250 | A | 104 | 47 | 137 | 62 |
| #6/#5 | FPBP0605001 | 250 | A | 148 | 67 | 181 | 82 |
| #7/#6 | FPBP0706001 | 250 | B | 285 | 130 | 329 | 150 |
| #8/#5 | FPBP0805001 | 250 | B | 347 | 158 | 391 | 178 |
| #8/#6 | FPBP0806001 | 250 | B | 340 | 154 | 384 | 174 |
| #8/#7 | FPBP0807001 | 250 | B | 326 | 148 | 370 | 168 |
| #9/#5 | FPBP0905001 | 250 | C | 511 | 232 | 610 | 277 |
| #9/#6 | FPBP0906001 | 250 | C | 304 | 138 | 403 | 183 |
| #9/#7 | FPBP0907001 | 250 | C | 499 | 227 | 598 | 272 |
| #9/#8 | FPBP0908001 | 250 | C | 313 | 142 | 412 | 187 |
| #10/#5 | FPBP1005001 | 250 | C | 645 | 293 | 744 | 338 |
| #10/#6 | FPBP1006001 | 250 | C | 647 | 294 | 746 | 339 |
| #10/#7 | FPBP1007001 | 250 | C | 639 | 290 | 738 | 335 |
| #10/#8 | FPBP1008001 | 250 | C | 629 | 286 | 728 | 331 |
| #10/#9 | FPBP1009001 | 250 | C | 391 | 177 | 490 | 222 |
| #11/#5 | FPBP1105001 | 250 | C | 963 | 437 | 1,062 | 482 |
| #11/#6 | FPBP1106001 | 250 | C | 977 | 443 | 1,076 | 488 |
| #11/#7 | FPBP1107001 | 250 | C | 977 | 443 | 1,076 | 488 |
| #11/#8 | FPBP1108001 | 250 | C | 974 | 442 | 1,073 | 487 |
| #11/#9 | FPBP1109001 | 250 | C | 961 | 436 | 1,060 | 481 |
| #11/#10 | FPBP1110001 | 250 | C | 933 | 423 | 1,032 | 468 |
| #14/#9 | FPBP1409001 | 250 | C | 1,532 | 695 | 1,631 | 740 |
| #14/#10 | FPBP1410001 | 250 | C | 1,512 | 686 | 1,611 | 731 |
| #14/#11 | FPBP1411001 | 250 | C | 1,505 | 683 | 1,604 | 728 |
| #18/#11 | FPBP1811001 | 250 | D | 3,285 | 1,490 | 3,450 | 1,565 |
| #18/#14 | FPBP1814001 | 250 | D | 3,245 | 1,472 | 3,410 | 1,547 |

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

**Bartec® Form Fixers :**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPBO1214001 | 500 | A | 165 | 75 | 198 | 90 |
| #5 | 15M | FPBO1620001 | 500 | B | 243 | 110 | 287 | 130 |
| #6 | 20M | FPBO2024001 | 500 | C | 342 | 155 | 441 | 200 |
| #7 | - | FPBO2227001 | 500 | C | 518 | 235 | 617 | 280 |
| #8 | 25M | FPBO2530001 | 500 | C | 661 | 300 | 761 | 345 |
| #9 | 30M | FPBO2833001 | 500 | C | 689 | 313 | 788 | 358 |
| #10 | - | FPBO1036001 | 500 | E | 970 | 440 | 1,124 | 510 |
| #11 | 35M | FPBO3439001 | 500 | E | 1,477 | 670 | 1,631 | 740 |

**Bartec® Pocket formers:**

| Bar size | | Finished Product code | Qty (pcs) | Carton box size | | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|---|
| US | Canada | | | $in^3$ | mm | lb | kg | lb | kg |
| #5 | 15M | FPPF1620001 | 250 | 16x16x16 | 40x40x40 | 32 | 14 | 34 | 15 |
| #8 | 25M | FPPF2530001 | 100 | 16x16x16 | 40x40x40 | 18 | 8 | 20 | 9 |
| #10 | - | FPPF3236001 | 100 | 13x17x27 | 40x40x40 | 25 | 11 | 27 | 12 |
| #14 | 45M | FPPF4045001 | 100 | 13x17x27 | 32x43x68 | 28 | 13 | 31 | 14 |

**Bartec® Weldable couplers:**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPWC1214001 | 250 | A | 18 | 8 | 51 | 23 |
| #5 | 15M | FPWC1620001 | 250 | A | 23 | 11 | 56 | 26 |
| #6 | 20M | FPWC2024001 | 250 | A | 50 | 23 | 83 | 38 |
| #7 | - | FPWC2227001 | 250 | B | 41 | 19 | 85 | 39 |
| #8 | 25M | FPWC2530001 | 250 | B | 98 | 44 | 142 | 64 |
| #9 | 30M | FPWC2833001 | 250 | C | 138 | 63 | 237 | 108 |
| #10 | - | FPWC1036001 | 250 | C | 180 | 82 | 279 | 127 |
| #11 | 35M | FPWC3439001 | 250 | C | 285 | 129 | 384 | 174 |
| #14 | 45M | FPWC1445001 | 250 | C | 382 | 174 | 481 | 219 |
| #18 | 55M | FPWC1860001 | 250 | E | 1,055 | 479 | 1,209 | 549 |

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

### Bartec® Austenitic Stainless steel couplers :

| Bar size | | Finished Product code Austenitic Stainless | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPSB1214003 | 250 | A | 40 | 18 | 73 | 33 |
| #5 | 15M | FPSB1620003 | 250 | A | 78 | 35 | 111 | 50 |
| #6 | 20M | FPSB2024003 | 250 | A | 123 | 56 | 156 | 71 |
| #7 | - | FPSB2227003 | 250 | A | 182 | 83 | 215 | 98 |
| #8 | 25M | FPSB2530003 | 250 | A | 261 | 118 | 294 | 133 |
| #9 | 30M | FPSB2833003 | 250 | B | 355 | 161 | 399 | 181 |
| #10 | - | FPSB3236003 | 250 | B | 475 | 216 | 519 | 236 |
| #11 | 35M | FPSB3642003 | 250 | C | 783 | 355 | 882 | 400 |
| #14 | 45M | FPSB4348003 | 250 | C | 1,181 | 536 | 1,280 | 581 |

### Bartec® Duplex Stainless steel couplers :

| Bar size | | Finished Product code Duplex Stainless | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPSB1214002 | 250 | A | 23 | 11 | 56 | 26 |
| #5 | 15M | FPSB1620002 | 250 | A | 62 | 28 | 95 | 43 |
| #6 | 20M | FPSB2024002 | 250 | A | 111 | 51 | 144 | 66 |
| #7 | - | FPSB2227002 | 250 | A | 153 | 69 | 186 | 84 |
| #8 | 25M | FPSB2530002 | 250 | A | 173 | 79 | 206 | 94 |
| #9 | 30M | FPSB2833002 | 250 | B | 247 | 112 | 291 | 132 |
| #10 | - | FPSB3236002 | 250 | B | 360 | 163 | 404 | 183 |
| #11 | 35M | FPSB3642002 | 250 | C | 502 | 228 | 601 | 273 |
| #14 | 45M | FPSB4348002 | 250 | C | 590 | 268 | 689 | 313 |

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

**Bartec® Small anchor plates:**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPEC1214003 | 500 | B | 71 | 32 | 115 | 52 |
| #5 | 15M | FPEC1620003 | 500 | B | 152 | 69 | 196 | 89 |
| #6 | 20M | FPEC0624003 | 500 | B | 254 | 115 | 298 | 135 |
| #7 | - | FPEC2227003 | 500 | B | 385 | 175 | 429 | 195 |
| #8 | 25M | FPEC2530003 | 500 | C | 582 | 264 | 681 | 309 |
| #9 | 30M | FPEC2833003 | 500 | C | 894 | 406 | 993 | 451 |
| #10 | - | FPEC1036003 | 250 | C | 550 | 250 | 649 | 295 |
| #11 | 35M | FPEC1139003 | 250 | C | 788 | 357 | 887 | 402 |
| #14 | 45M | FPEC1445003 | 200 | C | 1,007 | 457 | 1,106 | 502 |
| #18 | 55M | FPEC1860003 | 100 | C | 1,117 | 507 | 1,216 | 552 |

**Bartec® Large anchor plates:**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPEC0414001 | 500 | B | 153 | 70 | 197 | 90 |
| #5 | 15M | FPEC0520001 | 500 | B | 324 | 147 | 368 | 167 |
| #6 | 20M | FPEC0624001 | 500 | B | 614 | 279 | 658 | 299 |
| #7 | - | FPEC0727001 | 500 | B | 923 | 419 | 967 | 439 |
| #8 | 25M | FPEC0830001 | 500 | C | 1,325 | 601 | 1,424 | 646 |
| #9 | 30M | FPEC0933001 | 500 | C | 1,824 | 828 | 1,923 | 873 |
| #10 | - | FPEC1036001 | 250 | C | 1,214 | 551 | 1,313 | 596 |
| #11 | 35M | FPEC1139001 | 250 | C | 1,587 | 720 | 1,686 | 765 |
| #14 | 45M | FPEC1445001 | 200 | C | 2,187 | 992 | 2,286 | 1,037 |
| #18 | 5M | FPEC1860001 | 100 | E | 2,537 | 1,151 | 2,691 | 1,221 |

Dextra

# BARTEC PACKING INFORMATION

## ULTIMATE SPLICING SYSTEM

**Bartec® high-strength couplers :**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPBM0414001 | 1,000 | A | 357 | 162 | 390 | 177 |
| #5 | 15M | FPBM0520001 | 1,000 | B | 456 | 207 | 500 | 227 |
| #6 | 20M | FPBM0624001 | 1,000 | C | 734 | 333 | 833 | 378 |
| #7 | - | FPBM0727001 | 1,000 | C | 963 | 437 | 1062 | 482 |
| #8 | 25M | FPBM0830001 | 1,000 | C | 1402 | 636 | 1,501 | 681 |
| #9 | 30M | FPBM0933001 | 1,000 | C | 1,572 | 713 | 1,671 | 758 |
| #10 | - | FPBM1036001 | 500 | C | 1,250 | 567 | 1,349 | 612 |
| #11 | 35M | FPBM1142001 | 250 | C | 798 | 362 | 897 | 407 |
| #14 | 45M | FPBM1448001 | 250 | E | 1,986 | 901 | 2,140 | 971 |
| #18 | 55M | FPBM1859001 | 250 | D | 3,065 | 1,391 | 3,230 | 1,466 |

**Bartec® high-strength small anchor plates :**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPEC0414005 | 500 | B | 142 | 64.5 | 186 | 85 |
| #5 | 15M | FPEC0520005 | 500 | B | 228 | 104 | 272 | 124 |
| #6 | 20M | FPEC0624005 | 500 | B | 380 | 173 | 424 | 193 |
| #7 | - | FPEC0727005 | 500 | B | 513 | 233 | 557 | 253 |
| #8 | 25M | FPEC0830005 | 500 | C | 815 | 370 | 914 | 415 |
| #9 | 30M | FPEC0933005 | 500 | C | 1,138 | 516 | 1,237 | 561 |
| #10 | - | FPEC1036005 | 250 | C | 695 | 315 | 794 | 360 |
| #11 | 35M | FPEC1142005 | 250 | C | 976 | 443 | 1075 | 488 |
| #14 | 45M | FPEC1448005 | 200 | C | 1,304 | 592 | 1,403 | 637 |
| #18 | 55M | FPEC1859005 | 100 | C | 1,420 | 644 | 1,519 | 689 |

**Bartec® high-strength large anchor plates :**

| Bar size | | Finished Product code | Qty (pcs) | Box type | Net weight | | Gross weight | |
|---|---|---|---|---|---|---|---|---|
| US | Canada | | | | lb | kg | lb | kg |
| #4 | - | FPEC0414006 | 500 | B | 308 | 140 | 352 | 160 |
| #5 | 15M | FPEC0520006 | 500 | B | 486 | 221 | 530 | 241 |
| #6 | 20M | FPEC0624006 | 500 | B | 922 | 418 | 966 | 438 |
| #7 | - | FPEC0727006 | 500 | B | 1231 | 559 | 1275 | 579 |
| #8 | 25M | FPEC0830006 | 500 | C | 1,855 | 842 | 1,954 | 887 |
| #9 | 30M | FPEC0933006 | 500 | C | 2,321 | 1053 | 2,420 | 1,098 |
| #10 | - | FPEC1036006 | 250 | C | 1,525 | 692 | 1,624 | 737 |
| #11 | 35M | FPEC1142006 | 250 | C | 2,201 | 999 | 2,300 | 1,044 |
| #14 | 45M | FPEC1448006 | 200 | E | 2,878 | 1306 | 3,032 | 1,376 |
| #18 | 5M | FPEC1859006 | 100 | D | 3,195 | 1,449 | 3,360 | 1,524 |

## 9. APPLICABLE CODE REQUIREMENTS

BARTEC® couplers and headed bars comply with all major building codes and standards:

# USA :


### *A. Codes & standards applicable to couplers :*

For the construction of concrete buildings, the International Building Code (IBC) has now been adopted by all states. For the design of reinforced concrete, IBC refers to the American Concrete Institute code, ACI 318.

ACI 318 (2008) covers Development & Splicing of Reinforcement at its chapter 12.

**Rebar anchorage in tension** may be done by development (See section 12.2), by hooks (See section 12.5) or by headed bars (See section 12.6). Headed bars must comply with ASTM A970 (2006) : See §12.6.2, §3.5.9 & §3.8. ASTM A970 (2006) specifies that the head-to-bar attachment must be stronger than the bar itself.

**Lap splicing & Mechanical splicing** are covered at sections 12.14 & 12.15. When considering lap splicing vs mechanical splicing, particular attention should be brought to the following clauses :

- Lap splices are not allowed on bars larger than #11 (36mm) : See §12.14.2.1.
- Lap splices are not allowed in tension tie members. In such members, mechanical splices of bars that are next to one another must be staggered. : See §12.15.6.
- Bundled bars shall not be lap-spliced in the same plane : See §12.14.2.2.
- Lap splices may not be staggered if there is enough spacing between 2 splices, though staggering is encouraged : See § R12.15.1.
- The tensile strength of a mechanical splice must be at least 25% higher than the specified yield strength of the bar : See §12.14.3.2.
- Mechanical splices do not need to be staggered, although staggering is encouraged where the area of reinforcement provided is less than twice that required by the analysis : See §R12.15.4.

For construction in **seismic zones**, ACI 318 (2008) provides specific requirements at its chapter 21 :

**Mechanical splices** are qualified as “Type 1” or “Type 2” according to their tensile performance : See §21.1.6.1.

A type 1 mechanical splice is as defined at chapter 12, for non-seismic design. It may not be used at every location in seismic design : See §21.1.6.2.

A type 2 mechanical splice can be used at any location. On top of the performance required for type 1 mechanical splices, its tensile strength must not be less than the specified tensile strength of the bar. The tensile strength of the bar is specified at §21.1.5.2 (b) : The nominal tensile strength as defined in the bar standard, and 1.25 times the actual yield strength of the bar, whichever is higher.

### *B. Codes & standards applicable to roads & bridges :*

Various codes exist for the construction of roads and bridges, among them those of the American Association of State Highways and Transportation Officials (A.A.S.H.T.O.), as well as the specifications of the departments of transportation of each state.

In the AASHTO Standard Specifications for Highway Bridges, mechanical anchorage of reinforcing bars is covered at section 8.31, and splicing of reinforcement is covered at section 8.32.

In the AASHTO LRFD Bridge Design Specification, splicing of reinforcement is covered at section 5.11.5.

### *C. Codes & Standard applicable to nuclear structures :*

The concrete buildings of **nuclear structures** is governed by 2 codes :

- The American Society of Mechanical Engineers (A.S.M.E.) Boiler & Pressure Vessel code Section III, Division 2 for the nuclear reactor containment building.
- The American Concrete Institute ACI 349 code for the other buildings of the nuclear island.

In the ASME Boiler & Pressure Vessel code Section III, Division 2 (2007), mechanical anchorage is covered at chapters CC-3532.1.2 & CC-3533.1, while mechanical splices are covered at chapter CC-4333.
In the ACI 349 code (2006), mechanical anchorage is covered at chapter 12.6, while splicing of reinforcement is covered at chapter 12.14.

# Canada

### *A. Codes & standards applicable to buildings :*

For the construction of concrete buildings, the governing standard is CAN/CSA-A23.3.
In the CAN/CSA-A23.3-04 code, Development & Splicing of Reinforcement is covered at chapter 12, with seismic provisions at chapter 21. These specifications mirror those of ACI 318.

### *B. Codes & standards applicable to roads & bridges :*

For the construction of **highways and bridges**, the governing standard is the Canadian Highway Bridge Design Code in its CAN/CSA-S6 standard, as well as the specifications from the various ministries of transportation of each province.

In the CAN/CSA-S6-00 code, mechanical splicing is covered at section 8.4.4.4, while the use of headed bars for mechanical anchorage is covered at section 8.4.4.2.

### *C. Codes & Standard applicable to nuclear structures :*

For the construction of **nuclear structures,** the governing standard is CSA N287.2, “Materials requirements for concrete containment structures for Candu nuclear power plants”.
In the CSA N287.2-08 code, mechanical splicing is covered at sections 6.7 & 6.8.

## 10. QUALITY ASSURANCE

BARTEC® couplers and anchor plates are manufactured according to strict technical specifications and under a production process that has been certified to satisfy to the ISO9001 and ASME NCA-3800 quality assurance standard.
This quality assurance system complies with the requirements ASME NQA-1 and 10CFR50 Appendix B.


They are warranted to be free from manufacturing defects and to perform in accordance with the manufacturer's specifications providing that they are installed in accordance with our written instructions.

Full trace-ability of the production batches and raw materials is guaranteed. The retention period of our quality records is 12 years.

## 11. APPROVALS :

BARTEC® mechanical splices and anchorages have been approved by the most demanding international regulators:

| Agency | | Certificate N° |
|---|---|---|
| | ICC-ES | ESR-2166 & ESR-1705 |
| | California Department of Transportation | - |
| | City of Los Angeles | RR25615 & RR25884 |
| | Washington State Department of Transportation | 1150 |
| | Oregon Department of Transportation | Database record No.6747 |

## 12. CHANGES AND UPDATES

As a result of our continuous thrive for technological improvement, Dextra reserves its right to modify the contents of this specification sheet at any time without prior notice.

In particular, various sources of raw materials may lead to variations in outside diameters