

High Load Beam and Column Connections

BSF Telescopic Connectors

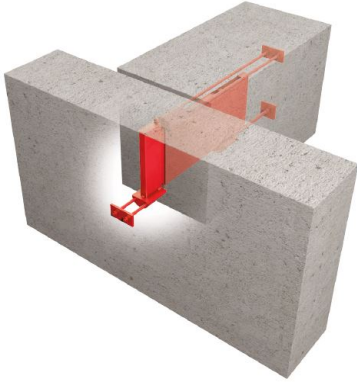
Heavy duty yet elegant frame connection system for loads up to 1100kN. Connects beams to beams or beams to columns, eliminating corbels or bracketry. Also suitable for round columns or skewed angle connections.

BSF connectors offer key benefits over traditional corbels, such as:

- Clean architectural lines and increased usable headspace
- Simpler detailing
- Simplified lower cost moulds
- More environmentally sustainable as less concrete required

Product range

BSF Telescopic Connectors



Application

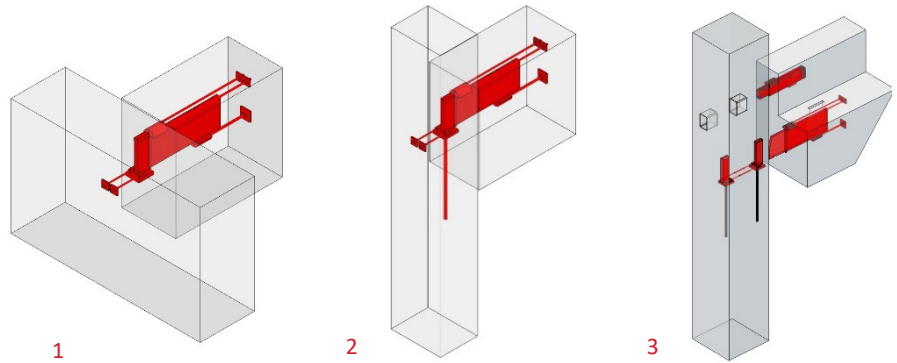


Application

BSF connectors are used for a diverse range of applications, including:

- Connecting 'beams to beams' and 'beams to columns'
- Fixing beams at unusual angles
- Joining beams to round columns
- Stabilising parapets against vehicle impact (when used in conjunction with TSS connectors)

Different configurations according to precast element shape and loadings are possible. [Technical enquiry forms](#) are available to download:



- 1 Beam with rectangular cross section into another beam
- 2 Beam with rectangular cross section into a column
- 3 Beam with stepped cross section into a column

Please contact us for free technical and practical advice on product selection and installation.

Product features

- Push operated telescopic connection
- Accommodates high vertical shear forces
- Grade S355 (minimum) steel is used for its high stress capacity.

Beam to beam versions

- Steel housing cast-in along the axis at the end of the first beam contains a heavy-duty steel 'knife' (bridging plate)
- Steel housing cast-in across the second beam acts as a receiving unit for the knife which is telescopically deployed
- Knife spans the joint between both beams, connecting them in shear.

Beam to column versions

- Steel housing cast-in along the axis at the end of the first beam contains a heavy-duty steel 'knife' (bridging plate)
- A second steel housing cast into the vertical column has integral reinforcement welded to the underside, transferring high shear forces into the column.

Use in combination with

BOLT2BOX

Where multiple beams adjoin a column at the same height, a BOLT2BOX in the column prevents reinforcement and lateral restraints colliding. BOLT2BOX accommodates convergence of up to 4 beam to column connections. Column units are held securely and accurately in position during casting. Use in conjunction with BSF BC connectors.



Use with

- BSF BC Connectors (all capacities)

About Invisible Connections

We are the specialists in hidden structural connections for precast and in situ construction. Our range of telescopic connectors are purpose-designed to overcome the challenges of traditional construction and have multiple applications. We are also the manufacturers of FERBOX[®] bespoke reinforcement continuity strip.

All our products meet industry demands for improved safety, construction efficiency and cost competitiveness.

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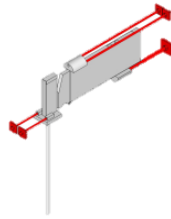
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BSF Telescopic Connectors

BSF product range

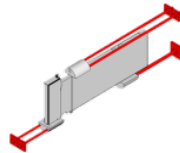


BSF BC Precast Concrete Beam to Column Connectors

Five connectors are available for different vertical shear capacities:

- BSF 225 BC up to 225kN
- BSF 300 BC up to 300kN
- BSF 450 BC up to 450kN
- BSF 700 BC up to 700kN
- BSF 1100 BC up to 1100kN

Use in conjunction with BOLT2BOX where multiple connectors converge at the same height on a column.



BSF BB Precast Concrete Beam to Beam Connectors

Five connectors are available for different vertical shear capacities:

- BSF 225 BB up to 225kN
- BSF 300 BB up to 300kN
- BSF 450 BB up to 450kN
- BSF 700 BB up to 700kN
- BSF 1100 BB up to 1100kN

Capacity

Capacity is up to 1100kN, making BSF connectors ideal for heavyweight applications. To ensure lean and cost-efficient design, BSF connectors are available in standard capacities of 225kN, 300kN, 450kN, 700kN and 1100kN. Connectors may be used in pairs for even higher load requirements. Integral bearing blocks are incorporated for correct seating of local reinforcement and to avoid localised crushing or cracking.

Fire resistance

Grouting around the connector (in the airgap between beams and columns) provides equivalent cover as concrete, therefore 40mm grout cover will give 2 hours fire resistance.

Resources

Up to date product information is available in the [Resources](#) section of invisibleconnections.co.uk, including [case studies](#), [videos](#), [published articles](#), [technical literature](#) and [drawings](#). You can also download our [brochure](#) or [cost comparison study](#).

Standards

Design is in accordance with the following standards:

Eurocode 2: Design of concrete structures Part 1-1 General rules and rules for buildings

Eurocode 3: Design of steel structures Part 1-1 General rules and rules for buildings

Eurocode 3: Design of steel structures Part 1-8 Design of joints.

For technical and practical advice call
+44 (0)1844 266000