PRODUCT DATA SHEET

NZ PYRDA HEAVY DUTY AND MULTI-FIX TRUSS BOOTS

Strong means of forming a truss-to-truss connection. Specifically designed to support Girder trusses and large span trusses.

FEATURES AND BENEFITS

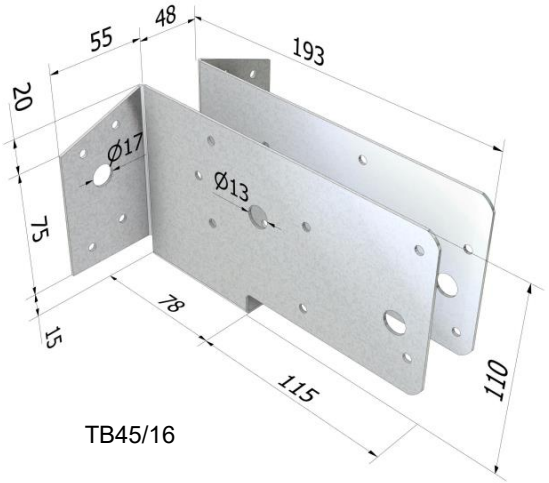
SIMPLE: Simple to install with bolt kits available to make. installation a breeze.

FAST: Multiple types available with different thicknesses and fastening types. Provides ample capacity against gravity, uplift, and rotational loads.

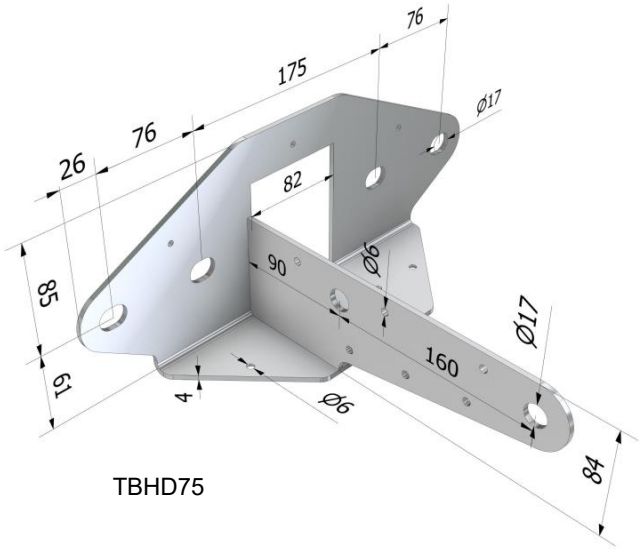
DURABLE: Made from reliable 1.6mm G300 Z275 Steel to 4mm HDG steel.

SPECIFICATIONS

	MULTI-FIX TRUSS BOOT	HEAVY DUTY
PRODUCT CODE	TB45/16	TBHD75
STEEL	G300	MILD STEEL
THICKNESS	1.6mm	4mm
CORROSION RESISTANCE	Z275	Hot Dipped Galvanised
FASTENERS REQUIRED	M12 bolts and M16 Bolts + *washers Pryda Timber Connector Screws. 12G x 35mm or 65mm screws	M16 Bolts +*washer Pryda Timber Connector Screws. 12G x 35mm or 65mm
HEIGHTS	110mm	150mm
WIDTHS	48mm	35mm - 70mm



TB45/16



TBHD75

Note:
*Refer to “installation” for washer size to suit M12 and M16 bolts.

At the time of print, this product is NOT subject to any known warnings and bans found in Building Act 2004.

APPLICATION AND SCOPE OF USE

Pryda Truss Boots TB45/16 and TBHD75 are certified when used and installed in accordance with the product datasheet shown connection details. Pryda fasteners approved for the installation form an integral part of the connection and therefore should be used with all Pryda products installation unless otherwise approved by a certified structural Engineer. Only use the product for its intended applications and the selected product material type within the specified environmental condition as outlined in NZS 3604:2011 Table 4.1. (Refer to Durability section for more details).

TB45/16: This Pryda Multi-Fix Truss Boot is used to connect roof trusses or other roof members to supporting girder truss. 'Multifix' means that these connectors can be fixed with bolts or screws or bolts and screws together.

TBHD75: The long anti-rotation leg and heavy-duty steel of Pryda Heavy Duty Truss Boots, combined with the inherent high stiffness of the carried truss, prevents twisting of the bottom chord of the girder.

DURABILITY

The following table provides an easy guide when selecting a Pryda product corrosion protection finish that will meet and exceeds NZS 3604:2011 Table 4.1.

Pryda Heavy Duty and Multi-fix Truss Boots are only available in HDG and Z275, therefore suitable for "Closed" environment.

ZONE	LOCATION		Environment	Product
All Zones	Fully enclosed walls, floors, and roof spaces		Closed	Pryda Zinc Coated Products Z275
Zones B and C	All subfloor fastenings more than 600mm above the ground	Vented 7000mm^2/m^2 or LESS	Sheltered	Pryda Stainless Steel 304 Products (3)
		Vented MORE than 7000mm^2/m^2	Exposed	Pryda Stainless Steel 304 Products (3)
	All subfloor fastenings within 600mm of the ground	Sheltered and Exposed		Pryda Stainless Steel 304 Products (3)
	All other structural fixings	Sheltered		Pryda Stainless Steel 304 Products (3)
		Exposed		Pryda Stainless Steel 304 Products (3)
Zone D	All structural fixings	Sheltered and Exposed		Pryda Stainless Steel 304 Products (3)

Notes:
1.All Pryda galvanised products comply with NZS3604:2011 Table 4.2.
2.Refer to NZS3604:2011 for all environment definitions and Table 4.3 for nails or screw galvanizing.
3.Routine inspection and cleaning using soap and fresh warm water is an integral part of the ongoing care and maintenance of stainless steel to preserve its appearance.

STORAGE AND HANDLING

Prior to use, the Pryda products shall be stored in a weatherproof environment and protected from moisture. Care must be taken to avoid any damage to the surface of the product protective galvanised coating and profile that may impact the performance.

COMPLIES WITH THE FOLLOWING PROVISIONS OF THE NEW ZEALAND BUILDING CODE (NZBC)

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Loads arising from self-weight, imposed gravity loads arising from use, earthquake, snow, and wind. (i.e., B1.3.3 (a), (b), (f), (g), and (h)). Only some may apply for a specific use of the component.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years and B2.3.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1.

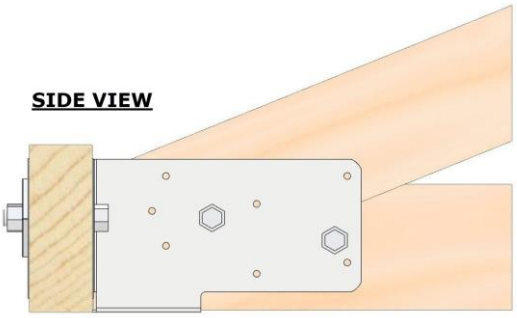
INSTALLATION

- M12 or ½ inch diameter bolts must be fitted with nuts and 55mm diameter or 56 x 56mm square by 3mm or 40 x 40mm square by 5mm thick washers to timber interface.
- M16 or 5/8-inch diameter bolts must be fitted with nuts and 63 x 63mm square by 5mm thick washers to timber interface.

BOLTS ONLY INSTALLATION

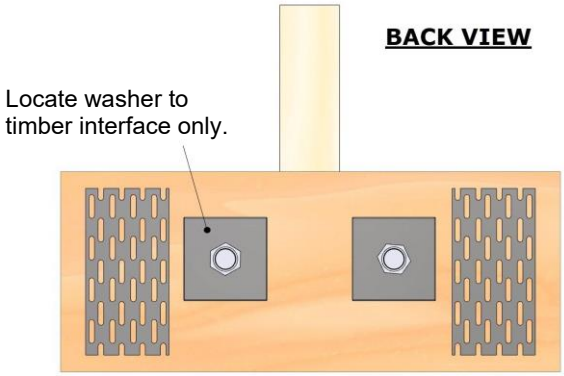
The roof cladding (tiles, sheet steel etc.) must be installed only after the truss boots are fully fixed into both the girder and supported truss, with all fasteners fully installed. i.e., Screws, Bolt assemblies etc.

STEP 1



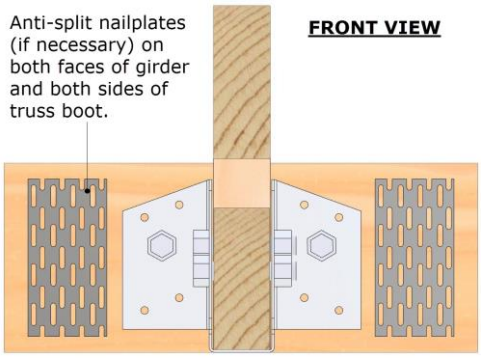
- Fit the Boot flush with the bottom of the girder bottom chord and tack fix with two nails or screws.
- Drill the bolt hole and fit the bolt with the nut and washer on the face opposite to the boot.
- Ensure correct bolt length and specification are used.

STEP 2



- Sit the incoming member into the boot and fix it in place.
- The clearance between the end of the incoming member and the face of the girder truss chord should not exceed 5mm, preferably tight fitting.
- Drill the bolt hole and fit the bolts, washers, and nuts.

STEP 3

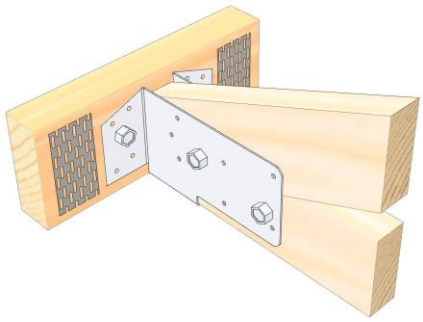


- Hammer apply anti-split Claw nailplates on the girder truss chord on both faces and both sides of the Boot, i.e.: 4 nailplates of:

CHORD WIDTH (mm)	90	120	140	170	190
ANTI-SPLIT PLATE SIZE	3C2	4C2		6C2	

- Note: Anti-split Claw nailplates are NOT required for boots fixed with M12 bolts into timbers that are not prone to splitting.

STEP 4



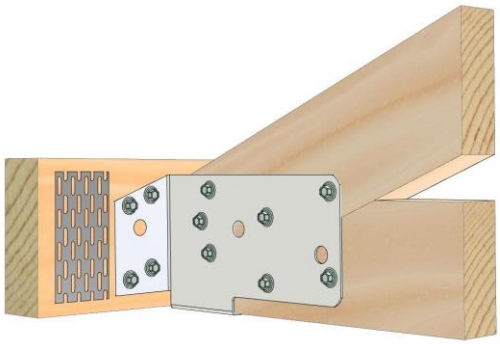
- Important: The roof cladding (tiles, sheet steel etc.) must be installed only after the truss boots are fully fixed into both the girder and supported truss, with all bolts and washers in place.

For more information call 1300 657 052 (Australia), 0800 88 22 44 (New Zealand) or email info@prydaanz.com

SCREWS ONLY INSTALLATION

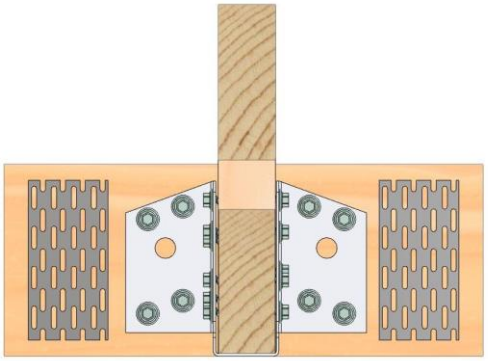
The roof cladding (tiles, sheet steel etc.) must be installed only after the truss boots are fully fixed into both the girder and supported truss, with all fasteners fully installed. i.e., Screws, Bolt assemblies etc.

STEP 1



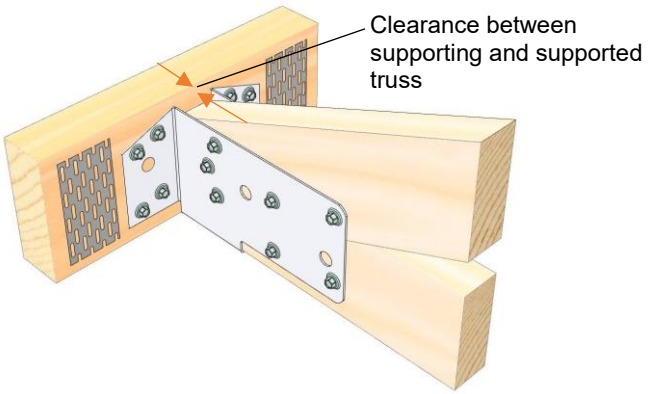
- If the girder truss is comprised of two or more laminates (i.e.: a “double” or “triple” girder), the laminates must be fixed together using one of the details specified in “Fixing Details For Double or Triple Girders”.

STEP 2



- Fit the Boot flush with the bottom of the girder bottom chord and tack fix with two screws.
- Fully install the remaining screws by filling all screw holes.

STEP 3

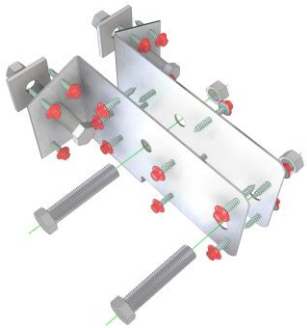


- Sit the incoming member into the boot and fix it in place.
- The clearance between the end of the incoming member and the face of the girder truss chord should not exceed 5mm.
- Drive screws into all holes.
- Note: that anti-split nailplates are not required for Screws Only fixing.

BOLTS AND SCREWS INSTALLATION

The roof cladding (tiles, sheet steel etc.) must be installed only after the truss boots are fully fixed into both the girder and supported truss, with all fasteners fully installed. i.e., Screws, Bolt assemblies etc.

STEP 1

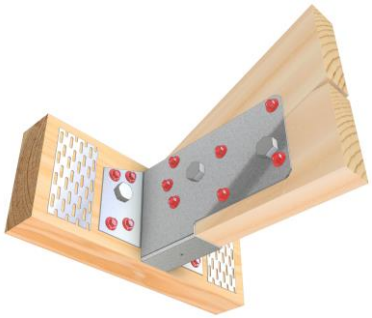


- Refer to the specification table on page 2 to gather the correct fasteners for the Truss Boot including the correct washer size when using bolts.

STEP 2

- Always fix to the supporting truss first, if the supporting girder truss is double or triple laminated, ensure the lamination connection method is adequate.
- Refer to our Hangers and Truss Boots design guide for details on appropriate girder lamination fixings.

STEP 3



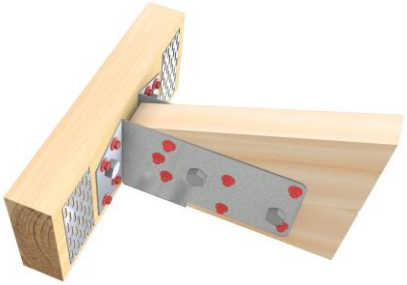
- Position the truss boot so the bottom sits flush with the bottom of the supporting truss.
- Fix Truss Boot using the fasteners required to achieve the desired capacity.

STEP 4

- If fixing with bolts and the timber is prone to splitting, fix anti split claw plates on either side of the truss boot and both face of the supporting truss for a total of 4 plates as illustrated above and in step 3.

CHORD WIDTH (mm)	90	120	140	170	190
ANTI-SPLIT PLATE SIZE	3C2	4C2		6C2	

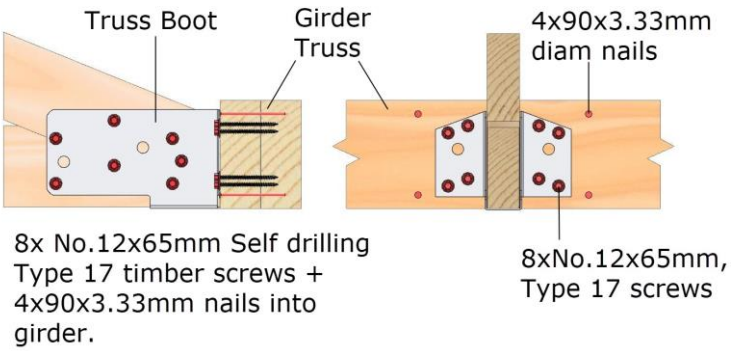
STEP 5



- Fit the incoming member ensuring it is tight up against supporting truss.
- The gap between the end of the supported truss and the supporting truss should be no more than 5mm.

FIXING DETAILS FOR DOUBLE 45MM GIRDER TRUSSES

DOUBLE GIRDERS – 2 x 45mm

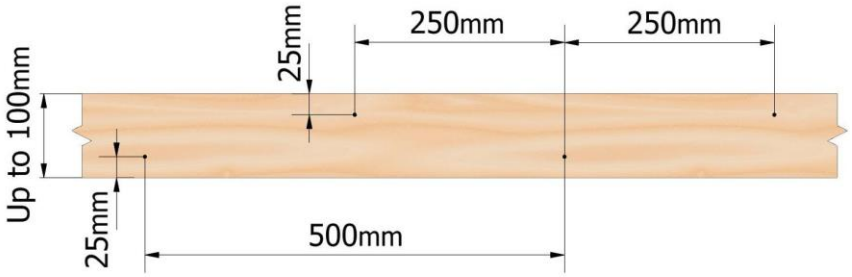


Notes:

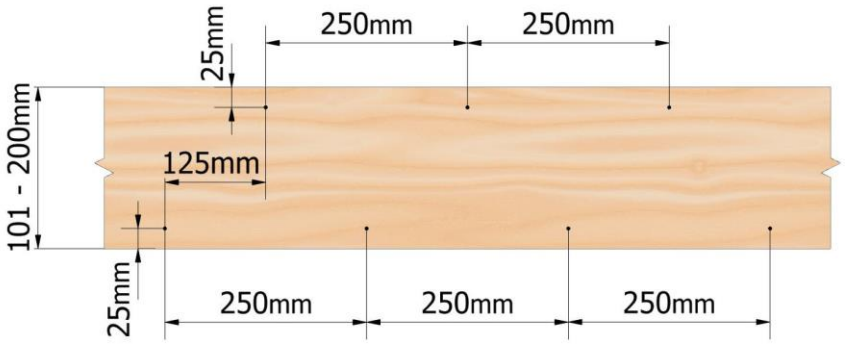
1. Nails at the Truss Boot are to be spaced 70mm (min) apart along the grain and 40 mm (min) apart across the grain. They should be as close to the Truss Boot as practical, but not further away than the depth of the member.
2. All screws are to be Pryda Timber Connector Screws TCS12-35 (12G x 35mm) or TCS12-65 (12G x 65mm)
3. For all double, the chords (top and bottom) and webs are to be nailed in accordance with truss lamination table.

TRUSS LAMINATION TABLE

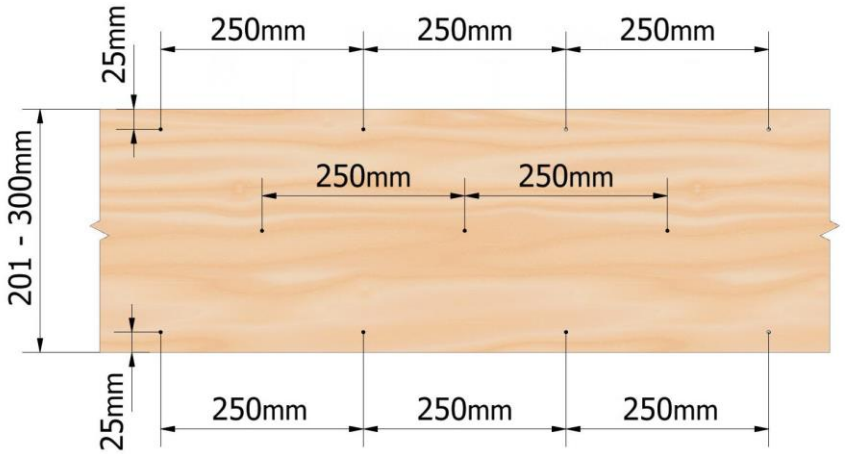
TIMBER WIDTH	NAIL ROWS & MAXIMUM SPACING
Up to 100mm	2 Rows (staggered) at 500mm cts
101 - 200mm	2 Rows (staggered) at 250mm cts
201-300mm	3 Rows (staggered) at 250mm cts



Up to 100mm Chords or Webs

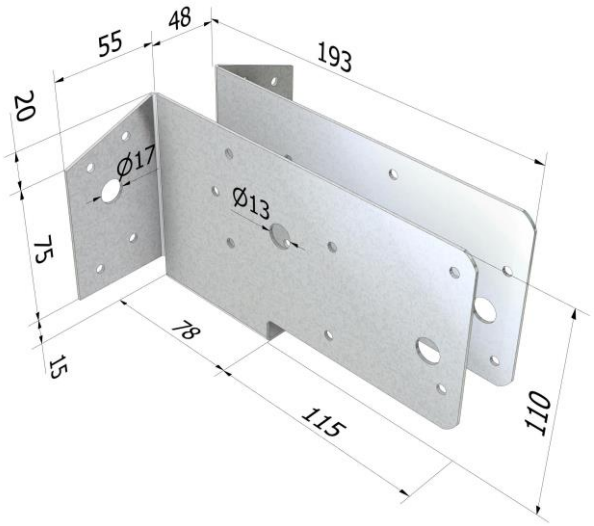


101mm - 200mm Chords or Webs



201mm - 300mm Chords or Webs

DESIGN CAPACITIES FOR MULTI-FIX TRUSS BOOTS



Determine Truss Boot capacities in the following manner:

FOR DOWNWARD LOADS

Design capacity is the lesser of the values in Table TB1 (at Girder truss) and Table TB2 (at supported truss) for the corresponding load case.

FOR WIND UPLIFT

Design capacity is the lesser of the G-Wu values in Table TB1 (at Girder truss) and Table TB3 (at supported truss).

TABLE TB1: GIRDER TRUSS CAPACITY (DOWNWARD AND UPLIFT – DUE TO FASTENERS)

BOOT CODE	LOAD CASE	DESIGN CAPACITY ΦNj (kN) - JOINT GROUP:
		J5
		MINIMUM THICKNESS (mm)
		45
TB45/16	BOLTS ONLY	
	G	8.9
	G + Qr	11.8
	G + Wd	14.8
	G - Wu	14.8
	SCREWS ONLY	
	G	8.7
	G + Qr	11.6
	G + Wd	14.6
	G - Wu	14.6
	BOLTS & SCREWS	
	G	17.6
	G + Qr	23.4
	G + Wd	25.0*
	G - Wu	20.0

Refer to notes under TABLE TB2 for conditions of use with the above table.

TABLE TB2: SUPPORTED TRUSS CAPACITY (DOWNWARD – DUE TO BEARING + FASTENERS)

PRODUCT CODE	LOAD CASE	DESIGN CAPACITY ΦNJ (KN) - JOINT GROUP		
		J5		
		FIXING OPTIONS		
		BOLTS ONLY (M12)	SCREWS ONLY	BOLTS + SCREWS
TB45/16	G	14.3	18.2	25.0*
	G + Qr	21.6	25.0*	25.0*
	G + Wd	24.7	25.0*	25.0*

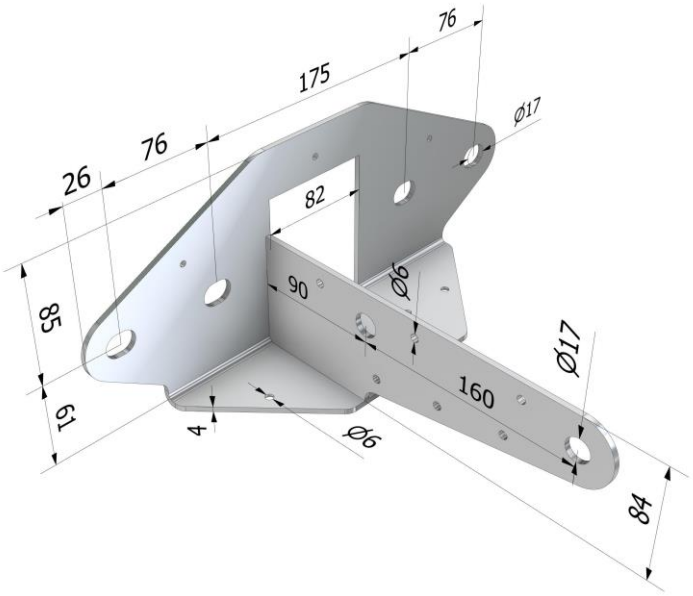
NOTES:
1. Load case symbols are: (refer Hangers and Truss Boots design guide for descriptions)
   - G = 1.35G
   - G + Qr = 1.2G + 1.5Qr
   - G + Wd = 1.2G + Wd
   - G - Wu = Wind uplift
2. Girder timber thicknesses are minimum. Supported truss thicknesses are minimums for bolt capacity and maximums (3 mm tolerance for two nail plates) for fitting the timber into the boot.
3. Bearing + fasteners capacities above apply to standard heel joints with a 10 mm minimum square cut or non-heel ends of cut-off and mono trusses.
4. Design capacities applies for dry (maximum moisture content of 18%) Radiata Pine and Douglas Fir timber grade SG8 and for timber which meets J5 timber in accordance with NZS3604.
5. For other design conditions, contact a Pryda design office.
6. The capacities with an asterisk (*) are governed by steel strength of the truss boot.
7. Use appropriate bolt lengths:
   - Min. 120mm bolts for up to 2/45 trusses.

TABLE TB3: SUPPORTED TRUSS CAPACITY (UPLIFT– DUE TO FASTENERS)

PRODUCT CODE	THICKNESS (mm)	FIXING METHOD	DESIGN CAPACITY ΦNj (kN) WIND UPLIFT (G-Wu)
			$k_1 = 1$
			J5
TB45/16	45	12 screws	17.5
		2/M12 bolts	11.1
		Bolts + screws	20.0

Notes:
1. For wind uplift, take the lower of the capacities for the supported truss and girder, i.e.: look up both tables.
2. Design capacities applies for dry (maximum moisture content of 18%) Radiata Pine and Douglas Fir timber grade SG8 and for timber which meets J5 timber in accordance with NZS3604.
3. The capacities with '*' are governed by steel strength of the truss boot.
4. Limit State Design capacities are shown in the table.

TRUSS BOOTS HEAVY DUTY



Features the long anti-rotation fin and heavy-duty steel of Pryda Heavy Duty Truss Boot, combined with the inherent high stiffness of the carried truss, prevents twisting of the bottom chord of the girder.

The TBHD75 Truss Boots have further benefits which include:

- Special shape to reduce weight, and rounded edges for easier handling.
- Improved bearing capacity for supported truss.
- A unique slot in the back of the boot to eliminate the need to cut 6-10mm from the heel of the supported truss.
- Additional screw fixings into supported trusses to improve uplift capacity, if required.
- Nail holes in the back flange to allow the boot to be easily located on the girder truss prior to drilling for bolts.
- Holes in the base to allow screw to hold any incoming angled member at ceiling level (such as a hip truss) in position. These holes are countersunk to allow flush finish if required.

INSTALLATION

Pryda Heavy Duty Truss Boots are installed with 6/ M16 bolts and with 63 x 5mm square washers on all surfaces where the bolt head or nut bears directly on the timber. Anti-split Claw nailplates are to be installed central to the bolt line on both faces of the girder and on both sides of the truss boot at approx. 80mm away from the centre of the outside bolts. Screws used on the TBHD75 Truss Boot are to be Pryda TCS12-35 or TCS12-65 for multi-laminate trusses.

DESIGN CAPACITIES FOR HEAVY DUTY TRUSS BOOT

Girder Truss bottom Chord MUST have the same Joint Group with a minimum 130mm depth to adopt the following table. Otherwise adopt the lesser of the Girder and supported truss joint group capacities.
Examples:

1) Girder Truss joint group J4 and supported truss J5, adopt the supported truss J5 capacities.
2) Girder Truss joint group J5 and supported truss J4, adopt the supported truss J5 capacities.
3) Girder Truss joint group J4 and supported truss J4, adopt the supported truss J4 capacities.
4) Girder Truss joint group J5 and supported truss J5, adopt the supported truss J5 capacities.

GIRDER TRUSS THICKNESS (mm)	SUPPORTED TRUSS THICKNESS (mm)	DESIGN CAPACITIES (kN) FOR VARYING LOAD CASES AND SUPPORTED TRUSS JOINT GROUPS							
		SUPPORTED TRUSS = J5				SUPPORTED TRUSS = J4			
		1.35G (Dead Only)	1.2G+1.5Q (Dead+ Live)	Wind Uplift		1.35G (Dead Only)	1.2G+1.5Q (Dead+ Live)	Wind Uplift	
				Bolts Only	Bolts+ Screws			Bolts Only	Bolts+ Screws
45	45	17.6	23.7	14.8	22.7	17.6	25.1	15.7	23.6
	2/45	17.8	23.7	19.6	27.5	18.8	25.1	24.6	30(1)
2/45	45	17.6	29.1	14.8	22.7	17.6	29.1	15.7	23.6
	2/45	23.6	31.4	19.6	27.5	29.5	39.4	24.6	30(1)

Notes:

1. The values (30 kN) with a superscript (2) refers to the capacities that are limited by steel strength of TBHD75 in uplift. The limiting steel value for downward loading is 40 kN.
2. 2/45 refers to 45mm thick double laminated truss.
3. Design capacities applies for dry (maximum moisture content of 18%) Radiata Pine and Douglas Fir timber grade SG8 and for timber which meets J5 timber in accordance with NZS3604.
4. The values related to 1.35G (Dead only) load case should be checked against reactions arising from 1.35G load case. Similarly 1.2G + 1.5Q (Dead + Roof Live) capacities should be checked against factored reactions from 1.2G + 1.5Q load case.
5. A 120mm deep bottom chord for girder trusses may be used when supporting concrete tile roofs in low wind areas (up to N2 wind class) where wind uplift is not critical or when the truss boot is located at a panel point.
6. It is important to use the specified washer (63 x 5mm square) against the timber face to achieve the full capacity of M16 bolts.
7. Limit State Design capacities are shown in table.

Contact details		Contact details	
Manufacture location	Overseas	Manufacture location	Overseas
Legal and trading name of manufacturer	Shanghai Zenith International Trading Company Co LTD	Legal and trading name of manufacturer	Exim Engineering Pty Ltd
Legal and trading name of importer	Pryda New Zealand -a Division of ITW New Zealand	Legal and trading name of importer	Pryda New Zealand -a Division of ITW New Zealand
Importer address for service	23-29 Poland Road, Wairau Valley, Auckland, 0627, New Zealand	Importer address for service	23-29 Poland Road, Wairau Valley, Auckland, 0627, New Zealand
Importer website	Pryda.co.nz	Importer website	Pryda.co.nz
Importer email	info@prydaanz.com	Importer email	info@prydaanz.com
Importer phone number	0800 88 22 44	Importer phone number	0800 88 22 44
Importer NZBN	9429039833129	Importer NZBN	9429039833129
Product Sku	TBHD75	Product Sku	TB45/16