
MANUFACTURERS INFORMATION ON STAINLESS STEEL CLIP SUPPORT – WALL FIXING SCREWS

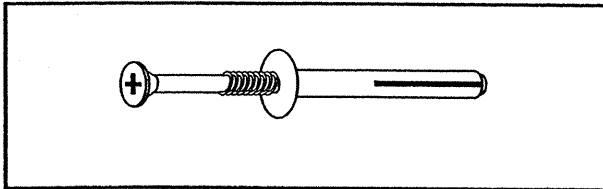
11.0 Zamac HAMMER SCREW®

11.1 Introduction

The Zamac HAMMER-SCREW® is a unique, one-step drive anchor featuring a No. 2 Phillips type head and a screw thread for use in concrete, block, brick or stone. With a body formed from corrosion resistant Zamac 7 alloy and a carbon steel drive screw, this anchor has been developed by Rawl as an improvement over standard nailin anchors. Traditionally, Zamac Nailin® anchors have been used for light duty, non-engineered applications and have not been recommended for use overhead. In order to overcome these problems, the new Zamac HAMMER-SCREW® has been designed to provide a removable anchor with 40% higher tension load capacities when installed in concrete.

11.2 Product Description

On the working end of the anchor, two longitudinal slots are formed which allow slot to expand as the pre-assembled drive screw is driven into the anchor body. As the screw is driven into the anchor body, each half of the expansion mechanism is compressed against the walls of the drilled hole. Once set, the anchor can also be removed.



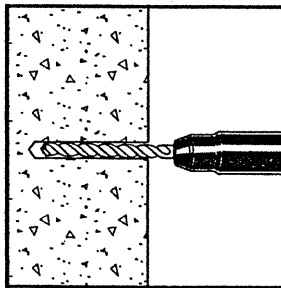
While the standard Zamac Nailin® has not been recommended for use overhead, the Zamac HAMMER-SCREW® can be used overhead provided it is part of an engineered system designed by an engineer who will take the proper design considerations and safety factors into account.

Material Specifications:

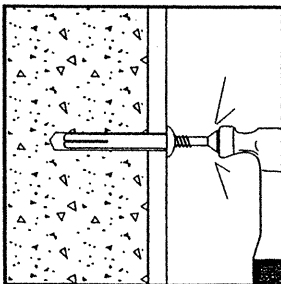
Drive nail: AISI 1018
Anchor Body: Zamac 7 Alloy
Nail Plating : ASTM B 633, SC1 Type III (Zn / Fe)

11.3 Installation Procedures

Using the proper diameter bit, drill a hole into the base material to a depth of at least 6.5mm deeper than the required embedment. Blow the hole clean of dust and other material.

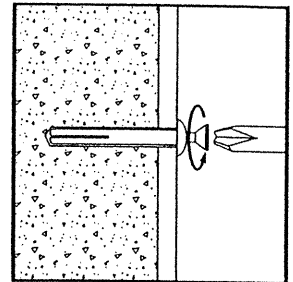


Insert the anchor through the fixture. Drive the screw into the anchor body to expand it. Be sure the head is seated firmly against the fixture and that the anchor is at the proper embedment.



To Remove

Press the No. 2 screw driver firmly into the screw head and turn counter-clockwise. Pry the screw from the anchor body, then pry out the fixture and anchor body.



11.4 Anchor Sizes and Styles

The following tables list the sizes and styles of Rawl Zamac HAMMER-SCREW® anchors. For mushroom head anchors, the anchor length is measured from below the head to the end of the anchor. To select the proper length, determine the embedment depth required to obtain the desired load capacity. Then add the thickness of the fixture, including any spacers or shims, to the embedment depth. This will be the minimum anchor length required.

Zamac Hammer-Screw® Anchor-Mushroom Head

Cat. No.	Part No.	Anchor Size	Drill Dia.	Std. Box	Std. Ctn.	Wt./ 100
1107	ZHSA6525	6.5mm x 25mm	6.5mm	100	500	0.8
1108	ZHSA6532	6.5mm x 32mm	6.5mm	100	500	1
1109	ZHSA6538	6.5mm x 38mm	6.5mm	100	500	1.1
1110	ZHSA6550	6.5mm x 50mm	6.5mm	100	500	1.4
1219	ZHSA6557	6.5mm x 57mm	6.5mm	100	500	1.6
1113	ZHSA6575	6.5mm x 75mm	6.5mm	100	500	1.9

11.5 Performance Data

The following load capacities are based on testing conducted according to ASTM Standard E 488.

Anchor Size	Embed. Depth	15 N/mm² Concrete		30 N/mm² Concrete		40 N/mm² Concrete	
		Tension (kN)	Shear (kN)	Tension (kN)	Shear (kN)	Tension (kN)	Shear (kN)
6.5mm	16mm	3.00	6.32	3.78	8.01	3.96	8.01
6.5mm	22mm	4.72	7.12	5.29	8.01	5.56	8.01
6.5mm	29mm	5.43	7.12	6.01	8.01	6.45	8.01
6.5mm	35mm	6.05	7.12	6.85	8.01	7.38	8.01
6.5mm	48mm	6.58	7.12	7.12	8.01	7.92	8.01

NOTE: The load capacities listed above are ultimate or failure loads based on laboratory testing in accordance with ASTM E-488. To calculate the design or allowable working loads, these capacities should be reduced by a minimum safety factor of four. Refer to the section on Product Selection Guidelines for details.

Load Capacities in C-90 Hollow Block and Solid Red Brick

Anchor Size	Embed. Depth	C-90 Hollow Block		Solid Red Brick	
		Tension (kN)	Shear (kN)	Tension (kN)	Shear (kN)
6.5mm	20mm	2.40	5.34	4.14	7.12
6.5mm	25mm	2.89	6.23	4.40	7.12
6.5mm	35mm	3.74	6.23	5.12	7.12
6.5mm	38mm	4.40	6.23	5.60	7.12

NOTE: The values listed above are ultimate load capacities in kilonewtons which should be reduced by a minimum safety factor of four or greater to determine the allowable working load. Refer to the section on Product Selection Guidelines for details. The consistency of hollow block and brick varies greatly. The load capacities listed should be used as guidelines only. Job sit tests should be conducted to determine actual load capacities.

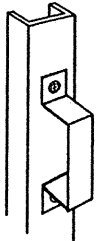
FIXING TO...Metal

SELECTION GUIDE

For jobs needing a low profile head

- metal deck clips
- electrical fittings
- signs
- sheet metal

Wafer Head

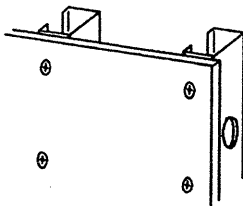


Product Range

Gauge	Dimensions	Product Features	Corrosion Coating	Pack Quantity	Part Number
8g	8-18x12mm		◇	1000	6-311-0009-2
10g	10-16x16mm	■	◇	100	1-311-9150-5TPMP
	10-16x16mm	■	◇	1000	6-311-0150-6
	10-24x16mm	■	◇	1000	6-311-0150-6MP
	10-24x16mm	■	◇	1000	6-311-0021-3MP
	10-16x22mm	■	◇	1000	6-311-0179-9
	10-16x22mm	■	◇	1000	6-311-0179-9MP
	10-24x22mm	■	◇	1000	6-311-0025-6MP
	10-16x30mm	■	◇	1000	6-311-0535-7MP
	10-24x40mm	■	◇	1000	6-311-0312-9MP

For fixing of plasterboard to metal

Bugle Head



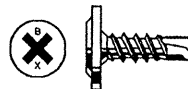
Product Range

Gauge	Dimensions	Corrosion Coating	Pack Quantity	Part Number
6g	6-18x25mm	◇	1000	6-311-0070-8
	6-18x30mm	◇	1000	6-311-0129-6
	6-18x45mm	◇	1000	6-311-0114-1

Jobs needing a broad flat head

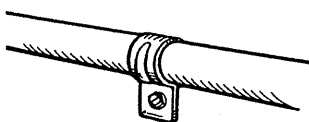
- foil sarking and insulation panels
- fascia bracket clips to rafters
- conduit clips to steel

Button Head



Product Range

Gauge	Dimensions	Corrosion Coating	Pack Quantity	Part Number
8g	8-18x12mm	◇	1000	6-311-0352-7
	8-18x16mm	◇	1000	6-311-0402-1
	8-18x20mm	◇	1000	6-311-0353-5
	8-18x25mm	◇	1000	6-311-0376-9
	8-18x32mm	◇	1000	6-311-0333-6



FIXING TO...Timber

SELECTION GUIDE

Jobs needing a low profile head:

- metal deck clips
- electrical fittings
- signs



Wafer Head

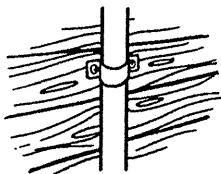


Product Range

Gauge	Dimensions	Product Features	Corrosion Coating	Pack Quantity	Part Number
10g	10-12 x 25mm			1000	6-031-0068-3MP
				1000	6-031-0068-3
	10-12 x 35mm			100	1-031-9150-5TP
	10-12 x 45mm			1000	6-031-0150-1
	10-12 x 45mm			2000	6-031-0107-5
	10-12 x 50mm			2000	6-031-0245-4

General fixing to Timber:

- brackets
- fittings



Pan Head

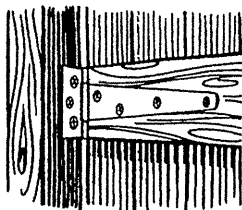


Product Range

Gauge	Dimensions	Corrosion Coating	Pack Quantity	Part Number
8g	8-15x20mm		1000	6-031-0040-9
	8-15x25mm		1000	6-031-0041-7

Jobs needing a flush finish:

- hinges
- furniture
- brackets



Countersunk Head



Product Range

Gauge	Dimensions	Corrosion Coating	Pack Quantity	Part Number
6g	6-18 x 25mm		1000	6-031-0011-3
			1000	6-031-0038-2
	8-15 x 25mm		1000	6-031-0002-7
10g	10-12 x 30mm		1000	6-031-0094-4
	10-12 x 40mm		1000	6-031-0003-5
	10-12 x 50mm		500	6-031-0016-4
	10-12 x 75mm		1000	6-031-0114-5

Ultimate Average Pullout Loads

Buildex TEKS® Screws

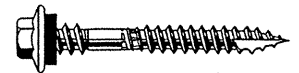
Fixing to Grade G450



Gauge/TPI	Purlin Thickness					
	1.0mm	1.2mm	1.6mm	1.9mm	2.4mm	3.2mm
6-18	2064N	2478N	3361N	-	-	-
6-20	1806N	2484N	3425N	-	-	-
8-18	2303N	2963N	3741N	-	6338N	-
10-16	2819N	3519N	4563N	-	7823N	-
10-24	-	-	3591N	-	7060N	10410N
12-14	2826N	3174N	4428N	5525N	7620N	11140N
12-24	-	-	3945N	-	7375N	10420N
14-10	3010N	3441N	4594N	6260N	8650N	-
14-20	-	-	4234N	5560N	7783N	11060N

Buildex Type 17 Screws

Fixing to F5 (F5/JD4 Timber - Radiata Pine)



Screw Type	Embedment Depth				
	20mm	25mm	30mm	35mm	50mm
6g	6-18 x 25mm Csk 2000N	-	-	-	-
8g	8-15 x 25mm Pan 2500N	8-18 x 40mm SEH 3400N	-	-	-
10g	-	-	10-12 x 45mm Wafer 3800N	10-12 x 75mm Csk 5700N	-
12g	-	-	12-11 x 45mm Hex 5400N	12-11 x 50mm Hex 6300N	-
14g	-	-	14-10 x 50mm Hex 6500N	14-10 x 50mm Hex 6900N	14-10 x 75mm Hex 9700N

Fixing to F17 (F17/J3 Timber - Seasoned Hardwood)

Screw Type	Embedment Depth				
	20mm	25mm	30mm	35mm	50mm
6g	6-18 x 25mm Csk 3000N	-	-	-	-
8g	8-15 x 25mm Pan 4100N	8-18 x 40mm SEH 4900N	-	-	-
10g	-	-	10-12 x 45mm Wafer 6000N	10-12 x 75mm Csk 7300N	-
12g	-	-	12-11 x 45mm Hex 6400N	12-11 x 50mm Hex 7900N	-
14g	-	-	14-10 x 50mm Hex 7100N	14-10 x 50mm Hex 9100N	14-10 x 75mm Hex 13500N

Mechanical Properties

Screw Type	Single Shear Strength	Axial Tensile Strength	Torsional Strength
Buildex TEKS® Screws			
10g	6.8kN	11.9kN	8.4Nm
12g	8.8kN	15.3kN	13.2Nm
14g	10.9kN	19.7kN	18.5Nm
Buildex Type 17 Screws			
12g	8.4kN	13.9kN	13.4Nm
14g	10.2kN	17.9kN	18.5Nm
14g Stainless Steel	10.2kN	12.6kN	12.7Nm

Note: All values are ultimate averages obtained under laboratory conditions (N.A.T.A approved)
Appropriate safety factors should be applied for design purposes. These figures apply to Buildex® (BX Head marked) products only.