FP McCann manufactures a comprehensive range of smooth shaft segmental rings suitable for underpinning, caisson and chimney construction methods. Factory pre-fitted EPDM rubber gaskets are standard on all segments providing an immediate water-tight seal on construction. Additional to cross joint and circle joint bolting systems, FP McCann offers a safer and more efficient back bolting system for the caisson build method.

Ring Types
The following segmental ring types are available:
- Standard rings
- Corbel rings
- Recessed rings (Standard, choker or cutter choker)
- Choker rings
- Combined Cutter Choker rings
- Segmental rings in stock are front or back bolted.

Design Features
All rings, with the exception of the cutter choker comprise of ordinary segments and two top segments. The top segments have one tapered cross joint to enable installation with EPDM gasket. The cutter choker comprises entirely of ordinary segments.

Sealing
All segmental rings are supplied with a factory fitted EPDM gasket as the primary sealing system that is immediate upon build.

Connection
Cross joint connections are made by passing a spear bolt through a pocket in one segment and screwing it into a threaded plastic socket in the adjacent segment. Circle joint connections are made using a T bolt passing through a hole in one segment, into a T box in the adjacent segment. Bolts are designed to fully compress the gasket. All connections and fittings have a sheradised finish, a galvanised finish is available upon request.

Mix and Reinforcement
Each segment is wet cast to achieve a smooth internal finish. The concrete mix provides a Design Chemical Class 4 (DC4) with a minimum 28 day characteristic strength of 55 N/mm². Alternative mixes are available. The segments are reinforced with either a reinforcing cage or structural synthetic and steel fibres to suit both design and customer requirements.

Build Methods
The segmental rings are suitable for underpinning, caisson and chimney construction methods.

Quality
FP McCann conducts all operations using an Integrated Management System accredited to BS EN ISO 9001.
## Key Features and Benefits

- Smooth internal faces
- Simple locking process
- Speedy installation
- Cost reducing
- Added safety features
- Technical advice and support

### Segments per ring

| Segment Type | Vol per ring (Std ring) (m³) | Weight per Standard ring* (tonnes) | Standard segment weight* (kg) | Corbel segment weight* (kg) | Cutter / segment weight* (kg) | Cutter / choker seg wt* (kg) | Grout per ring (lm) | Caulking
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*Nominal weights. Increase by 5% for sizing of lifting equipment and reduce by 5% for floatation design. Sizes in italic are future development.