

Product Data Sheet

WASHER & FIXING SELECTION GUIDE

Accessories

Axter offers a range of fasteners designed for fixing to various different substrates in flat roofing applications. For each substrate the penetration or embedment of the fastener to the deck will vary. The table overleaf shows standard embedment and penetration for the fasteners and the diagram indicates how the tube washer/fastener combinations are calculated.

MTP fixing

Carbon steel self-drilling fasteners for flat roofing.
For mechanically fixing bitumen / single ply flat roof waterproofing membranes to steel and timber decks in combination with other appropriate components
For mechanically fixing flat roof accessories and trims to thin steel and timber materials
For mechanically fixing timber battens and timber-like materials to thin steel

Key benefits

Optimised thread design for excellent pull-out performance and resistance to unwinding
Versatile design for metal and timber decks
Drillpoint designed for fast, accurate penetration of metal decks up to 2 x 1mm

Installation

Install using a variable speed electric screwdriver at speed 1500rpm.
Fasteners should be driven within 3 degrees of perpendicular to the surface of the fastened material.
Avoid over-driving and do not over-tighten.

Deck	Thickness limits	Minimum penetration
Thin steel	0.7mm – 2 x 1.0mm thickness	12mm through underside
Plywood / OSB	18mm minimum thickness	12mm through underside
Timber board decks	25mm minimum thickness	12mm through underside
Softwood	50mm minimum thickness	35mm embedment

**Stainless Steel
MTP fixing**

A4 (316 Grade) Stainless steel self-drilling fasteners for flat roofing.
For mechanically fixing bitumen / single ply flat roof waterproofing membranes to aluminium, steel and timber decks in combination with other appropriate components
For mechanically fixing flat roof accessories and trims to thin metal and timber materials
For mechanically fixing timber battens and timber-like materials to thin metal decks.

Key benefits

High resistance to corrosion, suitable for use in marine environments.
Optimised thread design for excellent pull-out performance and resistance to unwinding
Drillpoint designed for fast, accurate penetration of metal decks up to 2 x 1mm

Installation

Install using a variable speed electric screwdriver at speed 1500rpm.
Fasteners should be driven within 3 degrees of perpendicular to the surface of the fastened material.
Avoid over-driving and do not over-tighten.

Deck	Thickness limits	Minimum penetration
Thin steel	0.7mm – 2 x 1.0mm thickness	17mm through underside
Plywood / OSB	18mm minimum thickness	17mm through underside
Timber board decks	25mm minimum thickness	15mm through underside
Softwood	50mm minimum thickness	35mm embedment

Concrete fixing

Carbon steel concrete fasteners for flat roofing.

For mechanically fixing bitumen / single ply flat roof waterproofing membranes to concrete and timber decks in combination with other appropriate components

For mechanically fixing flat roof accessories and trims to concrete and timber materials

Key benefits

Excellent pull-out performance and resistance to unwinding

Specially designed thread formation for use with concrete and timber substrates

Installation

Install using a variable speed electric screwdriver at speed 1500rpm.

Fasteners should be driven within 3 degrees of perpendicular to the surface of the fastened material.

Avoid over-driving and do not over-tighten.

Deck	Thickness limits	Minimum penetration
Cast in-situ concrete	100mm minimum thickness 100mm minimum edge distanced	25mm embedment
Pre-formed concrete	40mm minimum thickness 70mm minimum edge distance	25mm embedment
Plywood	18mm minimum thickness	12mm through underside
Softwood	50mm minimum thickness	35mm embedment

Recommended pilot hole for concrete usually 5.0mm diameter. Pilot hole depth should be a minimum of 25mm greater than embedment depth to allow for sediment.

For timber and concrete deck applications a site pull-out test is recommended.

Handling

Fasteners may have sharp edges and the use of power tools can be dangerous. Use PPE. Do not allow uninstalled fasteners to become wet and do not store them in damp conditions. Inspect each fastener before use and do not use damaged ones. Replace any fasteners which appear to have been incorrectly installed.

Recommended Fastener Embedment / Penetration

Application*	Penetration / Embedment	
Steel deck	15mm through underside	
Plywood deck	18mm thickness	12mm through underside
Timber decking	25mm minimum thickness	12mm through underside
Timber joists	35mm embedment	
Softwood	35mm embedment	
Structural concrete	25mm embedment	

*For timber, concrete, aluminium decking applications a site pull-out test is recommended.

Selecting the correct tube washer

The tube washer must be chosen first, then the fastener can be selected.

To optimize the benefits of the tube system, the ideal combination is to use the maximum length of tube and the minimum fastener length available. However, in certain applications, such as over-roofing existing membrane and insulation layers, different tube lengths may be required. Contact Axter Ltd for details.

To select the maximum tube length (B), deduct 15mm from the total build-up of the roof system to allow for (A) compression of the insulation. Choose the tube of that length or shorter.

For example, with a 120mm build-up and a requirement for an I/washer the maximum tube length would be 100mm, so the 100mm long washer (code I/100) would be chosen.

Build-up

The build-up is the total thickness of everything a fastener is being used to fix. It is measured from the top of the material to which the fastener is fixing (e.g. steel, concrete, timber or aluminium deck), to the underside of the head.

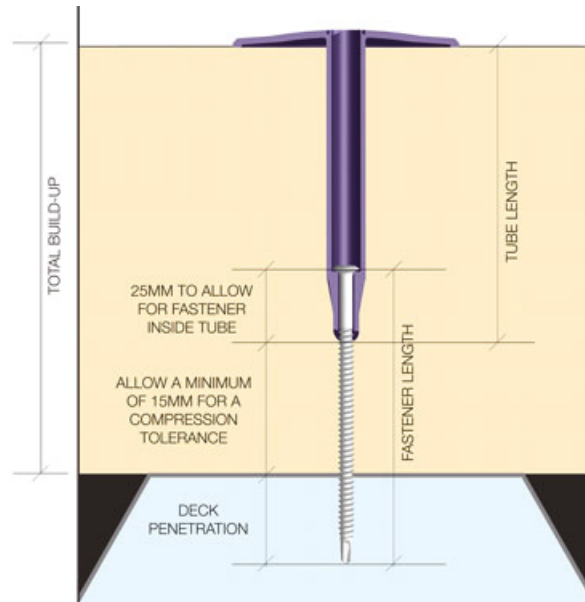
Axter fasteners are made of carbon steel and have been designed to fix to different substrates.

Against each fastener we have given the build-up figures for each fixing application that the fastener can be used for. These build-up figures take into account the following recommended fastener penetrations when fixing to deck substrates (see previous page).

Selecting the correct fastener

When selecting fasteners, allow for the recommended minimum deck penetration (given above) and take into consideration the total build-up of the system (including pressure plates, membrane, insulation, AVCL or separation layers). To select the optimum fastener for tube washer applications, take the total build-up measurement, deduct the selected tube length and allow for deck penetration; then add 25mm for the fastener within the tube.

The table below and the drawing on this page can be used to establish which washer/fastener combination can be used.



Build-up (mm)	Tube length (mm)	Metal deck*		Timber*, 18mm Ply or OSB		Concrete*
		(allows min 15mm through underside)		(allows min 12mm through underside)		(allows min 25mm embedment)
		MTP fixing	SSMTP fixing	MTP fixing	SSMTP fixing	C fixing
40	25	55	60	75	80	75
50	25	65	80	85	80	75
60	25	75	80	95	100	85
70	50	65	60	75	80	75
80	50	75	80	85	100	85
90	75	55	60	75	80	95
100	75	65	80	85	80	75
110	75	75	80	95	100	85
120	100	65	60	75	80	75
130	100	75	80	85	100	85
140	125	55	60	75	80	75
150	125	65	80	75	80	75
160	125	75	80	95	100	85
170	150	65	60	75	80	75
180	150	75	80	85	100	85
190	175	55	60	75	80	75
200	175	65	80	85	80	75
210	175	75	80	95	100	85
220	200	65	60	75	80	75
230	200	75	80	85	100	85
240	225	55	60	75	80	75
250	225	65	80	85	80	75
260	225	75	80	95	100	85
270	250	65	60	75	80	75
280	250	75	80	85	100	85

Build-up (mm)	Tube length (mm)	Metal deck*		Timber*, 18mm Ply or OSB		Concrete*
		(allows min 15mm through underside)		(allows min 12mm through underside)		(allows min 25mm embedment)
		MTP fixing	SSMTP fixing	MTP fixing	SSMTP fixing	C fixing
290	250	85	80	95	100	100
300	250	95	100	105	120	100

* For timber, concrete, aluminium decking applications, a site pull out test is recommended

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