

# FASTENERS

When you select fasteners, you should consider the design life of the structure, because the fasteners and the cladding material should have similar life expectancies.

## FASTENER CHANGE TO METRIC SIZING

The Australian fastener industry is moving to a change in fastener description that will bring it into line with international markets. This is an on-going process as product requirements and design changes.

Traditionally self drilling fasteners have been described in gauge (outside thread diameter), by tpi (threads per inch) and by length (mm). The new changes will convert gauge to metric sizing (e.g. #12 is approx. M5.5).

## MATERIALS FOR SCREWS

Screws are available in a variety of materials, finishes and colours to match COLORBOND® pre-painted steel, and design. You should use screws to AS 3566:2002 Class 3 (or better).

**Table 4.1**

Product	Appropriate Screw Materials
For most external applications not closer than 400m from the ocean or severe marine influence: <ul style="list-style-type: none"> <li>COLORBOND® or Metallic</li> <li>ZINCALUME® AM125</li> </ul>	AS 3566 Class 3
For severe exposure conditions: <ul style="list-style-type: none"> <li>COLORBOND® (200m to 400m from marine environments)</li> <li>COLORBOND® Ultra (100m to 200m from marine environments) AM150</li> </ul>	AS 3566 Class 4 Where the colour match of fasteners is an overriding consideration, powder coats/painted fasteners may be used
For very severe exposure conditions: <ul style="list-style-type: none"> <li>COLORBOND® Stainless</li> </ul>	Stainless steel

Stainless steel fasteners are recommended for use only with COLORBOND® Stainless.

## MATERIALS FOR NAILS

Nails should be of galvanised steel. They are only used to fix the clips of some concealed-fixed cladding to timber supports.

## MATERIALS FOR BLIND RIVETS

For COLORBOND® Stainless use stainless steel blind rivets with stainless steel mandrels; for GALVABOND®, ZINCALUME® and COLORBOND® steels, use aluminium blind rivets. Blind rivets are used for fixing flashings, accessories and side-laps.

## MATERIALS FOR SEALING WASHERS

Sealing washers used under the heads of screws on COLORBOND® steel must be made from materials that don't have significant levels of conductive carbon black, particularly in marine environments. Use EPDM washers, not neoprene.

## IDENTIFICATION OF SCREWS

The format of the number code is:

12	-	14	x	50
M6	-	11	x	50
Screw gauge (Thread outside diameter)		Thread pitch (threads per inch)		Overall length of the screw measured from under the head to the tip of the drill point (mm)
M refers to metric size				

Fasteners must have a coating system to meet AS 3566 Class 3 or AS 3566 Class 4.

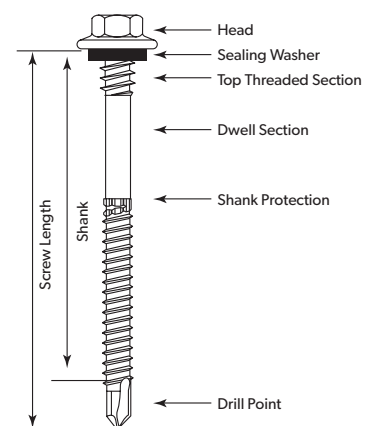
Other equivalent quality fasteners which comply to the above standards are also recommended for use with LYSAGHT® roofing and walling products.

Where a screw penetrates roof sheeting (for fixing or stitching), a sealing washer is recommended. The sealing washer is to be an EPDM non-conductive rubber.

Where a screw penetrates the rib of the sheeting (as for roofing), the 'top thread section' feature is recommended to maximise resistance to water penetration.

**Figure 4.1**

Typical roofing screws



## SETTING OF SCREWS

Fasteners with sealing washers should be tightened only until the washer is gripped firmly enough to provide a weathertight seal. The fasteners should not be over-tightened because this may split the sealing washer or deform the sheet, either of which could lead to water penetration. Take particular care when valley fixing because there is no flexibility with the sheet hard against its support. Take particular care to ensure the fastener is driven perpendicular to the sheeting to avoid deformation of the washer.

**Figure 4.2**

It is important that you set screws correctly.



## RECOMMENDED FASTENERS AND LOCATIONS

The recommended fasteners and minimum specifications for a cladding are detailed in the individual cladding brochure. The location of the fasteners are detailed in the following diagrams for each cladding product.

### FASTENER LENGTH WITH INSULATION, BOARDS AND PACKERS

Where insulation (blankets or boards, foam packers or any other packer/board where the cladding screw penetrates through the support) is installed under cladding, you may need to increase the length of screws, depending on the density and thickness of the insulation, board or packer. When the screw is properly tightened (Figure 4.2):

- **into metal:** The screw manufacturer's recommendations for screw penetration should be complied with. Generally there should be at least one full thread protruding past the support you are fixing. If there are three (3) threads visible (even partial threads) then the penetration requirements are met. Where rib fixing is done, then the 'shank protection' must not reach the support (Figure 4.3);
- **into timber:** the screw must penetrate the timber by the same amount that the recommended screw would do if there were no insulation, i.e. same embedment.
- For deep insulation, board or packer the availability of a suitable screw, with all the recommended features and minimum specifications will need to be investigated. It may be necessary to increase the screw gauge accordingly or seek advice from the screw manufacturer. Site trial of screw fixing may need to be conducted to determine the suitability of the selected screw.

### SIDE-LAP, ACCESSORY & FLASHING FASTENINGS

For MINI ORB® and PANELRIB® cladding

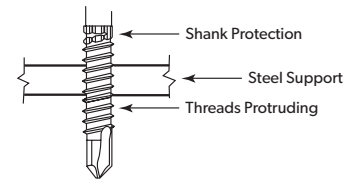
- Use 3.2mm diameter aluminium sealed blind rivets

For all other products use:

- RoofZips® M6 -11 x 25 or
- M5-16 x 25 Designer Head® or
- Hex Head Metal Tek® with seal: 10-16 x 16; or
- Sealed blind rivets: 4.8mm diameter aluminium.

**Figure 4.3**

Setting screws correctly.



## QUANTITY OF FASTENERS AND CLIPS

### KLIP-LOK® 406, KLIP-LOK 700 HI-STRENGTH®, KLIP-LOK CLASSIC® 700 AND LONGLINE 305®

For number of clips, see equation below.

For KLIP-LOK® 406, there are 2 fasteners per clip.

For KLIP-LOK 700 HI-STRENGTH® and KLIP-LOK CLASSIC® 700 there are 3 fasteners per clip.

For LONGLINE 305®, there is 1 fastener per clip.

### PIERCE-FIXED PROFILES

For number of fasteners, see equation a below (n is the number of fasteners per support).

### SIDE-LAPS

Side-lap fasteners are often placed at about 900mm centres.

### FIXING TO STEEL THICKER THAN 3MM

Use appropriate self-drilling screws with an extended drill point; or pre-drill hole and seek advice from the screw manufacturer on the appropriate screw specifications.

### NUMBER OF CLIPS PER JOB =

(Number of supports) x (Number of sheets + 1) for LONGLINE 305® and KLIP-LOK® 406, or

(Number of supports) x (Number of sheets) for KLIP-LOK 700 HI-STRENGTH® and KLIP-LOK CLASSIC® 700

### NUMBER OF FASTENERS PER JOB =

LONGLINE 305® = number of clips

KLIP-LOK® 406 = number of clips x 2

KLIP-LOK 700 HI-STRENGTH® = number of clips x 3





KLIP-LOK CLASSIC® 700 = number of clips x 3

Number of fasteners per job (for pierced fixing) = n x (Number of sheets) x (Number of supports)

LYSAGHT® Roofing & Walling Installation Manual available at [www.lysaght.com/installation/roofing-and-walling](http://www.lysaght.com/installation/roofing-and-walling)

**Table 4.2**

**TYPICAL FEATURES OF SCREWS**

Head		Shank	Drill Point
Hexagon head with integrated metal washer 	Hex. head with EPDM seal	<b>Top Tread Section</b> Extrudes sheeting towards the seal to maximise resistance to water penetration. Grips the sheeting for a secure connection. Stops sheeting from moving when walked on.	Self drilling for metal RoofZip® Point
Hexagon head with integrated metal washer 	Hex. head with no seal	<b>Dwell Section</b> Prevents the sheeting from riding up during fixing and minimises distortion of the profile.	Self drilling for timber Drill Point. Type 17
Wafer Head 	Wafer head with no seal	<b>Shank Protection</b> Enlarges the hole in the sheeting to minimise damage to the protective coating on the screw.	Self drilling for metal Drill Point. Standard Metal Self drilling for metal Extended Drill Point
Special Self-sealing Head 	RippleZips® screw head with self-sealing head		Self drilling for metal RippleZip® Point

**Table 4.3**

Guide to estimate fasteners and clips required for typical installation.

**FASTENER & CLIP REQUIREMENT GUIDE (PER M<sup>2</sup>)**

Cladding Profile	No. of fasteners (clips) per sheet width	Sheet Cover Width	Maximum Support Spacings (mm)					
			450*	600*	900	1200	1500	1800
CUSTOM ORB®	3	762	9	7	5	4	3	3
	5	762	15	11	8	6	5	4
CUSTOM BLUE ORB®	3	762	9	7	5	4	3	3
	5	762	15	11	8	6	5	4
CUSTOM ORB ACCENT® 21	3	762	9	7	5	4	3	3
CUSTOM ORB ACCENT® 35	3 (6 @ ends)	724	12	9	6	5	4	3
EASYCLAD®	1	300	8	6	4	3	3	2
INTEGRITY® 820	3	820	-	-	-	3	2	2
KLIP-LOK® 406	2 (1 clip)	406	-	-	6	5	4	3
		406	-	-	3	2	2	1
KLIP-LOK 700 HI-STRENGTH®	3 (1 clip)	700	-	-	2	1	1	1
		700	-	-	5	4	3	3
KLIP-LOK CLASSIC® 700	3 (1 clip)	700	-	-	2	1	1	1
		700	-	-	4	3	2	2
LONGLINE 305® (Not Tapered)	1 (1 clip)	305	-	-	4	3	2	2
		305	-	-	4	3	2	2
MINI ORB®	6	820	17	13	9	7	5	5
	11	820	30	22	15	11	9	7
MULTICLAD®	4	840	11	8	6	4	4	3
PANELRIB®	4	850	11	8	6	4	4	3
	8	850	21	16	10	8	6	5
SPANDEK®	3	700	10	8	5	4	3	3
	4	700	13	10	6	5	4	3
SPANRIB®	3	820	-	-	-	3	2	2
TRIMDEK®	4	762	12	9	6	5	4	3
TRIMWALL®	4	762	12	9	6	5	4	3
WALLCLAD®	3	762	9	7	5	4	3	3
	5	762	15	11	8	6	5	4

\* Typical residential framing spacings.

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