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Formed with
ColorLume®
Galvalume®



Locally produced &
custom-cut using
modern machinery



Supply
and fix
service



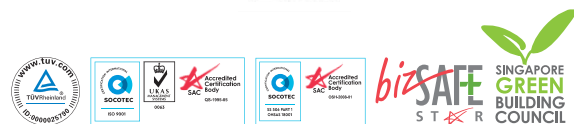
FPC & ISO
9001-2015
Certified

We are aware of the importance of having shelter over our heads.
We also understand overheads.
Talk to us about our competitive pricing and services.
We are standing by to receive your call.

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You Inspire, We Deliver.

M - SPAN
925



SGBP 2018-1363



M Metal - a game changer

M Metal is a Singapore-based manufacturer of high quality steel and non-steel roofing and walling products.

We started the company in 2007 in response to what we saw was a growing industry need for a responsible supplier, which believes in the value of forging partnerships with stakeholders in order to deliver innovative, reliable and customized solutions. It is our breadth and depth of specialized knowledge, combined with our stakeholders' awareness of their client needs, which results in a win-win collaboration.

Our sense of responsibility extends to workplace safety. We strongly believe that good safety equates good business. Through regular training sessions, we make sure that our workers, and also those of our contractors, are able to do a good job safely.

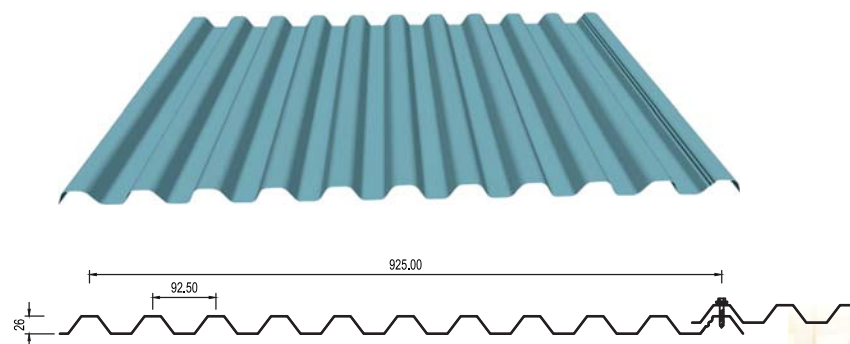
Staffed by experienced professionals with an in-depth knowledge of the industry and who are motivated by the company's vision - to be the industry's preferred building solutions provider from concept to completion - we aim to be a game-changer in Singapore's building industry.

M-SPAN 925

Cost effective wide span coverage with application flexibility

M-Span 925 trapezoidal profile has a cover width of 925mm and rib height of 26mm for striking linearity, modern appearance, good water-carrying capacity, greater strength and design flexibility.

M-span 925 trapezoidal profile's unique features is its anti-capillary double-groove at its side lap. It provides excellent watertightness performance for peace of mind.



Benefits of M-Span 925

- M-Span 925 trapezoidal ribs for horizontal, vertical and inclined applications.
- It conforms to International and Singapore Standards.
- It features an anti-capillary double-groove at the side lap.
- Excellent for roofing, walling and hoarding applications.
- Contemporary and modern designs yet cost effective.
- Quick and easy to install.
- It has good water-carrying capacity and is reliably watertight because of its anti-capillary double-groove side laps, which prevent water seepage.
- High strength, durable yet lightweight for all weather condition performances.
- Available in crimped curved.
- Minimal or no maintenance needed.
- **Leader** Green mark certified by Singapore Green Building Council (SGBC).



Material Specification

Physical Properties

	Standard	Non-Standard
Base Metal Thickness	0.42mm	0.48mm
Total Coated Thickness	0.48mm	0.54mm
Weight	4.70 Kg/m ²	5.33 Kg/m ²
Cover Width	925mm	925mm
Rib Height	26mm	26mm

The base material of M-Span 925 is a protected steel sheet with a minimum yield stress of 550MPa (Grade G550) finished with high color and gloss retention ColorLume® paint system. The substrate is coated with metallic hot-dipped zinc/aluminium alloy comprising 55% Aluminium, 43.5% Zinc and 1.5% Silicon for long-term performance against corrosion.

The minimum total coating mass for the zinc/aluminium alloy is 200 g/m² or AZ 200* coating class as determined by Australia Standard AS1397-2011.

* AZ 200 is widely known as Galvalume®, a registered trademark of BIEC International Inc (USA) licensed to YP Enterprise Co., Ltd.

Material Performance Test

Typical Properties	Test Standard (Method)	Correspond to Singapore Standard SS631:2017*
T-Bend Test	ASTM D 4145-10	AS/NZS 2728
Pencil Hardness	ASTM D 3363-05 (2011)	ASTM D 3363
Colour	ASTM D 2244-16	SS Part E3
Specular Gloss	ASTM D 523-14	SS 5 Part E1
Dry Film Thickness	ASTM D 7091-13	SS 5 Part B1
Impact Resistance	JIS K5600-5-3	ISO 6272
Humidity Resistance	JIS K5600-7-2 : 1999	SS 5 Part G6
Cross Cut Adhesion	JIS K5600-5-6 : 1999	ISO 2409

Corrosion and Weathering	Test Standard (Method)	Correspond to Singapore Standard SS631:2017*
Salt Spray Test	ASTM B 117-16	SS 5 Part G10
Weathering Test	ASTM G 154-16	SS 5 Part G9
Acid Resistance (10%v/v HCL)	JIS K5600-6-1 : 2016	ISO 2812

* Material performance for the manufacture of profiled roof and wall cladding conforms to Singapore Standard 631 : 2017 Specification for Metal Roofing.
* Fire Classification A1 in accordance to EN 13501-1 and Class 0 in BS 476 Part 6 & 7.

Finishes

M-Span 925 is finished with ColorLume® PVDF (70/30) and ColorLume® SMP finished paint systems.

The detailed coating composition is as follows:

- Finish Coat***
- ColorLume® PVDF** : High performance Polyvinylidene Fluoride (abbreviated PVDF or called Fluorocarbon) with full strength 70% of KYNAR® 500 or HYLAR® 5000 premium resin is used. 20µm nominal dry film thickness.
 - ColorLume® SMP** : Custom formulated Silicon Modified Polyester (SMP) paint system. 20µm nominal dry film thickness.

Primer Coat
Anti-corrosion inhibitive polyurethane primer. 5µm nominal dry film thickness on both sides.

Pre-treatment
With proprietary conversion film to achieve excellent adhesion between the steel surface and paint finish on both sides.

Substrate
AZ 200 alloy coated steel. AZ comprises 55% Aluminium, 43.5% Zinc and 1.5% Silicon (by weight) in accordance to ASTM A792M. Minimum coating mass, 200 g/m² on both sides.

Backing Coat
Custom formulated polyester coating, Light Grey for PVDF and Egret White for SMP. 10µm nominal dry film thickness.

Gloss
Nominal gloss level of 25 GU at 60° reflection angle.

* For colour selection, please refer to our color chart or the actual color plate sample. Maximum specular gloss allowed is 30 G.U. (Gloss Unit) as measured at 60° reflection angle in accordance to ASTM D 523 : 2008 / SS 5 Part E1 : 2003 / BS EN 13523-2 Performance Standards).

Design Performance

M-Span 925 Limit State Wind Pressure Capacity - kPa

Base Material Thickness (BMT) = 0.42mm, Total Coated Thickness (TCT) = 0.48mm

Type of Span	Limit State	Span - mm								
		900	1200	1500	1800	2100	2400	2700	3000	3300
Single	Serviceability	3.45	2.67	1.94	1.29	0.80	0.48	0.32	0.24	-
	Strength*	10.85	8.70	6.70	4.98	3.68	2.92	2.58	2.53	-
End	Serviceability	3.12	2.71	2.31	1.93	1.58	1.27	0.99	0.74	-
	Strength*	7.9	6.46	5.08	3.88	2.95	2.36	2.04	1.92	-
Internal	Serviceability	3.47	2.99	2.54	2.13	1.76	1.46	1.21	0.99	0.79
	Strength*	9.09	7.53	6.08	4.79	3.78	3.11	2.69	2.48	2.34

Base Material Thickness (BMT) = 0.48mm, Total Coated Thickness (TCT) = 0.54mm

Type of Span	Limit State	Span - mm								
		900	1200	1500	1800	2100	2400	2700	3000	3300
Single	Serviceability	3.97	3.07	2.21	1.42	0.91	0.55	0.35	0.27	0.24
	Strength*	11.07	9.53	8.06	6.72	5.57	4.65	3.93	3.33	2.80
End	Serviceability	4.11	3.49	2.89	2.34	1.85	1.44	1.09	0.79	0.52
	Strength*	9.00	7.42	5.93	4.64	3.64	2.99	2.63	2.46	2.39
Internal	Serviceability	4.28	3.59	2.93	2.33	1.83	1.44	1.15	0.93	0.73
	Strength*	10.28	8.49	6.80	5.32	4.15	3.36	2.87	2.54	2.41

* Reduction factor of 0.90 has been applied. These capacities are based on tests carried out by the Cyclone Testing Station of James Cook University and in accordance with the requirements of Australian Standard AS 15621, and AS 4040.2-1992 Resistance to Wind Pressure for Non-Cyclonic Regions.

Maximum Support Spacing

Type of Application		BMT - mm	
		0.42	0.48
Roof	Single	1500	2200
	End	2100	2400
	Internal	2300	3300
	Unstiffened Overhang	200	250
	Stiffened Overhang	450	500
Wall	Single	2200	2300
	End	3100	3200
	Internal	3300	3300
	Overhang	150	150

These numbers represent the maximum spans that can be achieved for foot traffic and have no relationship with capacity to withstand resistance to wind uplift

Recommended Roof Pitch

Sheet length without end lap	3° (approx 1 in 20)
Sheet length with end lap	5° (approx 1 in 12)



Site Rolling

One of the most valuable services M Metal offers is site rolling, whereby cladding – in particular, long-length cladding can be roll-formed on site itself with a roll-former.

Benefits:

- Greater convenience for projects where roof length is over transportable limits
- Better watertightness, as there is no need to compromise by resorting to having several end-laps over the whole roof length
- Versatility, as the roll former can be placed at the ground level or roof level, whichever suits the site conditions
- Time savings, as the roll former can be quickly re-positioned to where the cladding is required
- Self-sufficient production reduces on-site labour and packing requirements

M Metal can manufacture all its roof and wall cladding profiles, including M-Span 925 on-site.



Fixing

Fasteners

It is important that the correct fasteners are used so that it is compatible with the cladding material selected and matches with the cladding's life expectancy.

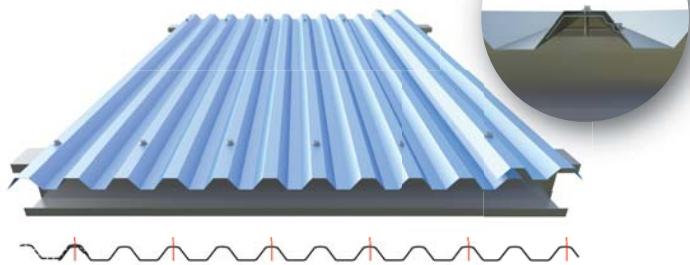
The fasteners used for installation of M-Span 925 sheeting to the purlin/structural support should conform to AS3566:2002 – Class 3 or Class 4, and should be self-drilling with a hexagon head and washer.

Fixing Location	Fixing to Steel	Fixing to Timber
Crest fixed	Self drilling screws 12 - 14 x 50 HGS	Self drilling screws with hexagon washer-head and EPDM seal Softwood : 12 - 11 x 65 Hardwood : 12 - 11 x 50
Valley fixed	Self drilling screws 12 - 14 x 20 HWFS	Self drilling screws with hexagon washer-head and EPDM seal Softwood : 10 - 12 x 30 Hardwood : 10 - 12 x 20
Side lap/Stitching	Self drilling screws 15 - 15 x 20 HWFS	

Fixing Points - Non-Cyclonic

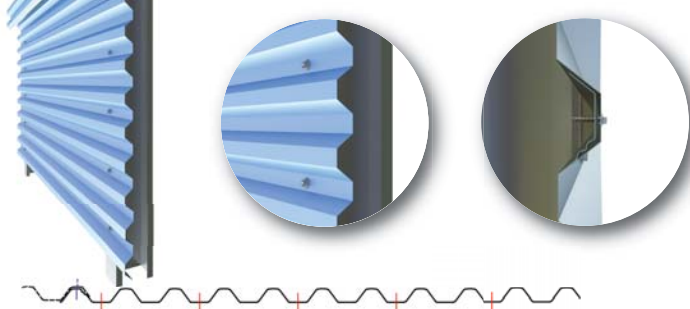
Roof

Screws should be fixed through the rib



Wall

Screws should be fixed through the pan



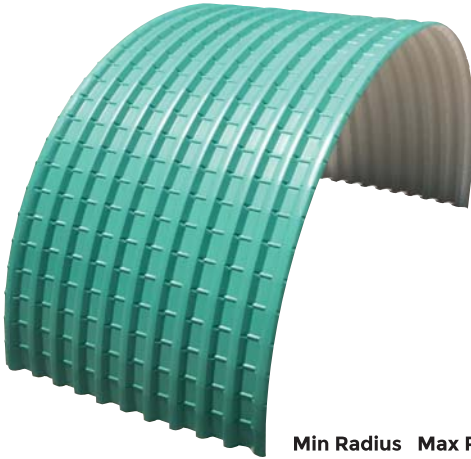
Curving

Crimp Curved Roof

On the aesthetic front, M-Span 925 is highly versatile and can be crimped curved to fulfill architectural visions for curved roofs in boldly-designed commercial, industrial and even residential buildings.

The nature of M-Span 925 is such that crimp curving is cost-efficient because:

- There is less supporting framework required for fascias, parapets and roofs
- Less work is required for the installation of fascia cladding
- The need for many flashings and cappings is reduced or entirely eliminated



	Min Radius (mm)	Max Radius (mm)
0.42mm BMT / 0.48mm TCT	400	20000
0.48mm BMT / 0.54mm TCT	450	20000

Please contact M Metal Pte Ltd, Technical Department for all technical matters and assistance with your roof design

Compatibility

All products should be checked for compatibility with adjacent materials before installation. It is important to check the implications of direct contact between materials, and water runs from one material to another.

Galvalume®/ColorLume® SMP/ColorLume® VF-20L (70/30) PVDF coated steel sheets should not be placed in direct contact with copper, lead, green or treated timber, stainless steel, mortar or concrete.

Length

M-Span 925 roof and wall claddings are supplied cut-to-length. Regulatory limits for transporting long products by the local transport authority should be verified. The manufacturing tolerance on the length of product supplied is ±0-15mm.

Delivery / Unloading

M Metal provides a shorter lead-time than other manufacturers because its manufacturing facility is located in Singapore. Delivery can be made within 3 working days subject to the delivery location, quantity and material availability.

Please ensure that suitable arrangements have been made for truck unloading. When lifting M-Span 925, care should be taken to ensure that the load is spread evenly to prevent damage.

Handling / Storage

M-Span 925 should be handled with care at all times to preserve the quality of its finish and product capabilities. M-Span 925 packs should be stored above ground level while on-site and kept dry.