

Structural Frame Connections

DTS and DTF Connectors

Utilising precast concrete beams and columns is an aesthetic and efficient method of concrete frame construction. Increasingly, architects seek visibility of the structural form, whilst maintaining elegance and structural integrity.

Precast beams are traditionally supported off brackets and corbels which are difficult and costly to form, reduce headroom and compromise architectural clean lines. A cost-effective and structurally efficient alternative for end loads up to 150 kN is the DTS or DTF range of telescopic or static connectors which leave a smooth soffit and are also suitable for round columns or skewed angle connections.

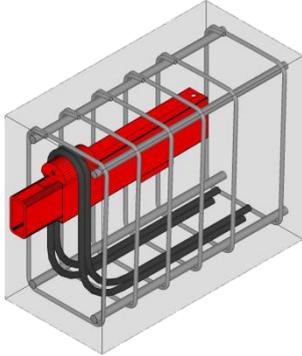
Owing to simplicity of installation, DTS and DTF connectors also offer key benefits over rolled steel angle (RSA) or corbel connection methods, such as:

- Improved cost effectiveness
- Better on site health and safety
- Enhanced appearance

An economical choice for load applications which fall between the performance parameters of TSS/RVK stair landing connectors and BSF beam connectors.

Product range

DTS Telescopic Connectors



Application



DTS in floor units



Floor units spanning considerable distance between structures



DTF in Double Tee floor elements

Application

DTS and DTF connectors are used for a diverse range of applications, including:

- Connecting beams to beams and beams to columns
- Linking wall units to columns
- Fixing beams at unusual angles
- Joining beams to round columns

Different configurations according to precast element interfaces are possible. To help you select the most appropriate connector, [technical enquiry forms](#) are available to download:

- Beam with rectangular cross section into another beam
- Beam with rectangular cross section into a column
- Beam with stepped cross section into a column
- Walls with rectangular cross section
- Double Tee floor unit

For other applications, please contact us for free technical and practical advice on product selection and installation.

Product features

DTS

- Cord operated to deploy sliding inner tube
- Telescopic connector for joining lightweight beam connections or Double Tee floor elements.
- Ideally suited for installing into continual, vertical elements where the sliding inner can be extended outwards into recesses cast into columns or walls

DTF

- An economical solution owing to the fixed, non-telescopic design
- Originally designed to connect Double Tee floor elements to tops of walls and beams, the DTF connector is perfect for situations where open top pockets are available for the connector to be lowered into.

Capacity

Capacity is up to 150 kN, making DTS or DTF connectors ideal for smaller beams or heavy slabs. To ensure lean and cost-efficient design, DTS and DTF connectors are available in standard capacities of 120 kN and 150 kN. Connectors may be used in pairs for even higher load requirements although, in this instance, the BSF range would be a more compact solution. Integral bearing blocks for correct seating of local reinforcement and to avoid localised crushing or cracking are incorporated to both DTF and DTS. Cold rolled grade S355 (minimum) steel is used, which has a high stress capacity.

Robustness

UK regulations require all precast elements in the main structure to be anchored to provide robustness in the event of an incident. Robustness is achieved by reinforcement across the joint in conjunction with connector.

Fire resistance

Grouting around the connector provides equivalent cover as concrete, therefore 40mm grout cover will give 2 hours fire resistance.



About Invisible Connections

We supply the concrete construction industry with 'unseen' telescopic connection systems for stairs, landings, beams and columns. We are also specialist manufacturers of the FERBOX® reinforcement continuity system, to application requirements.

All our products meet industry demands for improved safety, construction efficiency and cost competitiveness. Our telescopic connection systems are endorsed by European Technical Approvals (ETAs). They comply with relevant Eurocode standards and are individually CE marked.

Our team provides free technical and practical advice on product selection and installation. Our technical specialism, innovative approach and manufacturing agility means we're often approached to help solve a specific issue. As a result, our product range continuously evolves to meet our customers' construction challenges.

Invisible Connections is the registered trademark of Norwegian company Invisible Connections AS. In 30 years, countless telescopic connectors have been used in construction projects around the world.

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Structural Frame Connections

DTS and DTF Connectors

DTS and DTF product range



DTS 120 and DTS 150 (standard version)

There are two connectors in the range to accommodate different vertical shear capacities:

- DTS 120 up to 120 kN
- DTS 150 up to 150 kN

Use with REDiBOX PRF-STD (standard version) together with a steel plate to distribute the forces in the pocket to prevent concrete crushing.



DTF 120 and DTF 150 (standard version)

There are two connectors in the range to accommodate different vertical shear capacities:

- DTF 120 up to 120 kN
- DTF 150 up to 150 kN

Use with an open top recess together with a steel plate to distribute the forces in the pocket, to prevent concrete crushing.

REDiBOX Permanent Recess Formers

DTS connectors are designed to work in conjunction with a REDiBOX permanent recess former which (for DTS applications only) is orientated vertically. REDiBOX is a left-in component used to create recesses in precast or in situ walls to flexibly accommodate the sliding connector.



REDiBOX PRF-STD (standard version)

Provides generous tolerance for installation of connectors.

No digging-out of polystyrene or timber is required.

Used in conjunction with DTS 120 and DTS 150, but orientated vertically, as indicated left.

Resources

Further information is available at invisibleconnections.co.uk and includes:

- Technical literature
- BIM / CAD files
- NBS Plus specification links
- Case studies

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.

All DTS and DTF products are covered by appropriate **European Technical Approvals** (ETAs).

For technical and practical advice call
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