

NZ KNUCKLE NAILPLATE

Hammer fixed and easy to use connector for multiple applications.

CodeMark 
CMNZ-10031

FEATURES AND BENEFITS

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

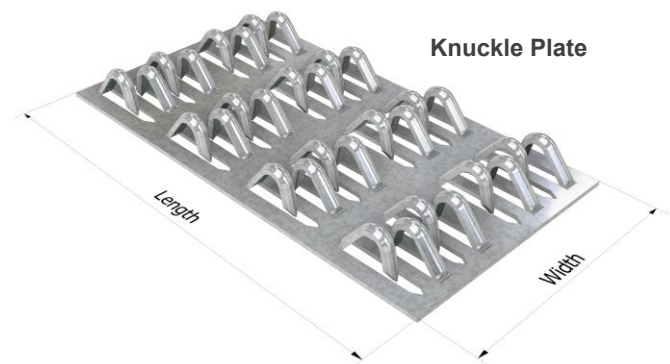
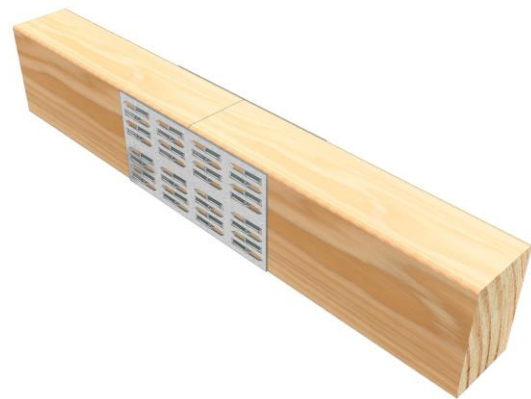
FAST: Hammer the knuckles and you are done. Multiple applications from timber jointing, splicing, reinforcement, and impact resistance.

DURABLE: 1mm thick, Z275 galvanised steel.

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

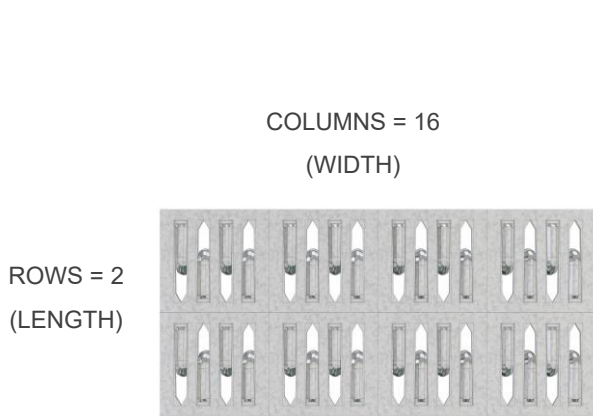
At the time of print, this product is NOT subject to any known warnings and bans found in Building Act 2004.



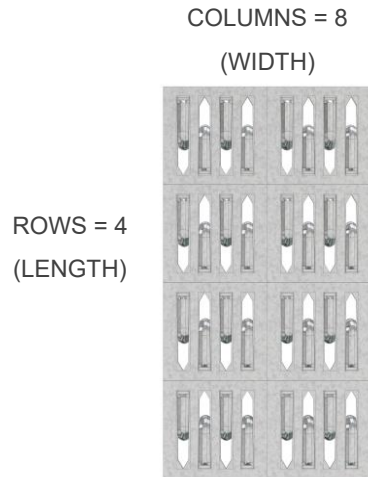
DESCRIPTION

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
MP2R4	1.0mm G300 Z275 Galvanised Steel	63	33	200
MP2R5		63	38	200
MP4R5		127	38	100
MP6R5		190	38	66
MP8R5		254	38	50
MP4R10		127	76	50
MP6R10		190	76	33
MP8R10		254	76	26
MP10R10		317	76	20
MP4R16		127	134	33
MP6R16		190	134	22

KNUCKLE NAILPLATE 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 tradespeople, homeowners, 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.

Generally, **Knuckle Nailplates**:

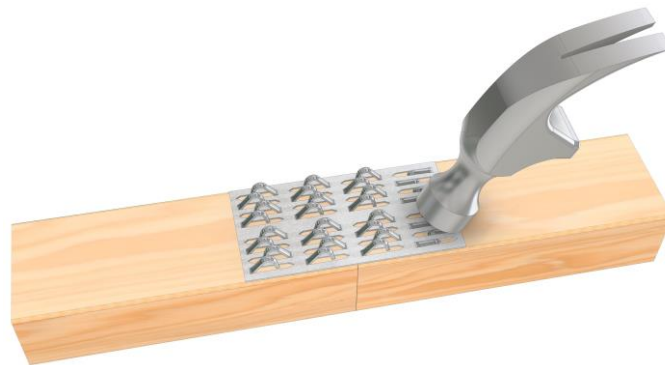
- Provide a strong, economical, and easy-to-use means of jointing timber together.
- Protect timber from damage as they:
 - Resist splitting due to drying of the timber, nailing near ends or other causes.
 - Dissipate electricity current surges in cross arms over a larger area (e.g., Shunt plates).
- Distribute concentrated loads over a wider area, e.g., 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/NZS 1720.

INSTALLATION

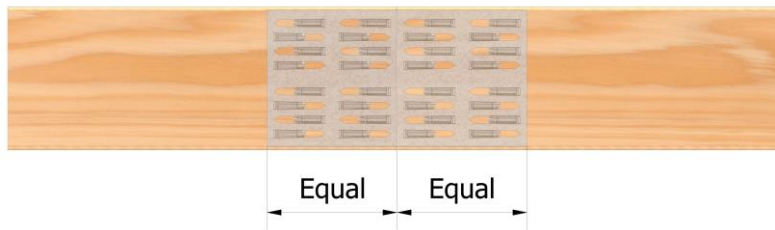
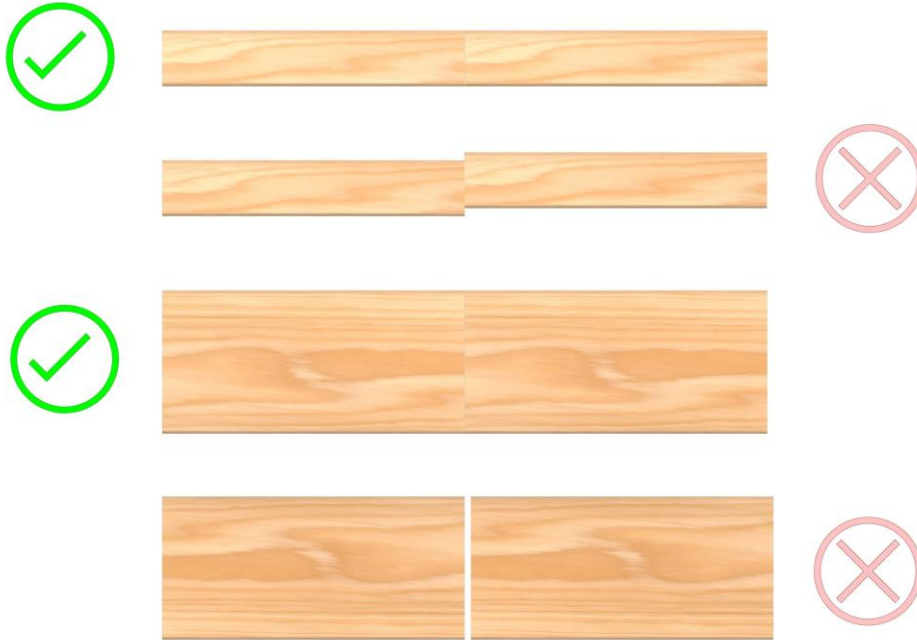
Knuckle Nailplates are installed simply by hammering on the knuckles of all nails in each plate. It is recommended that the hammer be parallel to the length of the nails (see diagram below) to ensure full penetration of the nails.



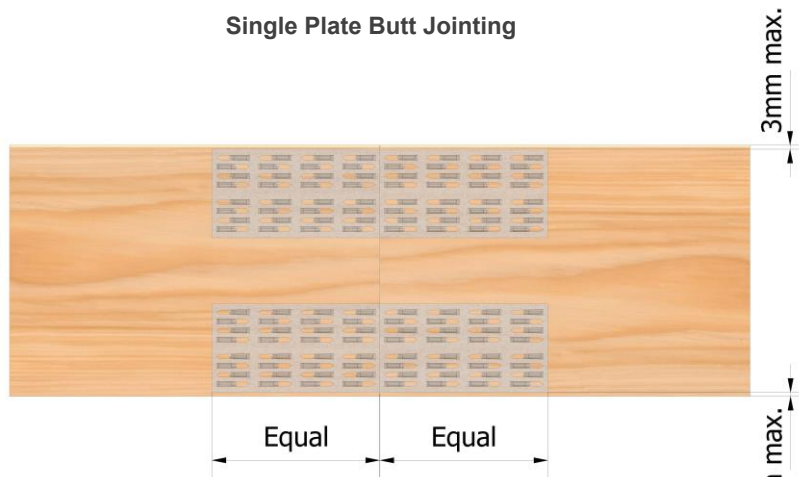
Hammer Parallel to Nails

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

For butt jointing, **Knuckle Nailplates** are installed symmetrically over the joint, i.e., 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.



Single Plate Butt Jointing



Double Plate Butt Jointing

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 Knuckle Nailplates are only available in 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	Pryda Stainless Steel 304 Products ⁽³⁾
		Vented MORE than 7000mm ² /m ²	Pryda Stainless Steel 304 Products ⁽³⁾
	All subfloor fastenings within 600mm of the ground	Sheltered and Exposed	
	All other structural fixings	Sheltered	
Exposed			
Zone D	All structural fixings	Sheltered and Exposed	

Notes:

1.All Pryda galvanised products comply with NZS3604:2011 Table 4.2.

2.Refer to NZS3604:2011 for all environment definitions.

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.

APPLICATION AND SCOPE OF USE

Pryda Knuckle Nailplates 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).

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



Joining Top Pates



Purlin or Joist Splices

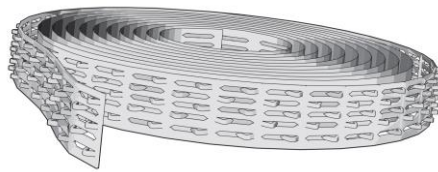


End Jointing

KNUCKLE NAILPLATE COILS

Knuckle Nailplate Coils are ideal for on-site users to cut Knuckle Nailplate to the required length by using metal cutters. Properties and features are similar to the Knuckle Nailplates.

PRODUCT CODE	MATERIAL	LENGTH (m)	WIDTH (mm)	QUANTITY
NCR10	1.0mm G300 Z275 Galvanised Steel	12.7	76	1
NCR16		8.45	134	1



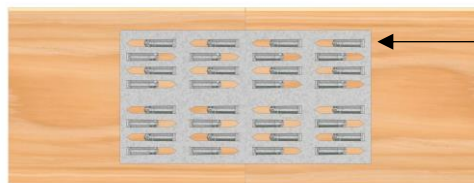
DESIGN CAPACITIES

Limit State Design capacities per single **Pryda Knuckle Nail** shown in table. Knuckle plate should be oriented with the plate knuckle slots direction with load direction.

LOAD DIRECTION	LOAD CASE	DESIGN DEAD LOAD CAPACITY ϕ NJ (N) PER NAIL FOR TIMBER JOINT GROUP:	
		Dry Timber	
Parallel	1.35G	JD5	
	1.2G + 1.5Qf	123	
	1.2G + 1.5Qr	149	
	1.2G + Wd or Wind Uplift	166	
		247	

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 parallel to the timber grain (see diagram below). *Perpendicular* applies where the load direction is not as defined for *Parallel*.



Load direction
Parallel to nails slots
and parallel to timber
grain

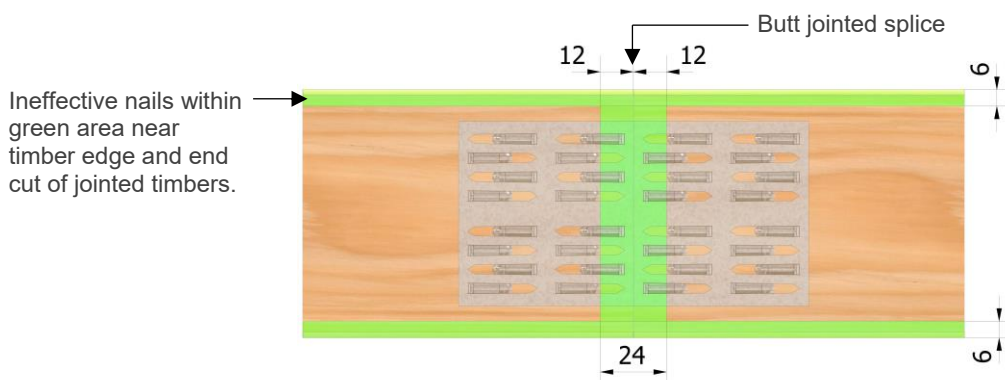
2. The above capacities are given in Newtons for a single knuckle nail, adopting a capacity factor (ϕ) of 0.85 and load duration factor (k_1) of 0.6, applicable to permanent loads.

3. To calculate the number of teeth per plate, multiply the first figure in the plate code by the second :

- for 4R8, teeth = 4x8 = 32
- for 8R16, teeth = 8x16 = 128

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).



Ineffective Nail Areas in Joints

- 4. The Design Capacities for Steel Strength includes a capacity reduction factor $\phi = 0.90$
- 5. Design capacities applies for dry (maximum moisture content of 18%) Radiata Pine and Douglas Fir timber grade SG8 and for timber which meets JD5 timber as defined in AS/NZS 1720.

Contact details	
Manufacture location	Overseas
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
Importer address for service	23-29 Poland Road, Wairau Valley, Auckland, 0627, New Zealand
Importer website	Pryda.co.nz
Importer email	info@prydaanz.com
Importer phone number	0800 88 22 44
Importer NZBN	9429039833129