











# minima

## *panel formwork system*

Minima is a robust, versatile modular wall formwork panel for concrete pressures up to 60kN/m<sup>2</sup>. The lightweight panels weigh only 30 kg/m<sup>2</sup>, allowing most panels to be easily set by hand. And with an extensive range of accessories, Minima has the versatility to adapt to most building structures, quickly and easily.

### applications

Minima can be used within any sector on a variety of applications, including:

-  Walls
-  Columns
-  Buttresses
-  Culverts
-  Abutments and Piers
-  Service Cores
-  Basements
-  Tanks
-  Foundations
-  Pile Caps



**Client:**  
Civilbuild Pty Ltd

**Project:**  
Transgrid  
Newcastle, New South Wales



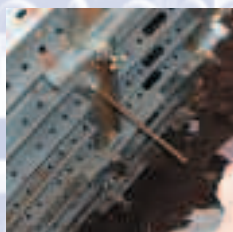


**Client:**  
Kris Steimanis

**Project:**  
Taranga Vineyard  
McLaren Vale, South Australia

## features and benefits

- Many of Minima's lightweight panels - only 30kg/m<sup>2</sup> - can be easily set by hand, minimising the need for cranes, reducing costs and skilled labour requirements.
- Clamps are easily tightened, prolonging their working life and reducing labour requirements.
- Panels can be clamped together using the Minima clamps and up to 25m<sup>2</sup> lifted by crane if required, increasing the productivity of the system.
- Minima is available in many panel sizes, allowing virtually any configuration to be erected.
- Tie positions support 1.21m<sup>2</sup> of formwork when using 2700 x 900mm panel assemblies, reducing the number of ties required, lowering costs and construction times.
- Minima inner corners have 2 degree stripping clearance, allowing panels to be easily removed once curing has taken place.



**Client:**  
BGC Contracting Pty Ltd.

**Project:**  
Kilt Brook Bridge  
Western Australia





### Minima Panels

Code	Description	Weight (Kg)
MMX21230	Minima Panel - 1200 x 300mm	18.7
MMX21245	Minima Panel - 1200 x 450mm	24.0
MMX21260	Minima Panel - 1200 x 600mm	29.2
MMX21275	Minima Panel - 1200 x 750mm	33.5
MMX21290	Minima Panel - 1200 x 900mm	38.5
MMX21530	Minima Panel - 1500 x 300mm	22.6
MMX21545	Minima Panel - 1500 x 450mm	26.5
MMX21560	Minima Panel - 1500 x 600mm	31.1
MMX21575	Minima Panel - 1500 x 750mm	35.9
MMX21590	Minima Panel - 1500 x 900mm	41.4
MMX22730	Minima Panel - 2700 x 300mm	38.9
MMX22745	Minima Panel - 2700 x 450mm	45.4
MMX22760	Minima Panel - 2700 x 600mm	53.2
MMX22775	Minima Panel - 2700 x 750mm	60.0
MMX22790	Minima Panel - 2700 x 900mm	69.1
MMA22724	Minima Panel - 2700 x 2400mm	283.7



### Multi Purpose Panels

Code	Description	Weight (Kg)
MMX41270	Minima MP Panel 1200 x 700mm	35.5
MMX41570	Minima MP Panel 1500 x 700mm	39.2
MMX42770	Minima MP Panel 2700 x 700mm	60.1

### Hinged Corners

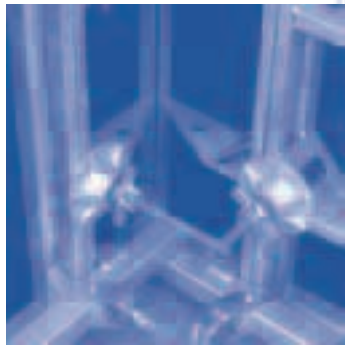
Code	Description	Weight (Kg)
MMX51230	Hinge Corner 1200 x 300mm	33.8
MMX51515	Hinge Corner 1500 x 150mm	27.8
MMX51530	Hinge Corner 1500 x 300mm	41.3
MMX52715	Hinge Corner 2700 x 150mm	49.2
MMX52730	Hinge Corner 2700 x 300mm	71.7

### Inner Corners

Code	Description	Weight (Kg)
MMX31230	Inner Corner 1200mm	30.6
MMX31570	Inner Corner 1500mm	37.9
MMX32730	Inner Corner 2700mm	66.2

### Alignment Props

Code	Description	Weight (Kg)
MMX10017	Aligning Prop - Short	10.9
MMX10005	Aligning Prop - Medium	20.5
MMA20005	Propping Bracket	2.1

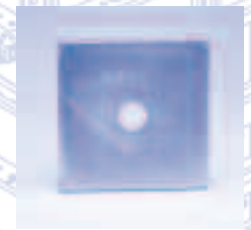


### Adjustable Clamp

Code	Description	Weight (Kg)
MMX10002	Minima Adjustable Clamp	5.0

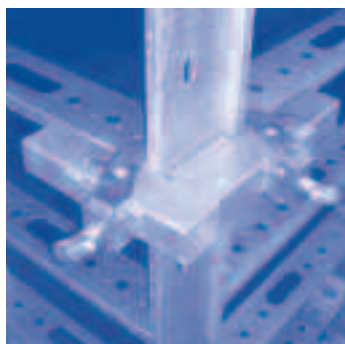
### Heavy Duty Flat Plate

Code	Description	Weight (Kg)
BTA11012	Flat Bracket 130 x 130 x 12mm	1.50
BTA11010	Flat Bracket 130 x 130 x 10mm	1.30
BTA11008	Flat Bracket 130 x 100 x 8mm	0.80
BTX10001	Bar Tie Wing Nut 15mm	0.34



### Corner Clamp

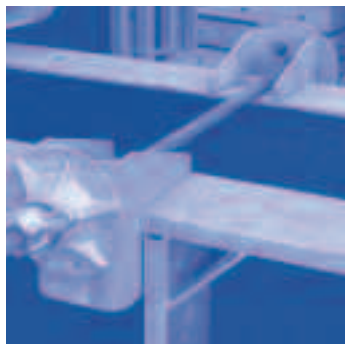
Code	Description	Weight (Kg)
MMX10001	Minima Corner Clamp	3.4



### Minima Clamp

Code	Description	Weight (Kg)
MMX10028	Minima Clamp	3.4



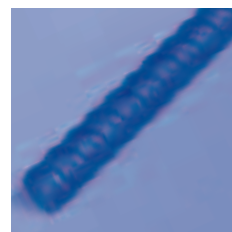


### Edge Tie Bearing

Code	Description	Weight (Kg)
MMX10023	Minima Edge Tie Bearing	2.4

### Rapid Bar Tie

Code	Description	Weight (Kg)
BTA21000	Bar Tie 15mm 1000mm	1.43
BTX10001	Bar Tie Wing Nut 15mm	0.34



### Minima Walkway Bracket

Code	Description	Weight (Kg)
MMX10006	Minima Walkway Bracket	14.0

### Crane Hook

Code	Description	Weight (Kg)
MMX10021	Minima Crane Hook	8.2



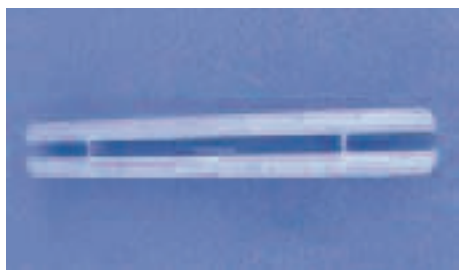
### Nuts and Bolts

Code	Description	Weight (Kg)
BTA10004	Bar Tie 15mm Cast Full Nut	0.21
MMX10012	Minima Tension Bolt 190	0.90
MMA20015	Minima MP Bolt	0.60
MMA20010	Minima MP Nut	0.40
SSX10044	Super Slim Connecting Pin	0.23
SSA10095	Super Slim Connecting Clip	0.01



### Minima Waler Components

Code	Description	Wt. (Kg)
MMX10008	Waler 80	6.3
MMX10010	Waler Tie 300	0.8



# rapid ply

**Client:**  
Fletcher White Joint  
Venture  
**Project:**  
Molongolo Dam,  
Canberra, ACT



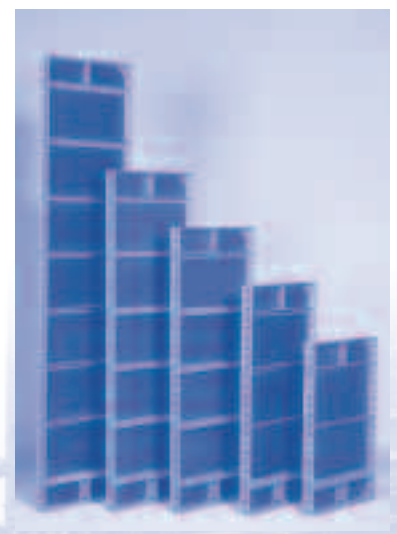
## a versatile, modular formwork system

Designed from on-site experience and a full understanding of contractors' needs, RMD's Rapid Ply is a versatile system of modular formwork panels providing a cost-effective solution for concrete walls and slabs. Rapid Ply is suitable for most applications, including; foundations, straight and circular walls, and columns.

Rapid Ply is an extremely cost effective system because it can be used without the use of a crane. The heaviest panel of 1.44m<sup>2</sup> weighs only 38.5kg, consequently Rapid Ply can be used flexibly to form in-situ concrete structures, even on the most difficult project sites.

### features and benefits

- Rapid Ply panels feature high tensile steel frames manufactured to exacting specifications, therefore the frames are more rigid and less prone to damage and the weight is reduced by approximately 5kg per square metre.
- The 12mm thick plywood with a heavy-duty phenolic overlay on the face provides extra long life and a high quality finish for the concrete.
- A wide range of panel sizes are available from 600mm x 600mm to 2400mm x 600mm, enabling the assembly of virtually any combination of panels for a large range of layouts and pour heights to suit structures of various sizes and shapes.
- The erection and striking of RMD Rapid Ply is fast and straight forward and only needs a team of two; saving time and money.
- Panels are attached together using dual-purpose wedges, which speed erection and reduce inventory problems.
- Rapid Ply's comprehensive range of accessories enable it to be used in an extensive range of construction projects.



#### Rapid Ply Panels

Rapid Ply panels feature high tensile steel frames manufactured to exacting specifications. The 12mm thick plywood with a heavy-duty phenolic overlay on the face provides extra long life and a high quality finish to the concrete. Both edges and back are sealed to prevent deterioration from moisture. A wide range of panel sizes are available.

Code	Size	Weight (Kg)
RPA22460	2400 x 600mm	38.5
RPA22445	2400 x 450mm	31.2
RPA22430	2400 x 300mm	24.1
RPA21860	1800 x 600mm	29.5
RPA21845	1800 x 450mm	23.6
RPA21830	1800 x 300mm	18.8
RPA21560	1500 x 600mm	22.6
RPA21545	1500 x 450mm	19.6
RPA21530	1500 x 300mm	15.3
RPA21260	1200 x 600mm	18.3
RPA21245	1200 x 450mm	15.8
RPA21230	1200 x 300mm	13.0
RPA20960	900 x 600mm	15.0
RPA20945	900 x 450mm	13.3
RPA20930	900 x 300mm	10.0
RPA20660	600 x 600mm	12.4



### Filler Angles

Panel arrangement where a make up in dimensions is required. A 12mm ply infill provides the panel width required. Commonly used in circular structures.

Code	Size	Weight (Kg)
RPA12400	2400 x 58mm	5.9
RPA11800	1800 x 58mm	4.3
RPA11500	1500 x 58mm	3.6
RPA11200	1200 x 58mm	2.9
RPA10900	900 x 58mm	2.2
RPA10600	600 x 58mm	1.5

### Triple Hinge Corner Panel

Arrangement at an internal corner or deviation in shape where multiple bends, 90 degrees or otherwise are required.

Code	Size	Weight (Kg)
RPA31802	1800 x 225 x 3225mm	33.7
RPA31502	1500 x 225 x 225mm	28.5
RPA31202	1200 x 225 x 225mm	22.8

### Internal Corner Panel

Arrangement at an internal corner. The internal corner is a steel unit giving a 150mm x 150mm section. Forms an accurate 90 degree corner. It is attached to adjacent panels using wedges at 300mm centres.

Code	Size	Weight (Kg)
RPA31801	1800 x 150 x 150mm	18.7
RPA31501	1500 x 150 x 150mm	15.7
RPA31201	1200 x 150 x 150mm	12.5
RPA30901	900 x 150 x 150mm	9.5
RPA30601	600 x 150 x 150mm	6.3

### Filler Channels

Panel arrangement where a make up in closing dimensions is required. All steel construction. It is attached to adjacent panels by wedges at 300mm centres.

Code	Size	Weight (Kg)
RPA21815	1800 x 150mm	11.8
RPA21812	1800 x 125mm	10.7
RPA21810	1800 x 100mm	9.1
RPA21515	1500 x 150mm	9.8
RPA21512	1500 x 125mm	8.7
RPA21510	1500 x 100mm	7.6
RPA21215	1200 x 150mm	7.9
RPA21212	1200 x 125mm	7.2
RPA21210	1200 x 100mm	6.2
RPA19015	900 x 150mm	6.0
RPA19012	900 x 125mm	5.4
RPA19010	900 x 100mm	4.9

### External Corner Angle

Arrangement of angles at an outside corner. Forms an accurate 90 degree corner. Wedges are fitted at 30mm centres.

Code	Size	Weight (Kg)
RPA32400	2400 x 64 x 64mm	10.1
RPA31800	1800 x 64 x 64mm	7.4
RPA31500	1500 x 64 x 64mm	6.1
RPA31200	1200 x 64 x 64mm	5.0
RPA30900	900 x 64 x 64mm	3.6
RPA30600	600 x 64 x 64mm	2.5

### Flexible Filler Channels

Panel arrangement where curves and or irregular shaped forms are required. Commonly used on circular structures.

Code	Size	Weight (Kg)
RPA12401	2400 x 50mm	6.4
RPA11801	1800 x 50mm	4.6
RPA11501	1500 x 50mm	4.0
RPA11201	1200 x 50mm	3.1
RPA10901	900 x 50mm	2.3

### Hinged Corner Panel

Arrangement at an internal corner where a corner other than 90 degrees is required.

Code	Size	Weight (Kg)
RPA51800	1800 x 150 x 150mm	20.8
RPA51500	1500 x 150 x 150mm	17.5
RPA51200	1200 x 150 x 150mm	13.9
RPA50900	900 x 150 x 150mm	10.6
RPA50600	600 x 150 x 150mm	7.0



### Rapid Ties

Manufactured from top quality high tensile steel, crimped back 50mm for easy breakback, leaving a small clean hole, easily plugged and hardly visible on the face of the concrete.



### Rapid Ply Wedge

Used in pairs for:

- Temporary connection of panel to panel during erection.
- Securing each end of the Rapid Tie.
- Where joints without ties are required, such as corners.

Code	Weight (Kg)
RPA10060	5.0 kg/100



### Extended Tie Key

A unique design that enables whole form arrangements to be crane lifted (gangform) and re-positioned for the next pour without tie obstruction. Extended tie keys allow extended ties to protrude beyond the form panel for easy breakback without the need for dismantling the form.

Code	Weight (Kg)
RPA10010	12.0 kg/100



### Adjustable Rapid Tie Bracket

Specially designed for use in battered wallforms and used together with an adjustable rapid tie to give the correct slope and wall thickness. For a batter of up to 5 degrees.

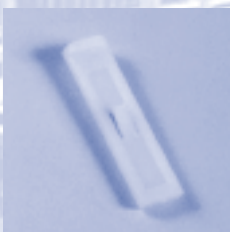
Code	Weight (Kg)
RPA10035	10.0 kg/100



### Filler Key

This key is an extension wedge and is used across the 50mm wide flexible filler channels to support the rapid ties which pass through the centre of the channel.

Code	Weight (Kg)
RPA10050	7.0 kg/100



### Plastic Tie Slot Fillers

For use where ties are not being used in order to avoid grout loss between the panels where concrete is poured.

Code	Weight (Kg)
RPX10012	0.1 kg/100



### A Clamp

Designed to secure and align adjacent panels.

Code	Weight (Kg)
RPA10014	0.55



### B Clamp

Designed to secure and align panels with one waling tube.

Code	Weight (Kg)
RPA10015	0.74



### C Clamp

For securing and aligning panel forms using RSJ waling.

Code	Weight (Kg)
RPA10016	0.96

### Rapid Tie Break Off Tool

Designed as a tool for breaking the ties by rotation after concreting.

Code	Weight (Kg)
RPX81000	0.45



### Podger Bar

For securing panel clamps and the alignment of slotted holes in panels for fitting wedges.

Code	Weight (Kg)
MNA40170	0.41





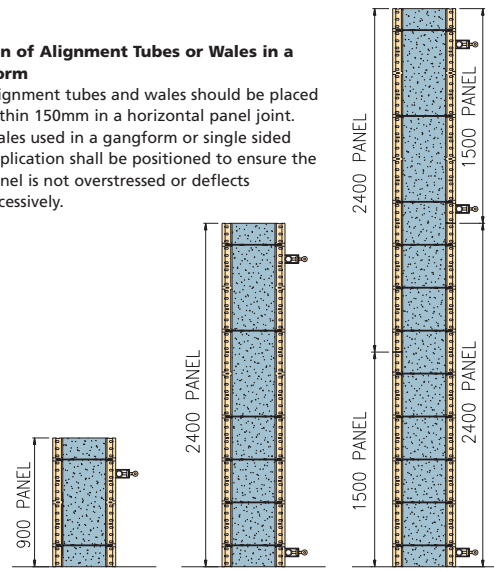
Maximum concrete pressure = 60KPa (limited by deflection of plywood form face).

**Note:**  
Tie holes to be drilled through the ply face by the customer.

The completed shutter should be stabilised by using RMD Push Pull Props or other plumbing assembly and access platforms provided using Super Slim Soldier access brackets as required by the statutory construction regulations.

#### Position of Alignment Tubes or Wales in a Gangform

1. Alignment tubes and wales should be placed within 150mm in a horizontal panel joint.
2. Wales used in a gangform or single sided application shall be positioned to ensure the panel is not overstressed or deflects excessively.

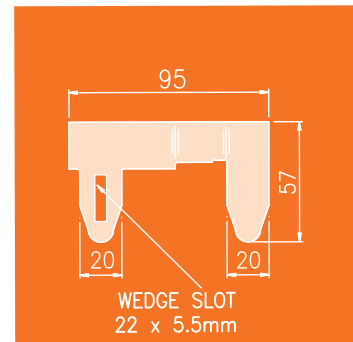


## crane handled formwork

Rapid Ply panels can be used with RMD Australia's Super Slim Soldiers to create large crane handled formwork shutters. In these applications the panels are assembled on the ground and lifted into position with a crane using a suitable spreader beam. The limitation on the shutter size is generally restricted to the capacity of the crane. The approximate weight of the panels with RMD Super Slim Soldiers and accessories is 85kg/m<sup>2</sup>.

Scaffold tube or RSJ may be used to support the Rapid Ply Panels.

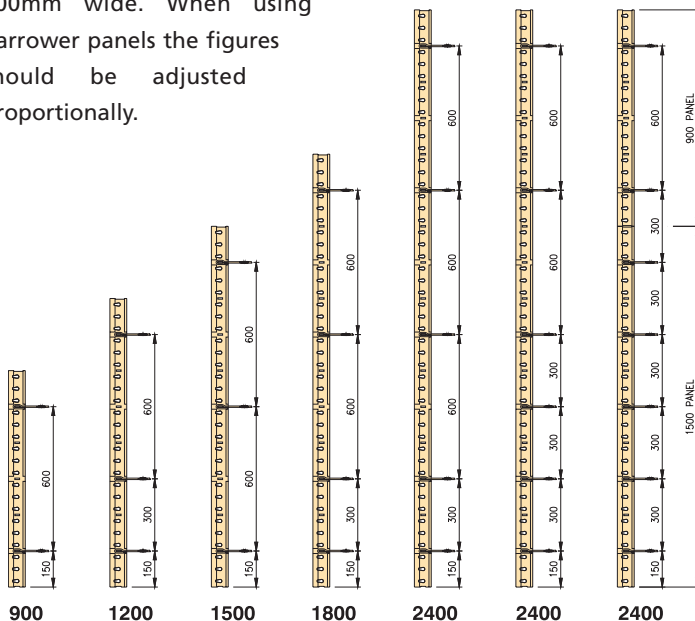
Tube Adaptors are used to connect the scaffold tube to the Super Slim Soldiers, and an RSJ Adaptor is used for RSJ wales.



If the Rapid Ply Panel is used in a gangform, extended Rapid Ties are used with Extended Tie Keys. The Extended Tie Keys enable the ties to protrude beyond the back of the panels so they can be snapped off when required.

## tie placement in rapid ply wall forms

1. There should always be a tie in the top and bottom slots.
2. Where a panel joint occurs there should be a tie in the nearest slot above and below.
3. For concrete pressures less than 30kPa ties may be placed at 600mm centres plus additional ties as required in points 1 and 2 above.
4. For concrete pressures exceeding 30kPa ties should be placed at 300mm centres but the 2nd and 4th ties from the top may be omitted.
5. Points 3 and 4 apply for panels of 600mm wide. When using narrower panels the figures should be adjusted proportionally.



**Panel height in millimetres**  
NB: Maximum concrete pressure for Rapid Ply Panels is 60kPa with ties in every slot

