pryda

DESIGN GUIDE

NAILPLATES

2022

NAILPLATES - DESIGN GUIDE

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Product Information Updates

Information contained in this product guide is subject to change.

The latest updates are available from www.pryda.com.au.

ESSENTIAL NOTES

Introduction

The information in this Product Guide is provided for use in Australia by architects, engineers, building designers, builders and others. It is based upon the following criteria:

1. **No Substitution:** The products covered by or recommended in this guide must not be substituted with other products.
2. **Design Capacity Basis:** See Codes & Standards following.
3. **Supporting Constructions:** Constructions using Pryda products must be built in accordance with the NCC (BCA) or an appropriate Australian Standard. *Note: This includes appropriate corrosion protection- See Corrosion Protection following.*
4. **Correct Installation:** Installation of Pryda products must be strictly in accordance with the instructions in this guide.
5. **Current Guide Version Used:** The current version of this guide, including any amendments or additions, must be used. Users are advised to check the Pryda website, www.pryda.com.au, on a regular basis for the most current design guides.

Codes & Standards

Product design capacities in this guide have been derived from:

(a) Results of laboratory tests carried out by or for Pryda Australia

(b) Engineering computations in accordance with the relevant Australian Standards, ie:

- AS1720.1-2010 Timber Structures. Part 1: Design Methods.
- AS/NZS1170 series Structural Design Actions.
- AS4055-2006 Wind Loads for Housing.

Design capacities tabulated in this guide apply directly for **Category 1** joints. For all other joints, reduce design capacities by using the factors as specified in *General Notes (if applicable)*. Design capacities are related to the **Joint Group** of the timber as defined in AS1720 and AS1684. If the Joint Group of timber members joined together varies, the lower group must be assumed for design, for example, JD5 is lower than JD4.

Definitions

Special terms used in this guide are as defined in Australian Standards, including:

Design Capacity: The maximum Limit State Design load (aka "action") which the product can safely support under the specified load condition, eg, 1.2G + 1.5Q (dead+roof live). *See General Notes for details (if applicable).*

Joint Group: Classification of a timber according to its fastener-holding capacity. *See General Notes for details (if applicable).*

Corrosion Protection

Most Pryda products are manufactured using Z275 light-gauge steel, having zinc coating of 275 gsm (total weight). This protection is adequate only for INTERNAL applications in most corrosive environments, except areas that are classified as heavy industrial or those subject to high humidity (eg, enclosed swimming pools). Under these circumstances, seek advice from experts as special protection will be required. *Note: INTERNAL areas are those within the building envelope that are kept permanently dry.*

AS1684.2-2010 and AS1684.3-2010, Australian Standards for Residential Timber Frame Construction stipulate a minimum Z275 steel for all sheet metal products used in an internal environment.

In areas outside the building envelope that are exposed to repeated wetting (EXTERNAL areas), Pryda's stainless steel products or equivalent should be considered. Some alternatives include hot dip galvanised or powder coated steel, which are not supplied by Pryda. For more detailed information, read Pryda's Technical Update on *Corrosion Resistance of Pryda Products* or contact a Pryda office.

Product Certification

Pryda Australia warrants:

- Products in this guide are free from defects in the material and manufacturing
- Design capacities are in accordance with test results or current, relevant Australian Standards and the Building Code of Australia.
- Pryda products are structurally adequate provided they are designed, installed and used completely in accordance with this guide.

This warranty applies only to:

- Products in this guide.
- Products used in the specified applications and not damaged after manufacture and supply.
- Joints free from wood splitting, decay or other timber defects at the joint or within 150 mm of the joint.

Instructions for Installation

These notes are provided to ensure proper installation.

1. All fasteners used must be manufactured by reputable companies and be of structural quality.
2. Connectors must not be installed on timber which is split before or during installation. If the timber is likely to split as fasteners are driven, fastener holes must be pre-drilled.
3. Do not overload the joints during construction or in service.
4. Hole diameter for bolts in seasoned timber must not be more than 1.0 mm larger than the bolt diameter to achieve a snug-tight connection. Specified washers must be installed against the timber face.
5. Use proper safety equipment and due care in installing these connectors.
6. Any gaps in joints between the timber members must not exceed 3 mm.
7. Do not over-tighten screws.

GENERAL NOTES

Timber Joint Groups

Joint groups for some common timber are tabulated below. A more comprehensive table is given in AS1720.1 Timber Structures Part 1: Design Methods.

TIMBERS	STRENGTHGROUP		JOINT GROUP	
	DRY	GREEN	DRY	GREEN
Oregon (Douglas fir) – America	SD5	S5	JD4	J4
Oregon from elsewhere	SD6	S6	JD5	J5
Radiata pine, heart-excluded	SD6	NA	JD4	NA
Radiata pine, heart-in	SD6	NA	JD5	NA
Slash pine	SD5	S5	JD3	J3
Ash type hardwoods from Vic, NSW highlands & Tas	SD4	S4	JD3	J3
Non-Ash type hardwoods from Qld & NSW	SD3	S3	JD2	J2

Material Thickness

All material thicknesses referred to in this guide are the total coated thickness. This includes the zinc coating thickness, which is typically around 0.04mm for Z275 steel.

Machine Driven Nail Use

Where appropriate, 32x2.3 mm Duo-Fast C SHEG (ie: screw hardened electro galvanized) machine driven nails (code D40810) or equivalent may be used instead of the specified 35x3.15 mm Pryda Timber Connector Nails to fix Pryda connectors provided that:

- 20% more nails are used (eg: 5 instead of 4, 4 instead of 3, 3 instead of 2) or alternatively, design capacities are to be reduced by 20% where the same number of nails are used
- machine driven nails are driven at nail spacings and edge distances similar to the hole pattern, ensuring that these nails are not driven into the holes or located not closer than 5mm from the edge of a hole.

Note: Extreme care must be taken when using machine driven nails as the prevailing installation practices tend to inhibit compliance with the above requirements.

Important considerations includes:

- Driven into the blank metal between the pre-punched holes
- not located closer than 5mm from the edge of a hole
- not tightly clustered together
- not within 15 mm from the edge of the supported beam or 10mm from the edge of the supporting beam
- Screw hardened, electro galvanised Paslode nails that are appropriate include:
  - Duo-Fast C SHEG 32 x 2.3 (D40810)
  - Paslode 32 x 2.5 mm (B25110)
  - Duo-Fast 32 x 2.5 mm (D41060)
  - Pas Coil 32 x 2.5 SHEG 2 Pack (B25250)
  - Impulse 32 x 2.5 SHEG (B40020)

Design Load Cases

Following is a description of the combined load cases adopted in this design guide. These load cases are in compliance with AS/NZS1170.0:2002 – Structural design actions Part 0:General principles.

LOAD CASE	DESCRIPTION
1.35G	Permanent Action (or Dead Load) only
1.2G+1.5Qr	Permanent and Roof Imposed Actions (or Dead & Roof Live)
1.2G+1.5Qf	Permanent and Floor Imposed Actions (or Dead & Floor Live)
1.2G+Wd	Permanent and Wind Down Actions (or Dead & Wind down)
Wind Uplift (0.9G – Wup)	Permanent and Wind Up Actions (or Dead & Wind up)

Design Loads & Capacities

The tabulated capacities are for Category 1 joints. For

all other joints, reduce design capacities by using the following factors:

- Category 2 Joints: **0.94**
- Category 3 Joints: **0.88**

Note: Category 1 joints are defined in Table 2.2 AS1720.1:2010 as structural joints for houses for which failure would be unlikely to affect an area of 25 sqm OR joints for secondary elements in structures other than houses.

Fixing into steel supporting structure

Pryda products can be fixed into steel using Teks screws or similar. Design Capacities can be obtained at request from a Pryda Design Office.

PRODUCT DATA SHEET

CONNECTOR PLATE

FEATURES AND BENEFITS

EASY: Pryda Connector Plate is a quick, simple, economical and easy to use connector for jointing timber wall plates.

VERSATILE: Multiple Applications from timber jointing, splicing, reinforcement and impact resistance.

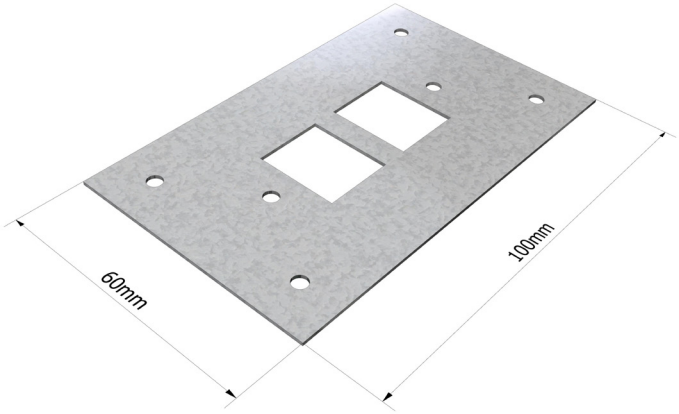
AS1684 & AS1720 COMPLIANT

- Minimum Z275 galvanised steel
- G300 Grade Steel
- Design values tested in accordance with the relevant standard

SPECIFICATIONS

PRODUCT CODE	CPPQ
STEEL	G300
THICKNESS	0.8mm
CORROSION RESISTANCE	Z275
FASTENERS REQUIRED	6 x 35 x 3.15mm nails
QUANTITY	100 per carton

The Versatile Timber Connector for Timber Construction.



DESIGN CAPACITIES

Limit State Design capacities per Pryda Connector Plate are tabulated below for fixing with three 35 x 3.15 mm galvanised Pryda Timber Connector Nails each side of the joint and loads applied parallel to the length of the plate.

For maximum efficiency, use three 35 x 3.15 mm galvanised Pryda Timber Connector Nails each side of the joint.

JOINT GROUP	DESIGN CAPACITY (ΦNJ) (KN) FOR WIND LOAD CASE
JD3	4.0
JD4	2.8
JD5	2.4
J3	2.8
J4	2.4

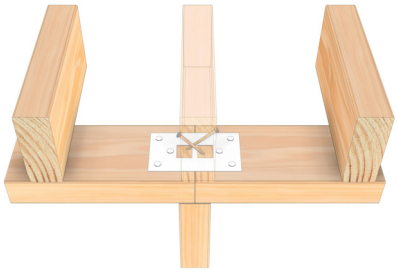
NOTES:

1. This capacity applies directly to all Category 1 joints. For all other joints, i.e. Category 2 or 3 joints as per AS1720.1:2010), multiply these capacities by 0.94 or 0.88 respectively. See General Notes in Pryda Timber Connectors Nail Plates Guide for more information. It is the responsibility of the designer selecting the CPPQ to ensure the product is “fit for purpose” for the intended connection.

APPLICATIONS

Top plate corner connection

Intersection of top plates



Floor or ceiling joist or rafters
Slots allows for skew nailing

Post and beam connection

Butt joint on top plate

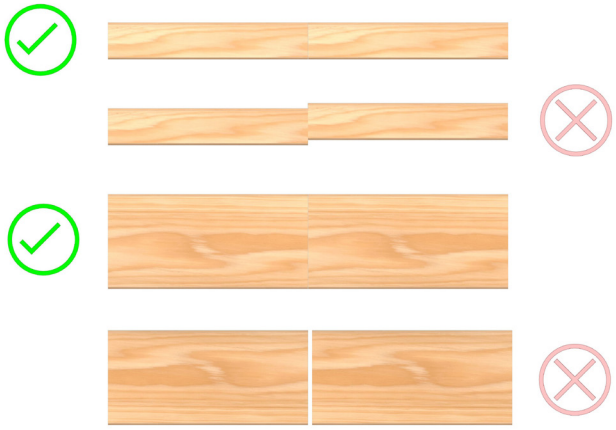
Floor bearers at support points

IMPORTANT:

READ THIS DATASHEET IN CONJUNCTION WITH PRYDA NAILPLATES DESIGN GUIDE AND REFER TO ESSENTIAL NOTES AND GENERAL NOTES.

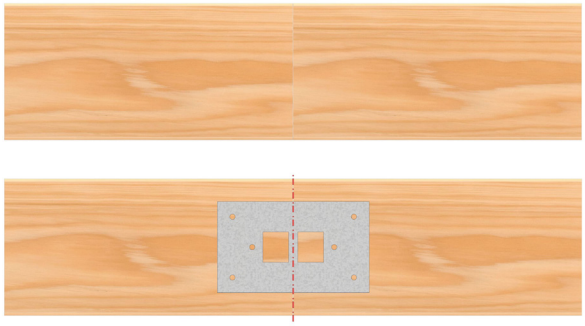
INSTALLATION

STEP 1



- Ensure butt jointed surface are flush and levelled. No offsets between surfaces as the CPPQ must be installed flat to both adjoining surfaces.
- No gaps between butt jointed ends.

STEP 2



- Align CPPQ center line with butt jointed splice cut.
- Ensure CPPQ is centrally located to width of butt jointed member.
- Minimum timber interface width 70mm. Recommended width 90mm.
- It is the responsibility of the designer selecting the CPPQ to ensure the product is “fit for purpose”.

STEP 3

- Nail fix using 6x3.15x35mm Pryda Connector nails.
- Pre-drill holes may be required for timber prone to splitting.

LOOKING FOR MORE DETAILS OR OTHER NAILPLATES IN OUR RANGE?

SEE OUR NAILPLATES DESIGN GUIDE AVAILABLE AT PRYDA.COM.AU

PRODUCT DATA SHEET

CORNER PLATE

FEATURES AND BENEFITS

EASY: The Pryda Corner Plate is especially designed for jointing corner timbers in light framing applications such as gate frames, and a wide range of other uses including wall frames, tops of pergola beams, furniture framing etc.

VERSATILE: Suitable for use as either left or right hand and either the vertical or horizontal position.

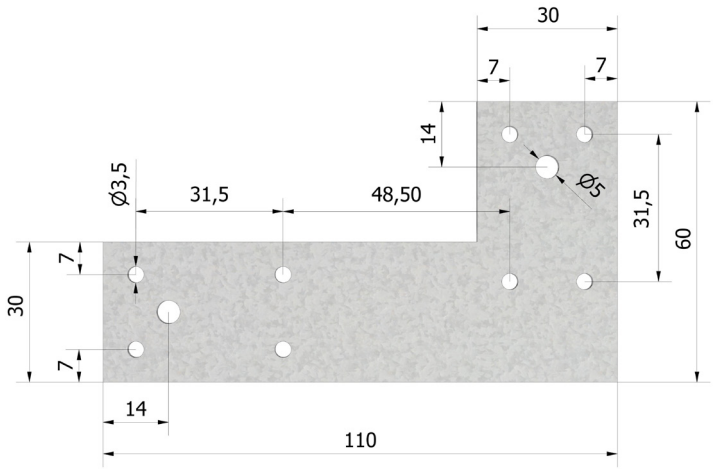
AS1684 & AS1720 COMPLIANT

- Minimum Z275 galvanised steel
- G300 Grade Steel
- Design values tested in accordance with the relevant standard

SPECIFICATIONS

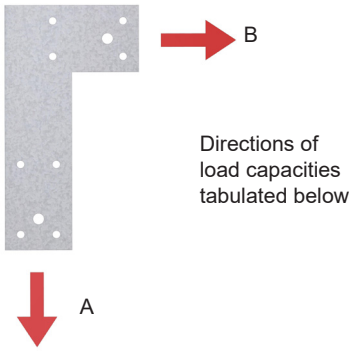
PRODUCT CODE	CPL
STEEL	G300
THICKNESS	1.6mm
CORROSION RESISTANCE	Z275
FASTENERS REQUIRED	8 x 35 x 3.15mm nails
QUANTITY	150 per carton

Galvanised Bracket for Right Angle Joints.



DESIGN CAPACITIES

Limit State Design capacities per Pryda Corner Plate are tabulated below for fixing with four galvanised 35 x 3.15 mm Pryda Timber Connector Nails each side of the joint.

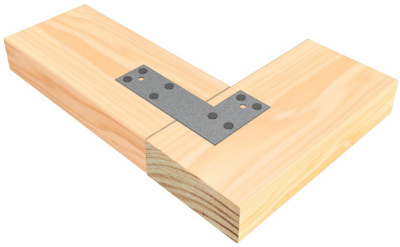


JOINT GROUP	DESIGN CAPACITY (ΦNJ) (KN) FOR WIND LOAD CASE
JD3	5.3
JD4	3.8
JD5	3.2
J3	3.8
J4	3.2

NOTES:

1. For Load Direction B, use 60% of the above capacities.
2. This capacity applies directly to all Category 1 joints. For all other joints, ie Category 2 or 3 joints as per AS1720.1:2010), multiply these capacities by 0.94 or 0.88 respectively. See General Notes in Pryda Timber Connectors Nail Plates Guide for more information. It is the responsibility of the designer selecting the CPL to ensure the product is “fit for purpose” for the intended connection.

APPLICATIONS



IMPORTANT:

READ THIS DATASHEET IN CONJUNCTION WITH PRYDA NAILPLATES DESIGN GUIDE AND REFER TO ESSENTIAL NOTES AND GENERAL NOTES.

INSTALLATION

STEP 1

- Ensure butt jointed surface are flush and levelled. No offsets between surfaces as the CPL must be installed flat to both adjoining surfaces.
- No gaps between butt jointed ends.
- Recommended timber width 45mm min. (same face of which CPL to be installed on)

STEP 2

- Align CPL long leg to vertical stud/member and short leg to horizontal plate
- Ensure nearest nail centre to fixed member end cut is no less then 30mm.

STEP 3

- Nail fix using 8x3.15x35mm Pryda Connector nails.

LOOKING FOR MORE DETAILS OR OTHER NAILPLATES IN OUR RANGE?

SEE OUR NAILPLATES DESIGN GUIDE AVAILABLE AT PRYDA.COM.AU

PRODUCT DATA SHEET

KNUCKLE NAILPLATE STANDARD & SPECIAL

FEATURES AND BENEFITS

EASY: Can be installed without any special gear or nails, only a hammer is required for install.

FAST: Hammer the knuckles and you are done.

VERSATILE: Multiple Applications from timber jointing, splicing, reinforcement and impact resistance.

AS1684 & AS1720 COMPLIANT

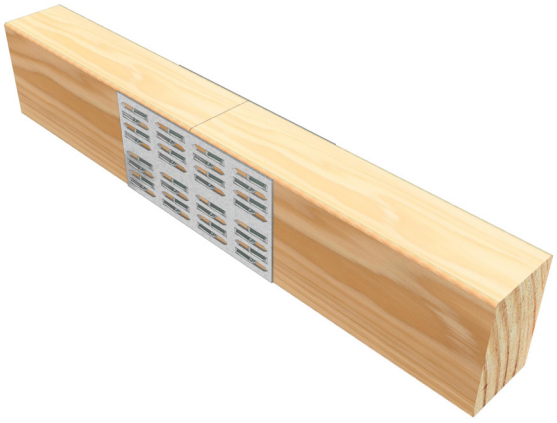
- Minimum Z275 galvanised steel
- G300 Grade Steel
- Design values tested in accordance with the relevant standard

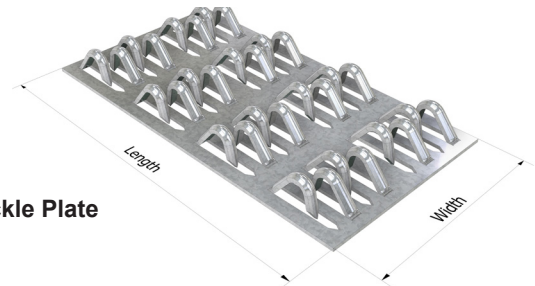
SPECIFICATIONS

PRODUCT CODE	*See Knuckle plate range
STEEL	G300
THICKNESS	1.0mm
CORROSION RESISTANCE	Z275
FASTENERS REQUIRED	Nil. Pre-punched knuckle nails.
LENGTHS	63mm - 254mm
WIDTHS	33mm-134mm

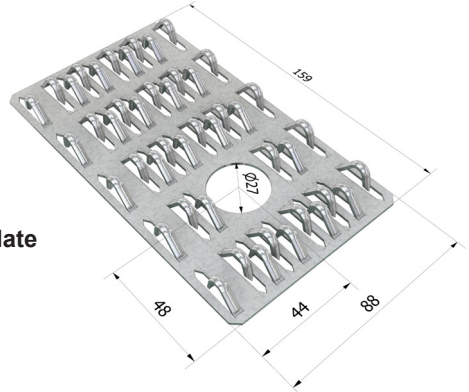
SPECIAL RANGE	Shunt Plate
PRODUCT CODE	N5N10
LENGTH	159mm
WIDTH	88mm
QUANTITY	80 per carton

Hammer fixed and easy to use connector for multiple applications.





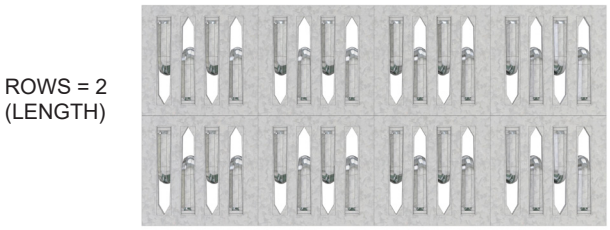
Knuckle Plate



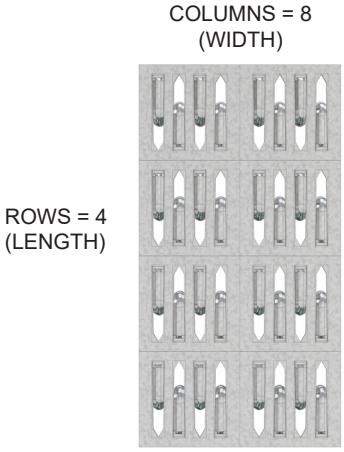
Shunt Plate

DESCRIPTION

Knuckle Nailplates are available in a wide standard range as tabulated. The steel used is 1.0 mm thick, ZincForm® G300 Z275 or equivalent. Product codes for non-special plates refer to the number of columns of nails and the number of rows. E.g., A MP2R16 has 2 rows and 16 columns.



MP2R16 KNUCKLE PLATE
(63mm Length X 134mm Width)



MP4R8 KNUCKLE PLATE
(127mm Length X 67mm Width)

KNUCKLE NAILPLATES

PRODUCT CODE	MATERIAL	LENGTH	WIDTH	QUANTITY	INDIVIDUALLYBARCODED FOR RETAIL SALE
MP2R4	1.0mm G300 Z275 Galvanised Steel	63	33	200	•
MP2R5		63	38	200	•
MP2R10		63	76	100	•
MP2R16*		63	134	66	•
TP3R10		95	76	66	
MP4R5		127	38	100	•
MP4R8		127	67	66	•
MP4R10		127	76	50	•
MP4R16		127	134	33	•
MP6R5		190	38	66	•
MP6R8		190	67	44	•
MP6R10		190	76	33	•
MP6R16		190	134	22	•
MP8R5		254	38	50	•
MP8R8		254	67	33	•
MP8R10		254	76	26	•
MP8R16		254	134	16	•
MP10R10		317	76	20	•
MP10R16		317	134	13	•
MP12R10		381	76	16	•
MP12R16		381	134	10	•

Note: The product marked with * is no longer available.

KEY FEATURES

Pryda Knuckle Nailplates are galvanised steel connectors with in-built, bent-up “knuckle” nails. These plates are ideal for many structural and non-structural timber jointing and timber protection uses. Applied simply by hammering in the “knuckle nails”, these plates are used by tradesmen, home owners, frame and box manufactures, electricity supply authorities and builders. Special pressing equipment is not necessary.

Among the many uses of Knuckle Nailplates (see Applications following), the most common are:

- Jointing of wall frames together on-site.
- On-site splicing of timber beams.
- Truss manufacture in areas with low labour costs.

Generally, Knuckle Nailplates:

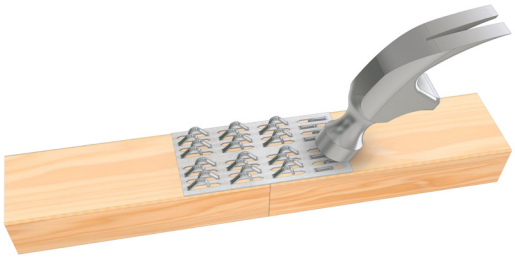
- Provide a strong, economical and easy-to-use means of jointing timber together.
- Protect timber from damage as they:
- Resist splitting due to drying of the timber, nailing near ends or other causes.
- Dissipate electricity current surges in cross arms over a larger area (eg, Shunt plates).
- Distribute concentrated loads over a wider area, eg, they increase the strength of bolted joints.
- Hold joints together, preventing or restricting the separation of nailed joints such as in boxes and crates.

PROPERTIES

Design Capacities for Pryda Knuckle Nailplates have been established from standard laboratory tests in accordance with AS 1649-2001 Timber – Methods of test for mechanical fasteners and connectors – Basic working loads and characteristic strengths. Loads are related to the standard joint groups for timber defined in AS 1720.1 -2010 in Pryda’s Timber Data. Also read General Notes in Pryda Timber Connectors Nail Plates Guide for more information.

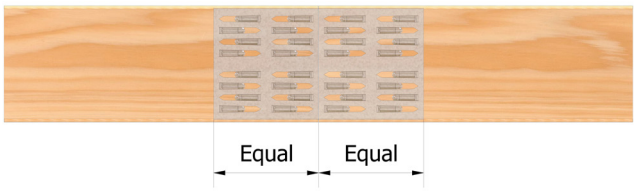
INSTALLATION

Knuckle Nailplates are installed simply by hammering on the knuckles of all nails in each plate. It is recommended that the hammer be parallel to the length of the nails (see diagram below) to ensure full penetration of the nails.

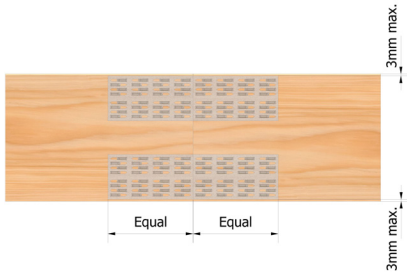


Hammer Parallel to Nails

A natural arc or dovetail effect is created by the nails as they penetrate the timber. This provides positive resistance to nail withdrawal.



Single Plate Butt Jointing



Double Plate Butt Jointing

For butt jointing, Knuckle Nailplates are installed symmetrically over the joint, ie, with an equal length on each side (3 mm tolerance). For timber up to 150 mm wide, one plate is fixed onto each face; for wider timber, two plates are used, fixed at 3 mm maximum from each edge. Surface plane must be level for flat plate installation and no gaps between butt joints.

APPLICATIONS

Some of the many applications of Knuckle Nailplates are illustrated below:

Joining Top Pates

Purlin or Joist Splices

End Jointing

Shunt Plate

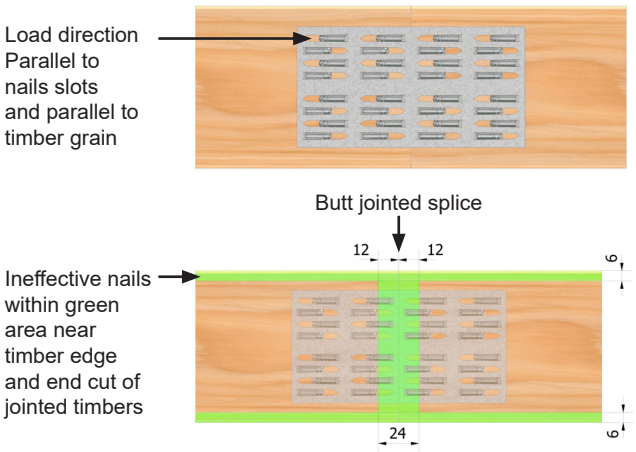
DESIGN CAPACITIES

Limit State Design capacities per single Pryda Knuckle Nail are:

LOAD DIRECTION	DESIGN DEAD LOAD CAPACITY ΦNJ (N) PER NAIL FOR TIMBER JOINT GROUP						
	GREEN TIMBER			DRY TIMBER			
	J4	J3	J2	JD5	JD4	JD3	JD2
Parallel	185	230	280	185	230	280	280
Perp.	70	80	95	70	80	95	95

NOTES:

1. *Parallel* in the above table applies to the case where the load is applied parallel to the nail slots in the plate and also parallel to the timber grain (see diagram). Perpendicular applies where the load direction is not as defined for *Parallel*.
2. The above capacities are given in Newtons for a single knuckle nail, adopting a capacity factor (Φ) of 0.85 and load duration factor (k1) of 0.57, applicable to permanent loads. *Perpendicular* applies where the load direction is not as defined for Parallel.
3. To calculate the number of teeth per plate, multiply the first figure in the plate code by the second, eg:
   - for 4R8, teeth = 4x8 = 32
   - for 8R16, teeth = 8x16 = 128



Ineffective Nail Areas in Joints

On an area basis, there are conservatively, 3.5 nails per 1000 mm² of plate area.

In timber joint design, nails within 12 mm of ends or within 6 mm of edges are regarded as not effective. As the nail rows in these plates are 32 mm apart, all nails are effective in Knuckle Nailplates fixed symmetrical over the joint (3 mm tolerance).

STEEL STRENGTH

The Design Capacities for Steel Strength includes a capacity reduction factor Φ = 0.90.

PROPERTY	DESIGN CAPACITY, ΦNJ (N/MM) PER PAIR OF PLATES	
	LONGITUDINAL	LATERAL
Tension	350	132
Shear	84	170

PRODUCT DATA SHEET

MININAIL

FEATURES AND BENEFITS

EASY: Pryda Mininail is used for simple butt joints of timber of small sizes and for applications such as in furniture.

FAST: Sharp tooth profile- penetrates readily into hardwoods and softwoods.

VERSATILE: Can be used as a mini joiner for narrow timber or fix fabric/foil to timber. Suitable for both trade use (e.g., furniture manufacture) or handyperson application.

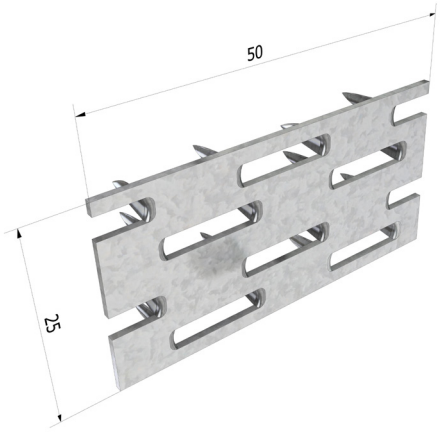
AS1684 & AS1720 COMPLIANT

- Minimum Z275 galvanised steel
- G300 Steel Grade

SPECIFICATIONS

PRODUCT CODE	MP2C1S
STEEL	G300
THICKNESS	1mm
CORROSION RESISTANCE	Z275
PRODUCT DIMENSION	50mm (Width) x 25mm (Height)
QUANTITY	210

A pre-punched mini nailplate for joining or connecting timber.



PRODUCT DATA SHEET

NAIL-ON PLATES

FEATURES AND BENEFITS

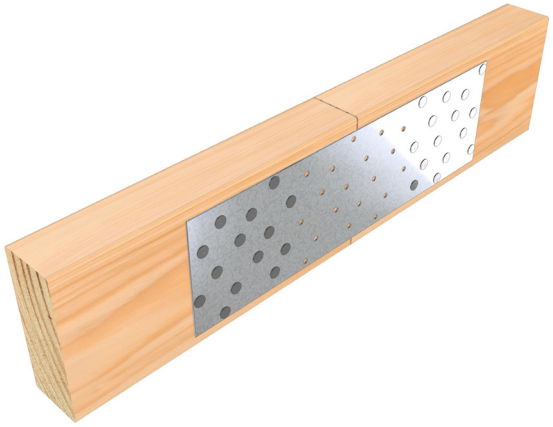
EASY: Pre-punch holes ready for onsite application using nail fix or screw fix.

FAST: Simply select the correct plate size and type, place into position, and fasten through the pre-punched holes to suit design application.

VERSATILE: Can be used for joining trusses on-site that have been made in parts in the factory. Fixing trusses to poles. Any heavy-duty timber connection where a Knuckle nailplate will not suffice. Joining beams. Repair work over existing fixings.

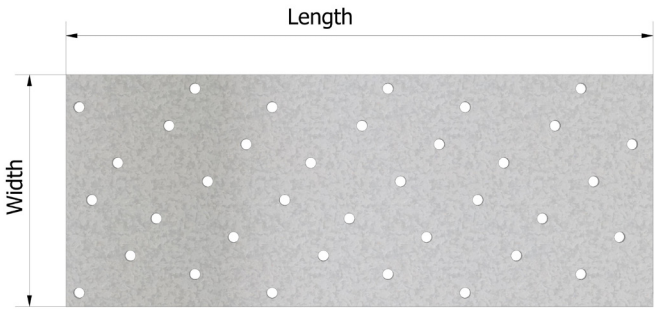
AS1684 COMPLIANT

- Minimum Z275 galvanised steel
- G300 Steel Grade



SPECIFICATIONS

STEEL	G300 or equivalent
THICKNESS	1mm for Z275, 0.9mm for Stainless Steel
CORROSION RESISTANCE	Z275 or Stainless Steel
PRODUCT DIMENSION	Sizes shown in Design Capacities table
QUANTITY	Approx. 1.2 square metre per carton

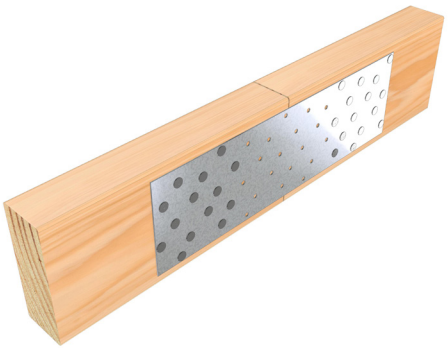


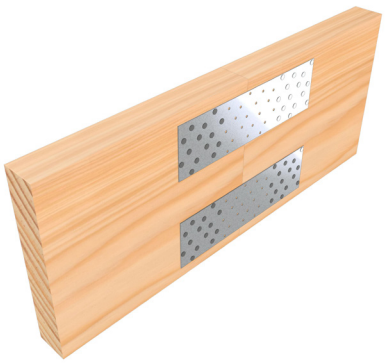
DESCRIPTION

Pryda Nail-on Plates are flat, galvanised or stainless-steel plates which are nail-fixed to timber to form various types of joints. Their medium to high load capacities and wide range of sizes makes them ideally suited for on-site work. Product codes below are made up from: Width/Length.

CODE	WIDTH	LENGTH	THICKNESS	BOX QTY
NPA75/125	75mm	125mm	1.0mm	60
NPA75/190	75mm	190mm	1.0mm	40
NPA75/250	75mm	250mm	1.0mm	30
NPA75/315	75mm	315mm	1.0mm	25
NPA75/380	75mm	380mm	1.0mm	20
NPA100/190	100mm	190mm	1.0mm	28
NPA150/250*	150mm	250mm	1.0mm	15
NPA150/315	150mm	315mm	1.0mm	12

Note: Product marked with * is no longer available.





INSTALLATION

Use only 35 x 3.15 mm galvanised Pryda Timber Connector Nails or equivalent nails with these connectors. Stainless steel nails must be used with stainless steel Nail-on plates.

NUMBER OF NAIL HOLES PER PLATE						
PLATE WIDTH	PLATE LENGTH (MM)					
	50	125	190	250	315	380
75		24	36	48	60	72
100			48			
150				96	120	

NOTES:

1. Nail density is approx. one nail per 400 mm^2.
2. Nails must be driven into all holes (ie, all holes filled), except for holes within 63 mm of timber ends and 16 mm of timber edges, to achieve the full Design Capacities – see Design Capacities for a Typical Splice Joint.

DESIGN CAPACITIES FOR A TYPICAL SPLICE JOINT

Limit State Design capacities for Pryda Nail-on Plates per pair of plates are as tabulated below with conditions:

- All nail holes filled except within 60 mm of timber ends.
- Minimum edge distance to nail centre = 5D = 16 mm.
- Minimum edge distance plate to timber edge = 5 mm.
- Loading case = 1.2G+1.5Qr (Roof Live + Dead Load).
- Nails within 63 mm of butt joint are neglected.
- Positioning tolerance along plate length = 3 mm.

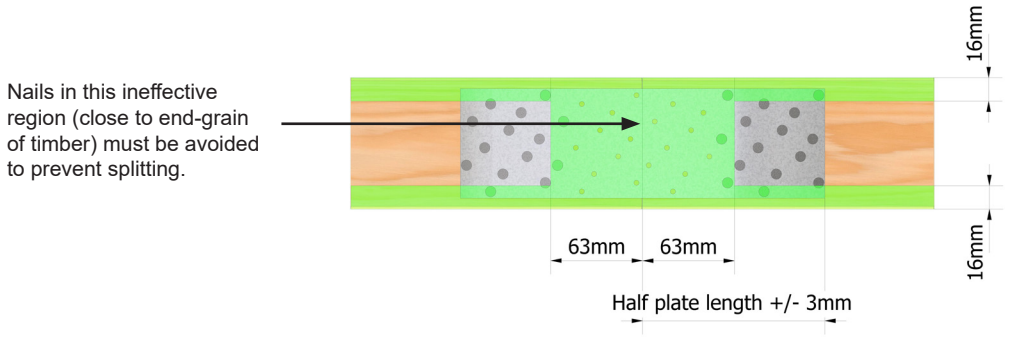


PLATE WIDTH (MM)	MINIMUM TIMBER WIDTH (MM)	DESIGN CAPACITY ΦNJ (KN) FOR A PAIR OF PLATES IN JD4 TIMBER (1.2G+1.5QR)							
		PLATE LENGTH (MM)						STEEL CAPACITIES	
		50	125	190	250	315	380	MAX TENSION	MAX SHEAR
75 x 1.0	90		N/S	6.4	12.8	19.2	24.4	35.2	21.2
100 x 1.0	120			9.0				46.0	27.6
150 x 1.0	170				26.0	40.0		70.2	42.5

NOTES:

1. These design capacities apply directly for Category 1 joints as described in Table 2.2 of AS1720.1:2010. For Category 2 and Category 3 joints, multiply these capacities by 0.94 and 0.88 respectively.
2. The nail capacities (ΦNj) given in the table above is capable of resisting a resultant design force arising from an axial tension and shear forces (i.e vector sum of the axial tension and shear forces).
3. The design capacities tabulated above apply directly to joints on JD4 timber for 1.2G+1.5Qr load case using k_1 = 0.77. For other load cases and timber joint groups, multiply these capacities by the load factors given below. **The resultant capacity must not exceed the maximum Steel Tension and Steel Shear values tabulated above.**
4. 'N/S' in the above table signifies that the plate is not suitable for a splice joint connection, due to ineffectiveness of nails resulting from end-distance violations.
5. The duration factor (k_1) for wind load case in the table below is taken as 1.14, as specified in Table 2.3 of AS1720.1:2010.
6. Pryda TCS12-35 screws may be substituted for Pryda Timber Connector nails. To achieve equivalent capacity, use 2 screws for every 5 nails (in JD4 or JD3) or 2 screws for every 4 nails (in JD5) The end/edge distance and spacing requirements for screws are different to nails and therefore should be specified by the designer.

LOAD CASE	1.35G		1.2G + 1.5QF		1.2G + WD OR 0.9G - WU	
Factor	0.74		0.90		1.48	
JOINT GROUP	J4	J3	J2	JD5	JD3	JD2
Multiplier	0.62	0.88	1.24	0.83	1.4	1.8

PRODUCT DATA SHEET

POLE CATS

FEATURES AND BENEFITS

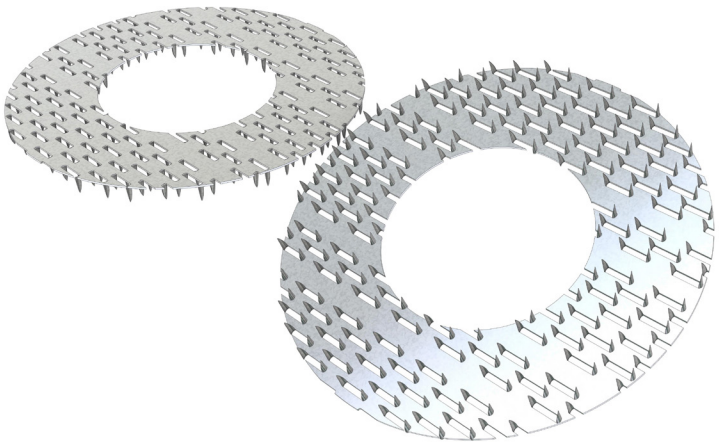
EASY: Simply hand hammer in to pole ends.

FAST: Sharp tooth profile- penetrates readily into hardwoods and softwoods.

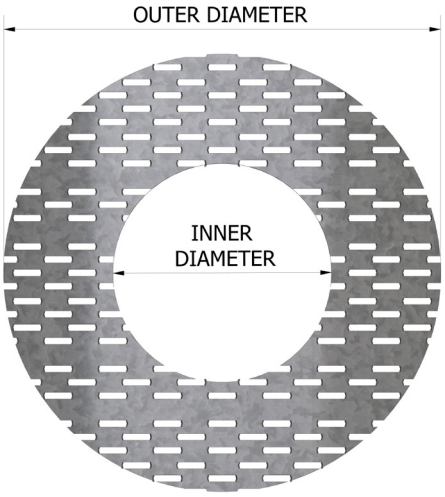
SPECIFICATIONS

PRODUCT CODE	PCAT150, PCAT200, PCAT250, PCAT300
STEEL	G300
THICKNESS	1mm
CORROSION RESISTANCE	Z275
PRODUCT DIMENSION	Dia. 150mm – 300mm

Claw-surface face



Claw-nails



PRODUCT CODE	MATERIAL	MATERIAL THICKNESS	OUTER DIAMETER (MM)	INNER DIAMETER (MM)
PCAT150	G300, Z275	1mm	150	65
PCAT200			200	100
PCAT250			250	
PCAT300			300	

INSTALLATION

1. Select Pole Cat with outer diameter less than pole diameter.
2. Locate selected PCAT central to round pole. It is important not to overhang any part of the PCAT outside pole diameter.
3. Alway wear approved PPE when handling galvanised steel Claw-plates. i.e. Eye protection and tight fitted gloves suitablefor handling steel sheets. Do not handle the PCAT by gripping the sharp Claw-nails, only grip the edges of the PCAT.
4. Hold PCAT in position by firmly pushing flat surface face of PCAT plate against pole end and begin hammering PCATstarting at opposing side to hand to avoid hitting hand.
5. Gently tap PCAT across entire surface evenly with a flat face hammer, working in a circular motion by slowly embeddingall the Claw-nails end points. Continue to hammer plate while shifting hand position to opposing side of hammer hits unti PCAT is partially embedded and self-hanging.
6. Continue hammering with gradual increase in intensity until PCAT is fully embedded. DO NOT attempt to fully embed Claw-nails with a single hit as this may deform the plate and Claw-nails at impact zone. Ensure PCAT surface is flush with pole end.

PRODUCT DATA SHEET

STRAP NAIL

FEATURES AND BENEFITS

EASY: Can be installed without any special gear or nails, only a hammer is required for install

FAST: Hammer the pre-punched Claw nails and you are done. Time-saving and therefore, cost-saving

VERSATILE: Twisted form of the Claw nails are suitable for all types of un-treated timber ranging from the lightest softwoods to the densest hardwoods.

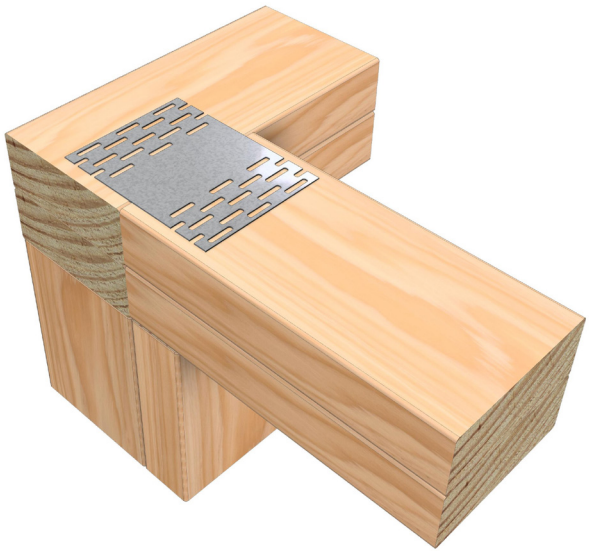
AS1684 & AS1720 COMPLIANT

- Minimum Z275 galvanised steel
- Design values tested in accordance to the relevant standard

SPECIFICATIONS

STEEL	G300
THICKNESS	1.0mm
CORROSION RESISTANCE	Z275
SUITABLE TIMBER WIDTHS	25 – 120mm

Hammer fixed and easy to use connector for multiple applications.



INSTALLATION

Installation is just a matter of hammering in the plate, however before doing so, make sure the Strap Nail is:

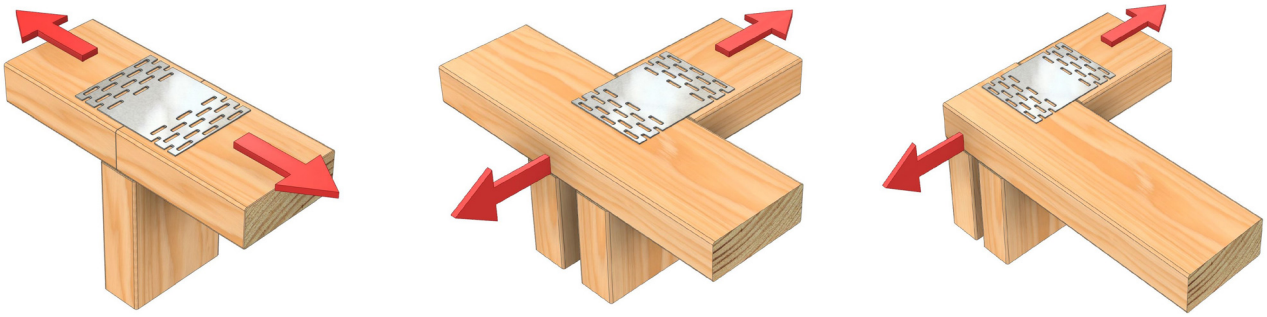
- Positioned centrally over the joint line with equal lengths of the plate on either side.
- Positioned centrally to the edges of the timber.
- Positioned parallel with the edge of the timber.

STRAP NAIL

PRODUCT CODE	MATERIAL	HEIGHT (MM)	LENGTH (MM)	QUANTITY	INDIVIDUALLYBARCODED FOR RETAIL SALE
SN5B	1.0mm G300 Z275 Galvanised Steel	50	100	300	
MPSN2		25		180	•
MPSN4C		38	90	75	•
MPSN5		50	100		•
MPSN7		75		50	•

STRAP NAIL CAPACITY

LOADING ALONG THE PLATE EXAMPLES



PRODUCT CODE	WIDTH (MM)	STEEL CAP. KN	NAIL DIRN.TO LOAD	TEETH EACH END	DESIGN CAPACITY ΦNJ PER STRAP NAIL (KN) FOR TIMBER JOINT GROUP						
					J4	J3	J2	JD5	JD4	JD3	JD2
MPSN2	25	2.9	Perp.	10	1.4	2.2	2.9	2.2	2.6	2.9	2.9
MPSN5, SN5B	50	5.7	Perp.	16	2.4	3.6	4.6	3.4	4	4.6	5.7

NOTES:

1. These design capacities apply directly for Category 1 joints as described in Table 2.2 of AS1720.1:2010. For Category 2 and Category 3 joints, multiply these capacities by 0.94 and 0.88 respectively.
2. The above capacities are given for the wind load case. For other load cases, decrease capacities by multiplying with the corresponding factor tabulated below:

LOAD CASE	1.35G	1.2G + 1.5QF	1.2G + 1.5QR
Factor	0.50	0.60	0.68

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