mabey

C200 Bridge Brochure

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ABOUT

Mabey Australia is a leading construction and engineering services specialist. We supply local governments, contractors, and construction companies with the equipment they need to undertake their projects. We combine engineering excellence with expert design and manufacturing skills to ensure we supply only the best and most modern equipment.

We're dedicated to helping our customers deliver construction and infrastructure projects more quickly, safely, and efficiently across the road, rail, utilities, and construction sectors.

With branches located throughout Australia and New Zealand we can react and deliver on a local basis and with an engineering team based in Brisbane we can ensue your projects are covered.

Our engineering capabilities include:

- Designing temporary works
- 3D digitalisation
- Project management

WHAT WE DO

We specialise in rapid-build, pre-engineered modular steel bridges to enable accelerated bridge construction in urban and rural areas. We also deliver bridging solutions for the construction, oil and gas, and mining sectors, as well as for specialist military applications, humanitarian emergencies and disaster relief.

CAPABILITIES

- Temporary and permanent site access solutions.
- Site services, installation, and logistics expertise.
- Training and project support.
- After-sales liaison and advice.

OUR COMPANY VALUES

- TRUST = The freedom to do what's right
- SERVICE = Exceeding expectations is our point of difference
- PROGRESS = Our drive to succeed

C200 BRIDGING SYSTEM

We're proud to introduce the Compact 200™ (C200™) steel panel bridging system to Australia and New Zealand. C200™ is Mabey's most widely used modular bridging product and is suitable for both temporary and permanent applications. With a heritage stretching back over 70 years to the original Bailey Bridge system, our compact bridge's extensive use worldwide pays testament to its reliability and versatility. The compact bridge system uses standard, interchangeable steel components to provide robust, rapidly deployed, and erected solutions for, permanent bridges, temporary bridges, rural bridges, access bridges, footbridges and emergency and contingency bridging applications. Emergency and contingency bridge stocks, held in country, allow for immediate availability when needed.

The C200™ can carry up to two lanes of traffic, with options for external cantilevered foot walks, and can be configured as a single or multiple span bridge. Multi-span solutions are supported on intermediate piers, meaning that there is no limitation to the length the C200™ can bridge. This makes it a versatile solution suited to a wide range of applications. Floating bridge solutions, using pontoon systems and bespoke connections, have also been achieved, as well as jetty applications for ferry and barge access. The C200™ can also be adapted to serve as pipe or utility support bridges suited to carrying for example, oil, water, gas pipes, conveyors and other services and is the most adaptable and versatile solution in the Mabey range.

KEY BENEFITS

- Modular for easy transit
- Pre-engineered design – no bespoke engineering costs
- Rapidly assembled and installed
- Achieves longer unsupported spans than most other bridging methods – minimize your substructure costs and stay out of waterways
- Crane installation or cantilever launch options
- Compact bridges are relocatable
- Robust, Long life with minimal maintenance
- Single and multi-span compact bridges can be achieved
- Separate pedestrian walkways can be cantilever mounted to vehicle bridges

KEY APPLICATIONS

- Bridging temporary haul roads and creek crossings
- Bridge maintenance/restoration works
- Improve project safety by re-routing traffic off permanent structures under repair
- Maintaining trafficable routes while permanent bridge structures are built
- Emergency and contingency bridging support
- Rural bridge replacement
- Temporary staging
- Event access
- Utilities bridging

SPECIFICATIONS

Module Length	3.048m
Carriageway Widths	2.10m – Pedestrians Only 3.15m – Single Lane 4.20m – Wide Single Lane 7.35m – Dual Lane
Number of Lanes	1 or 2
Cantilever pedestrian walkways	Up to 1.5m wide
Finish	Hot dip Galvanised: BS EN ISO 14713 & 1461 ASTM A123

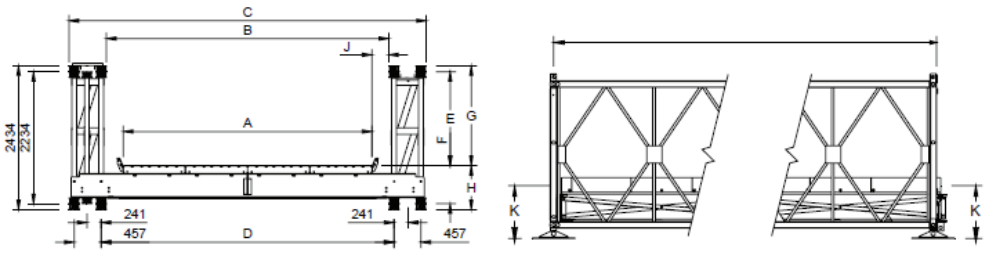
Bridge trusses are the main load-bearing elements of a bridge and are constructed from Panels and Reinforcing Chords plus, for Single constructions, Rakers and, for multi-panel line constructions, Vertical Frames, Bracing Frames and Tie Beams.

KEY DIMENSIONS

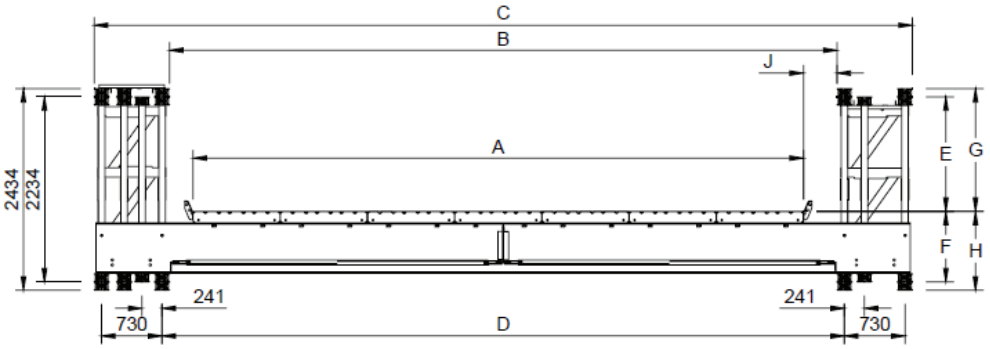
C200 BRIDGING SYSTEM

SINGLE LANE ROADWAYS

SPAN = NUMBER OF BAYS X 3048MM



TWO LANE ROADWAYS



Dimensions	Clear Working Dimensions		Two Lane Roadways
	Standard Width - 3.15m	Extra Wide - 4.20m	7.35m
A	3150	4200	7350
B	3759	4775	8052
C*	5029	6045	9868
D	3937	4953	8230
E	1590	1587	1381
F	644	647	853
G	1690	1687	1481
H	744	747	953
J	304	287	351
K	802	805	1011

* For single truss constructions the nominal overall widths are 4964mm, 5980mm and 9820mm for Standard Width, Extra Wide and Two-Lane Roadways, respectively

Maximum Spans and Loading - Australia

Product Name	Loading	Road Width	Cantilever Walkway	Maximum Span (single span)
Compact C200	Pedestrian (5kN/m2)	2.10m	Not Applicable	16 Bays (48.768m)
Compact C200	T44 low fatigue	3.15m	No	19 Bays (57.912m)
Compact C200	T44 low fatigue	3.15m	Yes – 1 or 2 sides	16 Bays (48.768m)
Compact C200	T44 high fatigue	3.15m	No	19 Bays (57.912m)
Compact C200	T44 high fatigue	3.15m	Yes – 1 or 2 sides	16 Bays (48.768m)
Compact C200	SM1600 (AS5100)	3.15m	No	14 Bays (42.672m)
Compact C200	SM1600 (AS5100)	3.15m	Yes – 1 or 2 sides	12 Bays (36.576m)
Compact C200	T44 low fatigue	4.20m	No	18 Bays (54.864m)
Compact C200	T44 low fatigue	4.20m	Yes – 1 or 2 sides	15 Bays (45.720m)
Compact C200	T44 high fatigue	4.20m	No	18 Bays (54.864m)
Compact C200	T44 high fatigue	4.20m	Yes – 1 or 2 sides	15 Bays (45.720m)
Compact C200	SM1600 (AS5100)	4.20m	No	12 Bays (36.576m)
Compact C200	SM1600 (AS5100)	4.20m	Yes – 1 or 2 sides	11 Bays (33.528m)
Compact C200	T44 low fatigue	7.35m	No	16 Bays (48.768m)
Compact C200	T44 low fatigue	7.35m	Yes – 1 or 2 sides	14 Bays (42.672m)
Compact C200	T44 high fatigue	7.35m	No	16 Bays (48.768m)
Compact C200	T44 high fatigue	7.35m	Yes – 1 or 2 sides	14 Bays (42.672m)
Compact C200	SM1600 (AS5100)	7.35m	No	10 Bays (30.480m)
Compact C200	SM1600 (AS5100)	7.35m	Yes – 1 or 2 sides	10 Bays (30.480m)

Maximum Spans and Loading - New Zealand

Product Name	Loading	Road Width	Cantilever Walkway	Maximum Span (single span)
Compact C200	Pedestrian (5kN/m2)	2.10m	Not Applicable	16 Bays (48.768m)
Compact C200	HN (normal)	3.15m	No	20 Bays (60.960m)
Compact C200	HN (normal)	3.15m	Yes – 1 or 2 sides	16 Bays (48.768m)
Compact C200	HO (overload)	3.15m	No	16 Bays (48.768m)
Compact C200	HO (overload)	3.15m	Yes – 1 or 2 sides	15 Bays (45.720m)
Compact C200	HN (normal)	4.20m	No	18 Bays (54.864m)
Compact C200	HN (normal)	4.20m	Yes – 1 or 2 sides	15 Bays (45.720m)
Compact C200	HO (overload	4.20m	No	15 Bays (45.720m)
Compact C200	HO (overload	4.20m	Yes – 1 or 2 sides	14 Bays (42.672m)
Compact C200	HN (normal)	7.35m	No	17 Bays (51.816m)
Compact C200	HN (normal)	7.35m	Yes – 1 or 2 sides	13 Bays (39.624m)
Compact C200	HO (overload	7.35m	No	14 Bays (42.672m)
Compact C200	HO (overload)	7.35m	Yes – 1 or 2 sides	13 Bays (39.624m)

Note 1 : All values published are based on a maximum triple panel configuration for 2.10m-4.20m carriageways and a quadruple panel configuration for 7.35m carriageways.
Note 2 : All values published are based on a minimum fatigue of 400,000 crossings.

INSTALLATION METHODS

Mabey's modular steel bridges can be assembled and installed in days or weeks. Utilizing flexible installation methods to suit site conditions and rapid installation to keep your project on schedule.

One of the distinct advantages of Mabey's modular steel bridging is the ease and speed at which it can be assembled and installed. With all bridge components prefabricated and precision-engineered, installation requires no field welding and minimal skilled labour or construction equipment. This helps minimize costs and ensure the project is delivered on schedule.

Cantilever Launch

The cantilever launch method allows for the bridge to be assembled by hand and launched into place without the use of a crane. The most common approach, it makes use of a launching nose and counterweight to enable installation in locations where a crane is not available or too costly.

Crane Lift In

With the right size crane, the Mabey Bridge can be lifted into place. This is the fastest method of installation and is often required in demanding situations, where speed is critical.

Note: Other options are available upon request – Tail Launching and crane assisted cantilever launch

VALUE ADDED SERVICES

Reliability

We own a fleet of trucks and specialised delivery vehicles available at every branch location. Operated by accredited and experienced drivers we strive to maintain the tightest control over site deliveries and pickups to provide a reliable service and minimise unplanned downtime on site Most branches also operate crane trucks to minimise client material. If we need larger trucks, we will arrange these too.

Assurance

If you have an engineering question about your modular bridge project, then let our in-house engineers provide that assurance. We'll check bridge loadings and site requirements to provide a safe and practical solution that will meet Australian and New Zealand standards.

SITE ADVISORS

Mabey Hire Pty Ltd offers an onsite technician (Site Advisors) to guide you every step of the way to ensure a safe and efficient bridge build. Our site advisors collaborate with your assembly team providing expert instruction on the site preparation, assembly, and launch, through to final inspection of the mabey bridge prior to the bridge opening to road traffic.

Site Advisor Training

Mabey Hire also offer the service of training packages where we can offer training on how to build our bridges which will include both classroom and site sessions.
These training sessions are useful for local authority who currently own our stock and would like their staff trained in how to install the bridges.

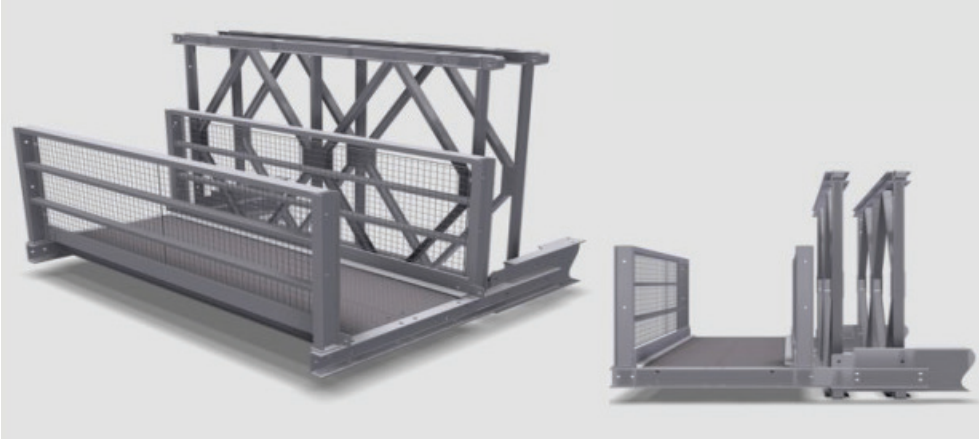
Consulting

From planning and design to project management and on-site support, Mabey Hire Pty Ltd assists its clients in developing solutions specific to the project needs and objectives.
Our experienced team of engineers are available for on-site consultation, and we thrive on challenging, complex project environments. Whether your project requires a permanent or temporary bridge, Mabey Hire can find the right solution for you.

ACCESSORIES FOR **BRIDGES**

Parapet Types
AASHTO
Type A/ B
LRFD
Armco

External Walkways – Vertical Infill



Safety Infill Panel (SES)

OTHER MODULAR BRIDGE MODELS AVAILABLE – **BY REQUEST**

We have a range of additional modular steel bridges through our Mabey UK Bridge Manufacturing Facility.

Delta™

Delta™ brings together the skills and knowledge from more than sixty years' experience in the manufacture, design and building of modular bridging. Combining the best in off-site fabrication with high-speed construction and rapid installation, Delta™ bridging offers significant advantages over more traditional construction techniques. The innovative Delta™ bridge, with specially designed deck and precamber system, can be configured for single or multiple span bridging, in road widths up to 10.5m (three lanes). The Delta™ Bridge System is ideal for permanent use on main highways and roads in rural areas. This includes permanent long-span applications, main routes, semipermanent installations or bridging support for weakened or damaged structures.

Atlas™

Atlas™ is lightweight, robust, and quick to install. Its prefabricated modular design is invaluable in both rural areas and busy cities; simple to construct with minimal disruption to traffic flow. Atlas™ is available in standard or bespoke designs. It can be configured as a conventional bridge or as a flyover to ease urban traffic congestion. An additional benefit is the capability to construct within a tight footprint – this means that any traffic disruption during construction is also kept to a minimum. The design is precambered and can be used in locations where curves are required. The main girders can be painted to fit in with the location, important both in towns and cities, and rural areas.

Logistic Support Bridge™

Based on the tried-and-tested Compact 200™, the Logistic Support Bridge™ (LSB™) is used by military forces around the world. The LSB™ is quick and simple to erect, uses fully interchangeable standard components, and can carry the heaviest military and civilian vehicles. The LSB™ is NATOapproved
and has been adopted by several NATO and NATO Partner nations including Britain, Spain, Denmark, Portugal, and Switzerland and by the armies of many other countries, including Brazil.

We have a range of additional logistics and composite bridges through our Mabey UK Bridge Manufacturing Facility.

Composite Bridges

Composite Bridges can accommodate multiple spans of any length and any width to cater for the heaviest traffic requirements. They combine the benefits of quickly erected and lightweight steel superstructure components with the durability and robustness of concrete decks. Composite bridges are designed to use locally sourced and manufactured concrete deck slabs. Formwork for the concrete decks can be supplied either as proprietary formwork or as steel deck panels to facilitate in-situ casting.

Project Gallery

The Challenge

A historic timber bridge in a rural part of New South Wales in Australia was in need of an upgrade. Originally built using a 'Dare' truss design, the Briner Bridge, dating back to 1908, provides a vital transport link across the Coldstream River between Ulmarra and Tucabia and areas further to the east.The structure was to be upgraded in a heritage sympathetic manner, including new timber trusses with concrete abutments and steel piers to enable strengthening.To keep traffic moving and ensure that the local residents remained connected whilst the heritage bridge was upgraded, the customer, Transport for New South Wales (TfNSW), needed to provide a temporary access route across the river.

TfNSW holds a large amount of Compact 200™ (C200™) stock, having worked with Mabey for many years on multiple projects and training programmes, so they were able to select and deploy a suitable structure from their inventory of bridges.

The Solution

A 16 bay, 48.788m long, 4.2m wide, TSHR3H C200™ was chosen for this scheme. Site Advisor, Steve Morgan, was on hand to assist with the launch and provide on-site practical advice. The installation timeframe was tight due to ensuring connectivity for the surrounding community was not impacted by the commencement of the heritage timber truss removal process. This was complicated by a moderate flood experienced in the Coldstream River. The build was completed within five days, just before the high water was predicted to arrive and when it did, the route remained unaffected with the water level rising to a safe distance below the constructed C200™.

The Result

The erection of a modular bridge has enabled the project – to widen and increase the load capacity of the Briner Bridge – to start. The project, which is funded through the NSW Government's Bridges for the Bush program, remains on course for completion in December 2020. Parliamentary Secretary for Regional Roads and Infrastructure, Chris Gulaptis, said "The historic bridge has strong associations with the growth in the road network and boom in economic activity in the region during the early 1900s. It is an important local structure, which is why the NSW Government is investing in works that will keep it in good condition for generations to come while preserving its character and heritage significance."

The C200™ has kept the local community connected to the main roads throughout the upgrade process and it is expected to remain in place until the new bridge is open for business.

Briner Bridge, New South Wales, Australia

The Challenge

The original all timber Blades Bridge in New South Wales had been installed in 1916 replaced in the 1950 s, and strengthened in the 1990 s However, the bridge became severely dilapidated and in 2008 was closed when it was assessed by the University of Technology Sydney as being structurally unsafe This presented a considerable inconvenience for local communities that were presented with an additional 15 km to their journeys in and out of the park Furthermore, the local authority's attempts to install a replacement was complicated by geological uncertainty caused by mining activity in the area

The solution

A Mabey Compact 200 ™ (Mabey C 200 ™) panel bridge was chosen as a replacement for the 18 3 m span over the gorge, not only because of Mabey's ability to guarantee prompt delivery, but also the performance that the Mabey C 200 ™ delivers One of the challenges the new bridge would need to cope with was longitudinal movement of up to 700 mm due to mining subsidence and upsidence

A 4 2 m wide single lane carriageway was chosen as the roadway It was decided to key bankseat abutments into the rock behind the existing timber bridge supports One abutment was cast in situ, while the second was precast offline at site and lifted into position with the crane It was decided that new abutments would first be cast and placed in position Meanwhile, the new panel bridge structural skeleton, formed from 3 048 m modules, was assembled into two segments in the works yard by two inexperienced workers in just two days using a small crane and hand tools This illustrates the simplicity of the design The bridge segments were then loaded on to trucks and transported to the bridge site

Once at the site the bridge segments were joined together before a crane was used to lift the structure into place and on to the pre prepared abutments The installation operation took approximately five hours Once in position the all steel roadway deck was installed followed by the parapets to complete the installation of the superstructure

The result

The replacement Blades Bridge has been a success and the coordinating engineer, Michael Nelson, at Wollondilly Shire Council was recognised for his role on the project when he was awarded the Institute of Public Works Engineering Australia (award for Public Works Leader of the Year The new bridge was installed just one year and seven days after the old bridge was closed, and will provide many decades of reliable use

Leslie Harrison Dam Upgrade Project QLD

The Challenge

Leslie Harrison Dam, near Capalaba in Southeast Queensland, was identified for upgrade in order to meet Dam Safety Management Guidelines Mabey Australia (was approached by Seqwater, the statutory authority responsible for the dam, to provide a temporary access route for the project's construction traffic Seqwater and their preferred construction partner, Fulton Hogan, wanted a site access solution that removed heavy construction traffic from the streets of a neighbouring residential suburb

The Solution

Mabey presented a temporary bridge hire solution with access via a maintenance road that passes just two residential properties as an alternative to the existing site access through suburban streets Mabey educated Seqwater and Fulton Hogan on the benefits of our Compact 200 steel panel bridging system Our solution was to design a single span, 55 m, 4 2 m wide single lane bridge structure over the dam spillway that could accommodate construction traffic with loads up to 60 t, including truck and dog earthmovers and other heavy construction vehicles

This was a straightforward solution for C 200 's capability and Fulton Hogan opted to install based on Mabey's assembly methodology

The result

Mabey provided expert installation training to Fulton Hogan pre works, assembly guides, launch plans and onsite support during assembly and bridge launch The result was that the bridge was fully assembled and launched over the dam spillway within three weeks, creating a critical alternative access point to the project, separated from the neighbouring community This structure was delivered safely with no delays, incidents or unforeseen impact to the environment or project schedule This has been the first cantilever launched Mabey bridge performed in Australia Well done to the team at Fulton Hogan for their efficient delivery methods and special thanks to Seqwater for their belief in our solution

CONVERSIONS TABLE

Physical Quantity	Si unit	Measurement	Conversion
Area	Square Metre (m2)	Square Metre (m2) - Square Foot (ft2) Square Foot (ft2) - Square Metre (m2) Square Millimetres (mm2) - Square Inch (in2) Square Inch (in2) – Square Millimetre (mm2)	1m2 = 10.76ft2 1ft2 = 0.092m2 1mm2 = 0.001in2 1in2 = 645.2mm2
Density	Kilogram Per Cubic Metre (kg/m3	Kilogram Per Cubic Metre (kg/m3) – Pound Per Cubic Foot (lb/ft3) Pound Per Cubic Foot (lb/ft3) – Kilogram Per Cubic Metre (kg/m3) Kilogram Per Cubic Metre (kg/m3) – Kilonewton Per Cubic Metre (kN/m3) Kilonewton Per Cubic Metre (kN/m3) – Kilogram Per Cubic Metre (kg/m3)	1kg/m3 = 0.0624lb/ft3 1Pa = 1N/m2 1kPa = 1kN/m2 1MPa = 1000kN/m2 1bar = 100kPa 1kPa = 0.145psi 1psi = 6.89kPa 1lb/ft3 = 16.02kg/m3 1kg/m3 = 0.0098kN/m3 1kN/m3 = 101.9kg/m3
Length	Metre (m)	Metre (m) – Foot (ft) Foot (ft) – Metre (m) Millimetre (mm) – Inch (in) Inch (in) – Millimetre (mm) Kilometre (km) – Mile (mi) Mile (mi) – Kilometre (km)	1m = 3.28ft 1ft = 0.305m 1mm = 0.039in 1in = 25.4mm 1km = 0.621mi 1mi = 1.609km
Mass	Kilogram (kg)	Kilogram (kg) – Newton (N) Newton (N) – Kilogram (kg) Kilogram (kg) – Pound (lb) Pound (lb) – Kilogram (kg) Tonne (t) – Kilonewton (kN) Kilonewton (kN) – Tonne (t)	1m = 3.28ft 1ft = 0.305m 1mm = 0.039in 1in = 25.4mm 1km = 0.621mi 1mi = 1.609km
Pressure	Cubic Metre (m2)	Pascal (Pa) – Newton Per Square Metre (N/m2) Kilopascal (kPa) – Kilonewton Per Square Metre (kN/m2) Megapascal (MPa) – Kilonewton Per Square Metre (kN/m2) Bar (bar) – Kilopascal (kPa) Kilopascal (kPa) – Pound Per Square Inch (psi) Pound Per Square Inch (psi) – Kilopascal (kPa)	1Pa = 1N/m2 1kPa = 1kN/m2 1MPa = 1000kN/m2 1bar = 100kPa 1kPa = 0.145psi 1psi = 6.89kPa
Volume	Pascal (Pa)	Cubic Metre (m3) – Cubic Foot (ft3) Cubic Foot (ft3) – Cubic Metre (m3) Cubic Metre (m3) – Litre (L) Cubic Metre (m3) – Gallon (gal) Gallon (gal) – Cubic Metre (m3) Litre (L) – Gallon (gal) Gallon (gal) – Litre (L)	1m3 = 35.31ft3 1ft3 = 0.028m3 1m3 = 1000L 1m3 = 219.96gal 1gal = 0.0037m3 1L = 0.264gal 1gal = 3.785L

While information in this Guide is correct at time of printing, product specifications and product availability are subject to change without further notice. Please visit our website for the most up to date information. Job site photos are strictly intended for general product illustration only and may not comply with all applicable safety standards or site requirements. Specification data has been taken from manufacturers serialised specific tabulated data.

NOTES

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