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

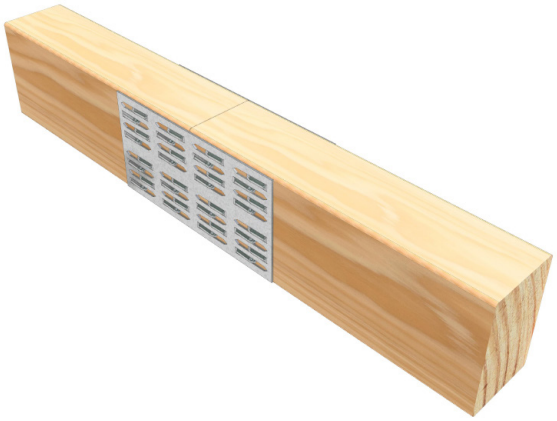
- Minimum Z275 galvanised steel
- G300 Grade Steel
- Design values tested in accordance with the relevant standard

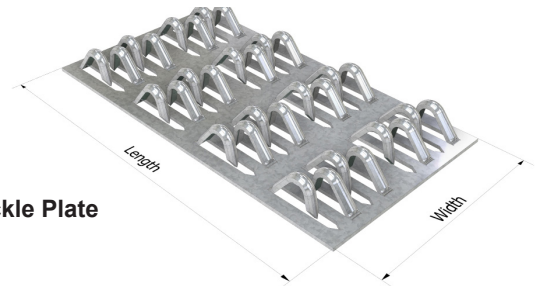
SPECIFICATIONS

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

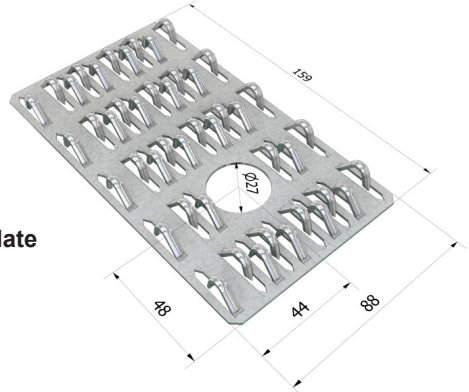
SPECIAL RANGE	Shunt Plate
PRODUCT CODE	N5N10
LENGTH	159mm
WIDTH	88mm
QUANTITY	80 per carton

Hammer fixed and easy to use connector for multiple applications.





Knuckle Plate



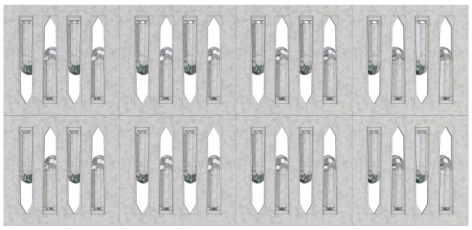
Shunt Plate

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.

COLUMNS = 16
(WIDTH)

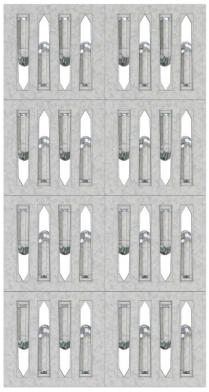
ROWS = 2
(LENGTH)



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

COLUMNS = 8
(WIDTH)

ROWS = 4
(LENGTH)



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:

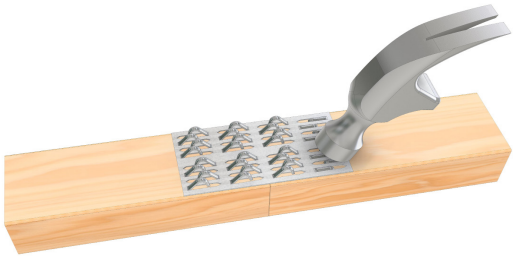
- Provide a strong, economical and easy-to-use means of jointing timber together.
- Protect timber from damage as they:
- Resist splitting due to drying of the timber, nailing near ends or other causes.
- Dissipate electricity current surges in cross arms over a larger area (eg, Shunt plates).
- Distribute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

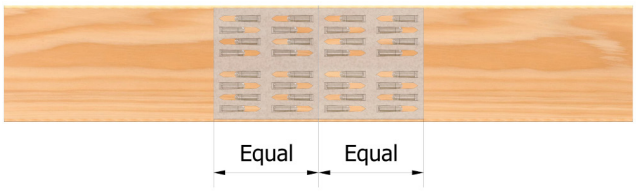
INSTALLATION

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.

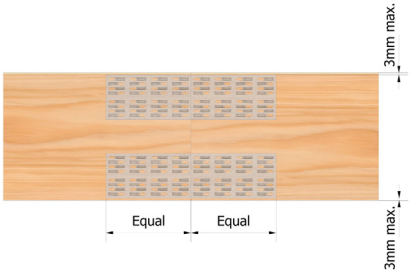


Hammer Parallel to Nails

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

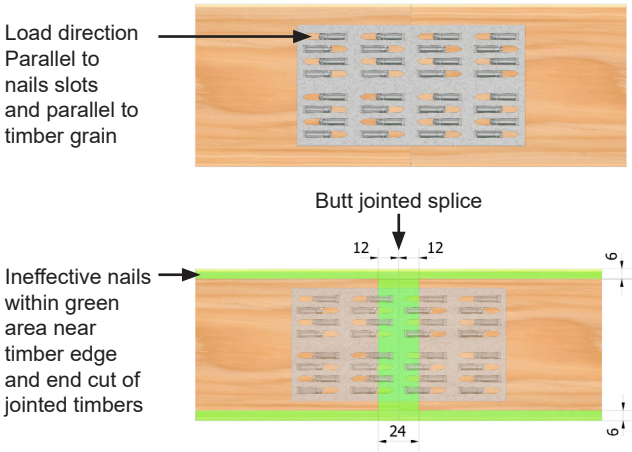
DESIGN CAPACITIES

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