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## FRAMECAD<sup>®</sup> Connectors are designed for speed, suitability and performance. Each one is a key component in delivering the most advanced and complete end-to-end steel frame building solution in the world.

The range includes connectors for steel truss, wall and joist assembly required for construction. FRAMECAD<sup>®</sup> connectors are designed with 4 main objectives - Design, Speed, Suitability and Performance.

- DESIGN:
   Ease of design with correct information specified in FRAMECAD° Software to deliver robust and reliable structures.

   SPEED:
   All connectors have been selected to optimise the speed and efficiency of the FRAMECAD° building system. Using FRAMECAD° screws reduces labour costs
- FRAMECAD<sup>®</sup> building system. Using FRAMECAD<sup>®</sup> screws reduces labour costs by making it quicker and easier to fix screws consistently, helping business reach optimum production rates, both in the factory and on-site.
- SUITABILITY: As the world leader in Cold Formed Steel construction technology FRAMECAD<sup>®</sup> has developed FRAMECAD<sup>®</sup> Connectors to further improve and advance this construction system.

The protective green powder coating makes identification of FRAMECAD<sup>°</sup> connectors easy during construction to ensure correct location and installation.

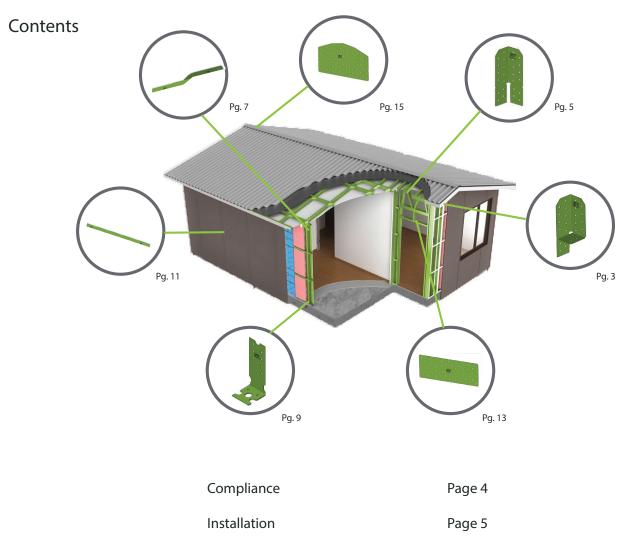
The specified FRAMECAD<sup>\*</sup> Fasteners form a critical part of the connector's tested performance and substitution with noncompliant screws or components may compromise the integrity of the structure

PERFORMANCE: The design capacity of the connector range has been calculated in accordance with AS/NZ 4600:2005 and AISI S100:2007. FRAMECAD<sup>®</sup> Fasteners have been tested according to the AS/NZS 4600:2005 and AISI S100:2007 to ensure they perform effectively with the FRAMECAD<sup>®</sup> Building System as well as complying to all relevant manufacturing standards.

# **FRAMECAD**®



# FRAMECAD<sup>®</sup> Connector Solutions



Bracket - Frame to Frame Conn	ection
Tri Fix	Page 6
Multi Fix Connector	Page 8
Twist Fix Strap	Page 10
Anchor - Frame to Floor Conne	ection
Hold Down Fix & Washer	Page 12
Bracing - Frame System Restrai	nt
Strap Fix	Page 14
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Plate - Frame and Connection S	Strengthening
Fix Plate Connector	Page 16
Apex Heel Plate	Page 18



## Compliance



### FRAMECAD<sup>®</sup> Certified

FRAMECAD<sup>®</sup> Connectors are manufactured from steel complying with AS/NZ 1397 G350 with a galvanised coating of Z275 and further protected with a FRAMECAD<sup>®</sup> long life green protection coating for further corrosion protection.

The design capacity of the connector range has been calculated in accordance with AS/NZ 4600:2005 and AISI S100:2007.

FRAMECAD<sup>®</sup> fasteners have been tested in accordance with AS/NZ 4600:2005 and AISI S100:2007 and are manufactured in ISO 9001 and ISO certified facilities.

Constructions using FRAMECAD<sup>®</sup> products must be built in accordance with local, national or international building regulations.

FRAMECAD<sup>®</sup> products are FRAMECAD<sup>®</sup> Certified and with the ratings published in this guide provided they are designed, installed and used in accordance with this guide and signed off by a locally registered engineer.



#### Substitution

The performance of FRAMECAD<sup>®</sup> connection solutions is very sensitive to design detailing, products used and construction practices. All FRAMECAD<sup>®</sup> connection solutions have been developed specifically for use with the FRAMECAD<sup>®</sup> cold formed steel framing system and tested and assessed to ensure the required level of performance.

It is important to use only FRAMECAD<sup>®</sup> branded components where specified and closely follow the design details and construction practices, so you can be confident that the required level of structural performance is achieved on site.

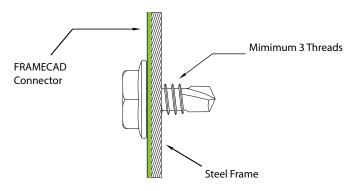


## FRAMECAD<sup>®</sup> Fasteners

FRAMECAD Fasteners have a Drill Point capable of drilling into medium to heavy gauge steel.

For successful connection the screw must be of sufficient length to ensure at least 3 threads are protruding through the fastened material.

The Drill Point length must be greater than the total thickness of both fixture and substrate (including any spaces or gaps) being fixed.



a2

b2

a2

## Where to Screw, Fasteners Spacing, End and Edge Distance Requirement

Min edge distance (a2) = 1.5 df (approximately 8mm for 10g screws)

Min Spacing (b1 or b2) = 3.0df (approximately 15mm for 10g screws)

Where df = Nominal screw diameter (mm)

Notes:

- The end distance is the distance to the edge of the steel measured in the direction of the applied force.
- To avoid tearing, the minimal end distance, a1, for our connector range is 8mm, otherwise specified.
- Use only the specified FRAMECAD<sup>®</sup> connectors and specified FRAMECAD<sup>®</sup> fastener type and quantity.
- Do not over load the joints or connectors.
- Any gaps in joints between steel members must not exceed 1.5mm.
- Do not weld connectors or drill additional fastener holes.
- Do not overtighten screws. Screws must be of sufficient length to ensure at least 3 threads protrude through the fastened material.

## FRAMECAD<sup>®</sup> Cold Formed Steel Specification

Cold formed steel frame material yield strength (Fy) and tensile strength (Fu) are defined in the table below.

				Fy (MPa)		Fu (MPa)							
		Fra	me Materi	ial Thickne	ess BMT (m	Frame material thickness BMT (mm)							
AS 1397	ASTM A653	0.55	0.75	0.95	1.15	1.55	0.55	0.75	0.95	1.15	1.55		
G350	50	N/A	350	350	350	350	N/A	420	420	420	420		
G500	70	N/A	500	500	500	N/A	N/A	520	520	520	N/A		
G550	80	410	495	550	N/A	N/A	410	495	550	N/A	N/A		



#### **Connectors Technical Manual**

FC-Connectors-Technical-Manual-Eng-0124

# Tri Fix Tie-down

#### Application:

Used to tie-down roof trusses, joists or rafters to the wall frame. Can also be used in cyclonic environments when fixed on both sides of the wall plate, with appropriate plate to stud fixing.

Code	009808 (Left)	009806 (Right)
Profile	14mm	38mm
Steel Grade	G350 t =	1.15 BMT*
Application	Steel Frame : 0.	95 to 1.55 BMT*
Finish	Galvanised Z275 with Gr	een Corrosion Protection
Packaging	50 units of	f each type

\* BMT = Base Material Thickness

#### Installation:

Use FRAMECAD<sup>®</sup> Certified Hex Head screws or, for applications that require a flush finish, use FRAMECAD<sup>®</sup> Flathead screws. For quantity of screws refer to the Design Capacities Tables.

Product	Order Code	Size	Description	Carton Qty
HWH FrameFix DP	Ideal for pane	l to panel fixing durir	ng frame erection and for fixing connectors.	
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
FRAMECAD Flathead	Ideal for conn	ecting metal strappi	ng or bracing and adding additional strength to co	nnectors
	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000



#### **Tri-Fix Design Capacities**

Design Capacity - LRFD Force (kN) AS/NZS 4600 / AISI S1											
	_	Steel	Number of screws		Steel Th	nickness	(Framir	ig) BMT			
Code	Bracket Gauge	Grade	required	0.95mm		1.15	1.15mm		mm	Total Screws	
	Gauge	(Framing)	(Uplift Restraint)	F1	F2	F1	F2	F1	F2		
		G350	2 - 10g	3.6	3.6	4.8	4.8	6.1	5.1*	6	
		6350	3 - 10g	5.4	3.6	7.1	4.8	9.1	5.1*	8	
009806 &	1.15mm	G500	2 - 10g	4.4	4.4	5.9	5.1*	N/A	N/A	6	
009808	1.15mm		3 - 10g	6.6	4.4	8.9	5.1*	N/A	N/A	8	
			2 - 10g	4.3	4.3	N/A	N/A	N/A	N/A	6	
		G550	3 - 10g	6.4	4.3	N/A	N/A	N/A	N/A	8	

1. Not all fastener holes need to be filled, additional fastener holes are provided to give options for screw location.

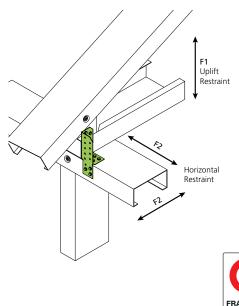
2. LRFD Force is the LRFD Design capacity according to AISI S100 and equal to the Ultimate Limit State (ULS) design capacity according to AS/NZS 4600.

3. The nominal shear strength of the connection is limited by tearing when critical, with a minimum edge distance of 8mm.

- 4. A minimum of 2 screws must be used for horizontal restraint.
- 5. \*Connection capacity is limited by the steel strength of the Bracket.

#### Ordering and Packaging

Code	Description	Qty
009806	TF/R-A2 - Tri Fix Right - 1.15mm	50
009808	TF/R-A2 - Tri Fix Left - 1.15mm	50

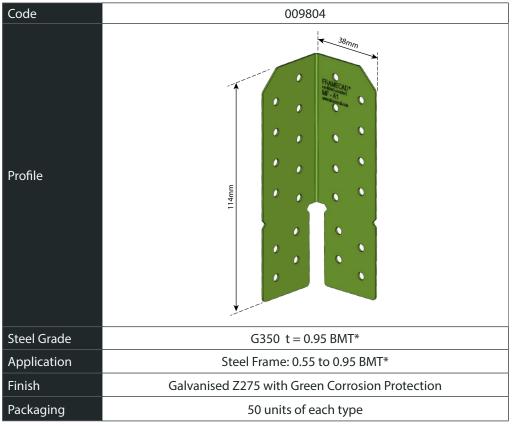


## **FRAMECAD** CERTIFIED

# Multi Fix Connector

#### Application:

Can be used as a 90 degree angle or either leg can be bent to be adapted to a type of 'Tri-Fix'. This allows maximum flexibility in installation and application. This connector is typically used to tie down roof trusses, rafters and/or to connect trusses together.



\* BMT = Base Material Thickness

#### Installation:

The bending slot allows easy and accurate bending on site. The Multi Fix may be bent into position only once along bending slot.

Use FRAMECAD<sup>®</sup> Certified Hex Head screws or, for applications that require a flush finish, use FRAMECAD<sup>®</sup> Flathead screws.

Product	Order Code	Size	Description	Carton Qty
HWH FrameFix DP	Ideal for pane	el to panel fixing du	iring frame erection and for fixing connectors.	
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
FRAMECAD Flathead	Ideal for conr	necting metal strap	ping or bracing and adding additional strength to	connectors
	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000



#### Multi Fix Design Capacities

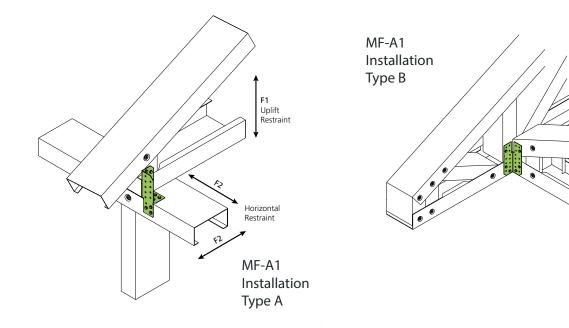
Design Ca	Design Capacity - LRFD Force (kN) AS/NZS 4600 / AISI S100												
		Steel	Number of Screws										
Code	Bracket Gauge	Grade	Required	0.55mm		0.75mm		0.95	0.95mm		Total Screws		
	(Framing		(Uplift Restraint)	F1	F2	F1	F2	F1	F2				
		G350	2 - 10g	N/A	N/A	2.5	2.5	3.6	3.6	6	4		
		0550	3 - 10g	2.4	1.6	3.8	2.5	5.4	3.6	8	6		
009804	0.95mm	G500	2 - 10g	N/A	N/A	3.1	3.1	4.4	4.2*	6	4		
009804	0.9511111	0065	3 - 10g	N/A	N/A	4.7	3.1	6.6	4.2*	8	6		
		G550	2 - 10g	1.5	1.5	3.0	3.0	4.3	4.2*	6	4		
		3330	3 - 10g	2.3	1.5	4.5	3.0	6.4	4.2*	8	6		

1. Not all fastener holes need to be filled, additional fastener holes are provided to give options for screw location.

2. LRFD Force is the LRFD Design capacity according to AISI S100 and equal to the Ultimate Limit State (ULS) design capacity according to AS/NZS 4600.

3. The nominal shear strength of the connection is limited by tearing when critical, with a minimum edge distance of 8mm.

- 4. A minimum of 2 screws must be used for horizontal restraint.
- 5. The Multi Fix may only be bent into position once along the bending slots.
- 6. \*Connection capacity is limited by the steel strength of the Bracket.



#### Ordering and Packaging

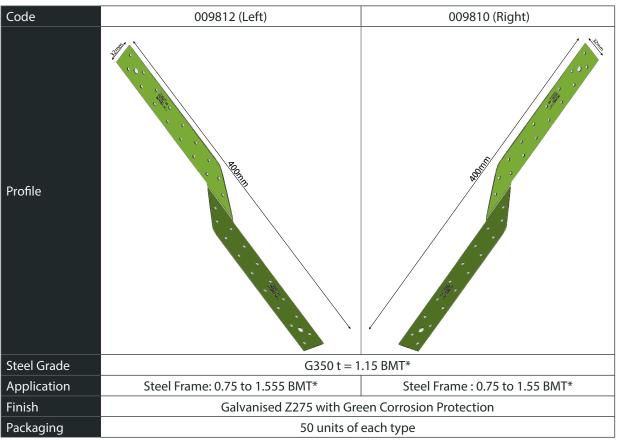
Code	Description	Qty
009804	MF-A1 - Multi Fix Connector 0.95mm	50



# Twist Fix Strap

#### Application:

Used as a heavy duty tie down for roof trusses, joists or rafters fro high wind zones or wherever high strength connections are required. The connector geometry allows a high number of fasteners to be used, and allows the fixing of the tie directly along the length of the stud.



\* BMT = Base Material Thickness

#### Installation:

The Twist Fix Strap may be bent over the truss during installation. The Twist Fix Strap must form a directly connection between the truss, joist or rafter to the wall stud.

Use the specified number of FRAMECAD<sup>°</sup> 10g Hex Head screw, or for applications that require a flush finish use FRAMECAD<sup>°</sup> 10g Flathead screw. For the quantity of screws at each end of the Twist Fix Strap refer to the Design Capacities Table.

Product	Order Code	Size	Description	Carton Qty
HWH FrameFix DP	Ideal for pane	l to panel fixing durir	ng frame erection and for fixing connectors.	
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
FRAMECAD Flathead	Ideal for conn	ecting metal strappir	ng or bracing and adding additional strength to co	nnectors
	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000



#### Twist Fix Strap Design Capacities

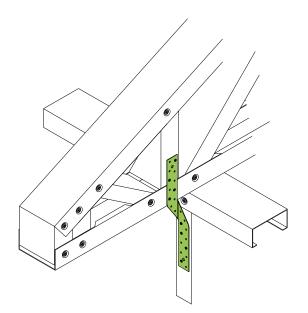
Design Capacities - LRFD Force (kN) AS/NZS 4600 / AIS											
Number of Screws Required per Steel Gauge											
Code #	Steel Grade	Steel <sup>-</sup>	Thickness (Framing	J) BMT	Allowable Loads						
	(Framing)	0.55	0.75	0.95	Allowable Loads						
	G350	-	12 - 10g	10 - 10g							
009810 & 009812	G500	-	10 - 10g	8 - 10g	7.2						
	G550	20 - 10g	10 - 10g	8 - 10g							

1. Not all fastener holes need to be filled, additional fastener holes are provided to give options for screw location. Install fasteners symmetrically.

2. Install half of the fasteners on each end of the strap to achieve full listed load capacity

3. LRFD Force is the LRFD Design capacity according to AISI S100 and equal to the Ultimate Limit State (ULS) design capacity according to AS/NZS 4600.

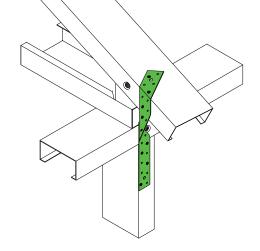
4. The nominal shear strength of the connection is limited by tearing when critical, with a minimum edge distance of 8mm.



Ordering and Packaging:

Code	Description	Qty
009810	TFS/R-A2 - Twist Fix Strap (Right) 1.15	50
009812	TFS/L-A2 - Twist Fix Strap (Left) 1.15	50

The Twist Fix Strap can be bent over the truss to allow for additional screw placement.





#### **Connectors Technical Manual**

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#### Application:

Anchoring system to fix steel frame structures to concrete foundations.

The specific geometry of the bracket and the washer allows the bracket to be fixed close to one side of the stud increasing the concrete slab edge distance to maximise the capacity of the Anchor System.

The FRAMECAD<sup>®</sup> Holdown Fix & Washer combined with the Screw Bolt provides a high strength anchoring system to resist uplift forces typical in single level dwellings.

Code	009815					
Profile						
Steel grade	Bracket: G350 - 1.15mm	Washer: G250 - 6mm				
Application	Steel Frame 0.55 to 1.55 BMT*					
Finish	Galvanised Z275 with Green Corrosion Protection					
Packaging	25 units per carton (washer included)					

Installation:

To achieve the stated capacities the 009815 must be installed with the included washer and FRAMECAD<sup>®</sup> Hex Head Screw.

Note: ScrewBolt may be used for internal connections where edge concrete slab distance is greater than 60mm and applicable loads allow.

Product	Order Code	Size	Description	Carton Qty
HWH FrameFix DP	Ideal for pane	l to panel fixing durin	ng frame erection and for fixing connectors.	
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000



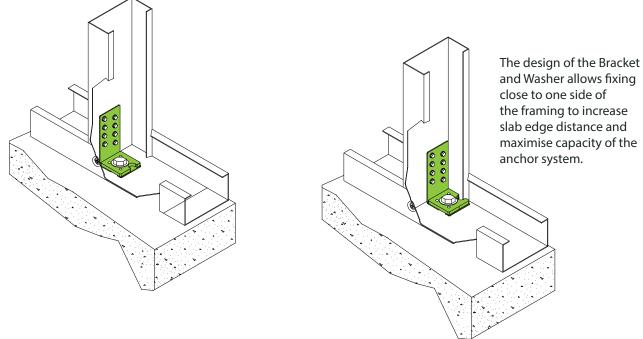
Design Capacities - LR	AS/NZS 4600 / AISI S10				
Code #	Steel Grade	Number & Size	Steel Thickness (Framing) BMT		
Code #	(Framing)	of Screws	0.55mm	0.75mm	≥ 0.95mm
	G350	6 - 12g	-	8.1	12*
		8 - 12g	-	10.7	12*
000015	6500	6 - 12g	-	10.0	12*
009815	G500	8 - 12g	-	12*	12*
	CEED	6 - 12g	4.9	9.6	12*
	G550	8 - 12g	6.6	12*	12*

#### Holdown Fix & Washer Design Capacities

1. Use specified number of FRAMECAD certified Hex Head 12g screw

2. LRFD Force is the LRFD Design capacity according to AISI S100 and equal to the Ultimate Limit State (ULS) design capacity according to AS/NZS 4600.

3. \*Capacity limited by the design strength of the Hold down Bracket determined by testing.



#### Ordering and Packaging:

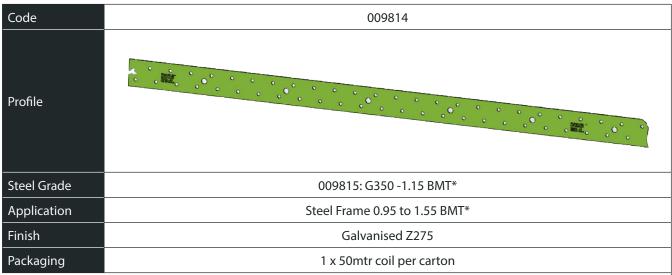
Code	Description	Qty
009815	HDF-A1 Hold Down Anchor 1.15mm & 6mm Flat Washer	25



# Strap Fix Bracing

#### Application:

Used to brace roof, wall and ceiling panels. Available in long coils with an optimised number of screw holes, they are easy to use on site. Strap Fix can also be used as a tie down for wall frame or trusses.

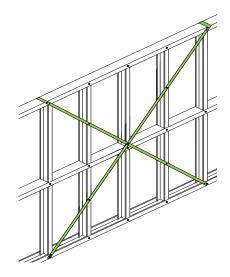


\* BMT = Base Material Thickness

Installation:

To act as a structural bracing system the bracing straps must be tensioned with the FRAMECAD Strap Fix Tensioner PT32.

After tensioning the strapping it must be screwed to each stud it crosses. Ensure each length of the strap has a tensioner properly tightened before fixing it to the stud. For quantity of screws refer to Design Capacities table.



Product	Order Code	Size	Description	Carton Qty			
HWH FrameFix DP	Ideal for panel to panel fixing during frame erection and for fixing connectors.						
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000			
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000			
FRAMECAD Flathead	Ideal for conn	ecting metal strappir	ng or bracing and adding additional strength to cor	nectors			
	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000			
	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000			



#### Strap Fix Bracing Design Capacities

Design Capacities - LRFD F	AS/NZS 4600 / AISI S10						
Number of screws - Screw Gauge							
Code #	Frame Steel	Frame M	Frame Material Thickness BMT (mm)		¬ Allowable Loads		
	Grade	0.55	0.75	0.95	Allowable Loads		
Code #		0.95	1.15	1.55			
000814	G 350	5 - 10g	4 - 10g	4 - 10g	0.0		
009814	G 550	5 - 10g	4 - 10g	-	8.8		

1. Not all fastener holes need to be filled, additional fastener holes are provided. Install fastener symmetrically

2. LRFD Strength is the LRFD Design capacity according to AISI S100 and is the Ultimate Limit State (ULS) design capacity according to AS/NZS 4600.

3. The nominal shear strength of the connection is limited by tearing when critical, with a minimum edge distance of 8 mm

4. The tables values are the quantity of fastener at each end of the Strap Fix Brace.

#### Ordering and Packaging:

Code	Description	Qty
009814	SF/32-A2 Strap Fix 1.15mm 32mm x 50mtrs	1 x 50 mtr Coil

## Strap Fix Tensioner

#### Application:

Used in conjunction with FRAMECAD<sup>®</sup> Strap Fix to brace roof, wall and ceiling panels. The Strap Tensioner is easily installed on strap bracing to apply load to bracing systems to effectively resist deflection.

Designed for steel frames up to 1.55mm (BMT).

Features & Benefits:

- Galvanised Z275.
- Manufactured to Steel grade AS/NZ 1397 G450 Hi Tensile Steel
- Max Extension attributable to the unit 4.0mm
- Compliant with: AS 4440 clause 4.3.2 steel brace

#### Installation:

The Strap Fix Tensioner can easily and quickly tension the Strap Fix simply by driving the Hex head screw. FRAMECAD<sup>®</sup> Strap Fix takes the load in tension only and should be used in pairs; one Strap fix Tensioner on each Strap Fix.

#### Ordering and Packaging

Code	Description	Qty
308321	PT 32 Strap brace tensioner Hi tensile Steel	100

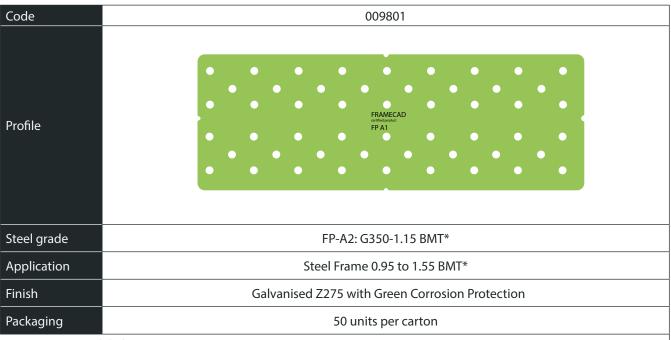




# **Fix Plate Connector**

#### Application:

Used to locally reinforce connection strength and connect together cold formed steel panels.



\* BMT = Base Material Thickness

#### Installation:

Use FRAMECAD Certified HEX Head or for applications that require a flush finish use FRAMECAD<sup>®</sup> Flat Head Screws.

Product	Order Code	Size	Description	Carton Qty
HWH FrameFix DP	Ideal for pane	l to panel fixing duri	ng frame erection and for fixing connectors.	
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
FRAMECAD Flathead	Ideal for conr	ecting metal strappi	ng or bracing and adding additional strength to c	onnectors
	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000

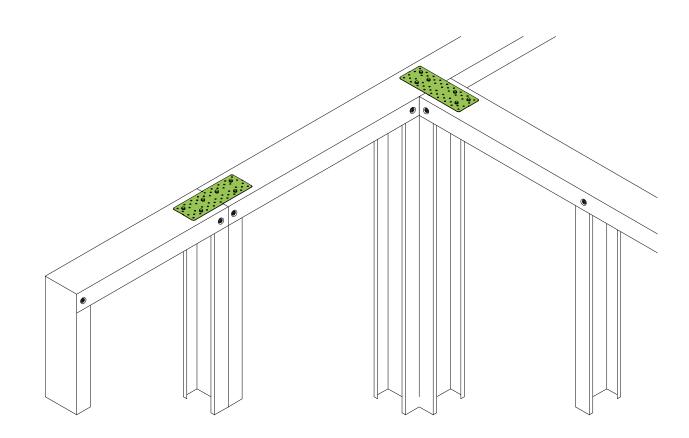


#### Fix Plate Design Capacities

Design Capacities - LRFD Force (kN) AS/NZS 4600 / AISI S10					
Code #	Plate Thickness (mm)	F1 Tension Capacity (kN)	F2 Shear Capacity (kN)		
009801	1.15mm	32.2	18		

1. Not all fastener holes need to be filled, additional fastener holes are provided.

2. For screw numbers refer to engineers specifications.



#### Ordering and Packaging:

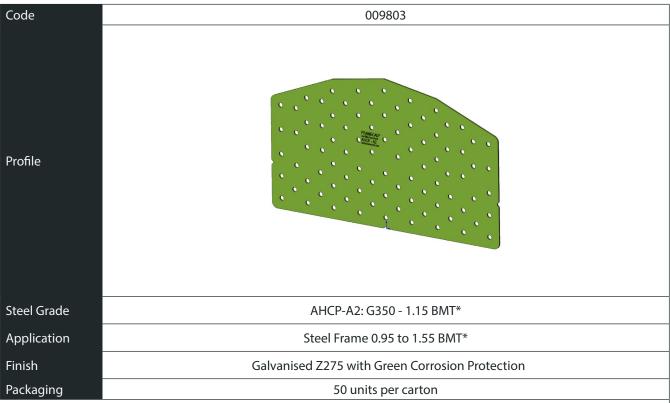
Code	Description	Qty
009801	FP-A2 Fix Plate Connector 1.15mm	50



# Apex / Heel Connector Plate

#### Application:

Suitable to locally reinforce connection strength of Heel and Apex of any Truss with a pitch of 8° to 32°. Patent Protected.



\* BMT = Base Material Thickness

#### Installation:

Use FRAMECAD Certified HEX Head or for applications that require a flush finish use FRAMECAD<sup>®</sup> Flat Head Screws.

For Screw numbers please refer to engineers specifications.

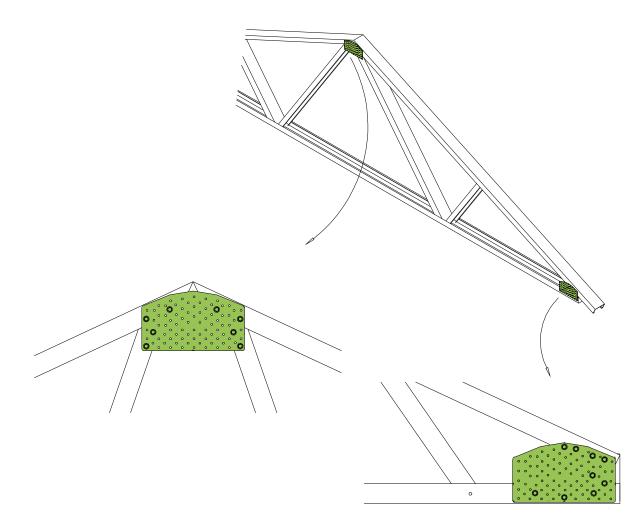
Product	Order Code	Size	Description	Carton Qty
HWH FrameFix DP	Ideal for panel to panel fixing during frame erection and for fixing connectors.			
	307387	10g x 19mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
	002409	12g x 25mm	Hex Head FrameFix DP, 1000hrs, Loose	5,000
FRAMECAD Flathead	Ideal for connecting metal strapping or bracing and adding additional strength to connectors			
Altho	001539	10g x 16mm	FRAMECAD Flathead DP, 1000hrs, Loose	10,000



#### **Typical Installation**

FRAMECAD<sup>®</sup> Connector Plates are specifically designed and engineered to make them easy and efficient to use with the practical geometry of steel trusses and framing.

For Screw numbers please refer to the engineers specification.



Ordering and Packaging:

Code	Description	Qty
009803	AHCP-A2 Apex Heel 1.15mm	50



#### **Connectors Technical Manual**

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