

Shield Expansion Anchors.

1 INTRODUCTION

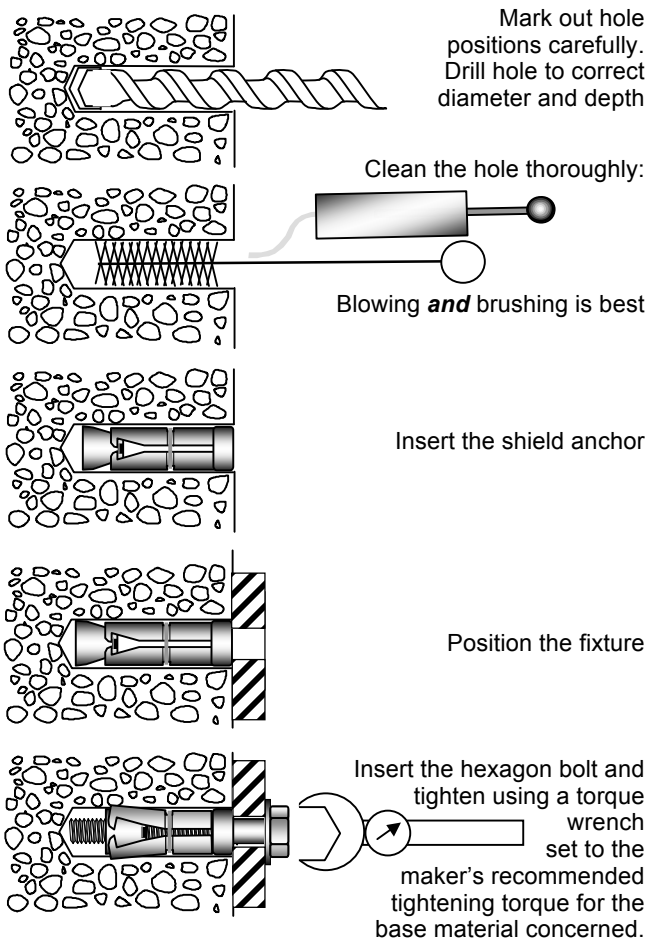
CFA Sample Method Statements are the first stage of a programme of assistance provided by the CFA for supervisors and installers to make sure anchors are installed correctly*. This is a guide only. The manufacturer's installation instructions should always be followed.

2 BASE MATERIAL SUITABILITY

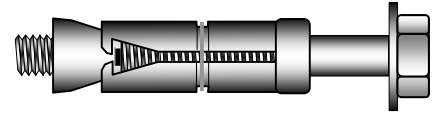
Shield anchors are suitable for concrete and, in diameters up to M12, in brickwork (not perforated bricks) and hard stone. In the case of masonry of unknown strength preliminary tests should be carried out to check suitability and determine allowable loads. They should not be used in light weight blockwork.

3 INSTALLATION

The following method statement is a guide only and covers anchors used with separate bolts. Before installation check that the anchor to be used is as specified. Only substitute another make or type if approved by the responsible engineer.



For projecting stud versions proceed as above but the shield anchor will be pre-assembled with the stud projecting. Position the fixture over the stud carefully to avoid damaging the threads. Apply the nut and washer and tighten.



Anchor Positioning

In concrete the manufacturer's recommendations for close edge and spacing distances should be followed. In the absence of guidance for masonry that contained in the CFA Guidance Note: *Fixings for Brickwork and Blockwork* should be followed, in summary this means:

- Anchors should not be fixed into mortar joints
- Avoid fixing two anchors in the same brick
- Fix on horizontal centreline & 35 mm from the brick end
- Keep anchors at least 280mm from the edge of a wall
- Keep anchors well below the top of an unrestrained wall

Hole depths

For most anchors the hole depth will be the length of the shield plus at least 5mm. More clearance may be needed for shields using separate bolts where a thin fixture means the bolt protrudes significantly through the bottom of the shield.

Clearance hole diameters

Clearance holes in fixtures may be at least 1mm larger than the bolt diameter but, as the anchor is not usually fixed through the fixture, care must be taken to locate holes accurately to ensure accurate alignment.

Tightening torques

Tightening to the manufacturer's recommended torque will ensure the required clamping force is induced and protect the bolt material from being overstressed. For safety critical applications a torque wrench should always be used. For other, less critical, applications if a torque wrench is not available and for setting hook and eye versions then the nut or bolt head should be turned by 4 – 5 full turns to pull the cone into the shield. Torques for concrete may be excessive for weaker materials, in the absence of manufacturer's guidance reduce the torque in proportion to the reduction in base material strength or relative recommended loads.

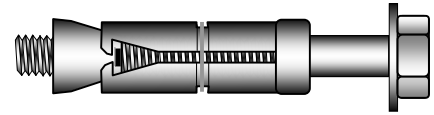
Removal

Projecting stud type shield anchors are very difficult to remove so, if it is possible that the fixture will need to be removed in the future, a hexagon bolt version should be used as the shield can usually be removed with care or left flush with the surface.

Other aspects

More aspects of shield anchors, including selection and applications, are outlined in a Guidance Note *Shield Type Expansion Anchors* downloadable from www.fixingscfa.co.uk.

CFA Sample Method Statement: Shield Expansion Anchors



Information you will need:

Anchor specification	Make
	Type
	Diameter M
	Length
	Order code
	Finish
Fixture thickness mm
Hole diameter mm
Embedment depth mm
Hole depth mm
Bolt Length (shield only) mm
Tightening torque Nm

Equipment you will need:

Drilling machine SDS+	
Drill bit	Diametermm
	Working length mm
Blow out pump	
Cleaning brush	
Torque wrench for installation torque above	
Socket	Width across flats mm

Thread diameter	M8	M10	M12	M16	M20	M24
Typical width of nut/socket – across flats mm	13	17	19	24	30	36

*This Sample Method Statement is one of a series available free of charge from the **Construction Fixings Association**.

A comprehensive presentation “Anchor installation” is available on CD-Rom for a charge from the Secretary. Training courses are also available for specialist contractors to a syllabus approved by the CFA leading to certification as competent installers of anchor systems.

For more details logon to www.fixingscfa.co.uk and go to “Safer Installations” page.

Note: This guidance is given in good faith, however the **Construction Fixings Association** can accept no liability for adverse consequences arising from this guidance being followed.

