

# Moulded FRP Grating

## Technical Data Guide



*Confidence with every step*

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to discover more about  
our FRP products

V.2024.6

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# PermaStruct® FRP

## What is PermaStruct® FRP?

Fibreglass-reinforced plastic (FRP) is a composite material made of a thermosetting plastic resin reinforced by fine fibres of glass along with the use of additives and is commonly referred to by the name of fibreglass.

## How is FRP used?

FRP is an immensely versatile material which combines lightweight with inherent strength to provide a resilient finished product, a variety of surface textures and a virtually unlimited colour range available.

By selecting the appropriate combination of fibreglass reinforcements, resins and processing techniques, the engineer can create a product or component to meet the most demanding of specifications.

## Benefits

- ✓ High Strength
- ✓ Light Weight
- ✓ Dimensional Stability
- ✓ Corrosion Resistant
- ✓ Chemical Resistant
- ✓ Electrical Resistant
- ✓ Low Tooling/Installation Cost
- ✓ Long Life

PermaStruct® FRP Grating is far superior in performance and life cycle cost compared to traditional materials



# PermaStruct® Technical Data

## PermaStruct® FRP Material Properties

Characteristics	Unit	Reference
Grit Finishes	R13	DIN 51130
Tensile Strength	220 MPa	ASTM D638
Modulus of Elasticity	13 - 15 GPa	ASTM D638
Flexural Strength	280 - 380 MPa	ASTM D790
Compressive Strength	158 MPa	ASTM D695
Voltage Breakdown	5 - 10 KV/mm	ASTM D149
Density (specific gravity)	1.7 - 1.8 kg/dm <sup>3</sup>	ISO 1183
Thermal Expansion Factor	8-9 x 10 <sup>-6</sup> cm/cm/°C	ISO 11359
Water Absorption Rate	0.4 - 0.7%	ASTM 570
Operating Temperature	60 - 90 °C	
Flammability Resistance	<25	ASTM E84
Weatherability		ISO 4892-2

## PermaStruct® Resin Systems

PermaStruct® FRP Grating is available with a variety of resin systems to achieve maximum performance in common industrial environments.

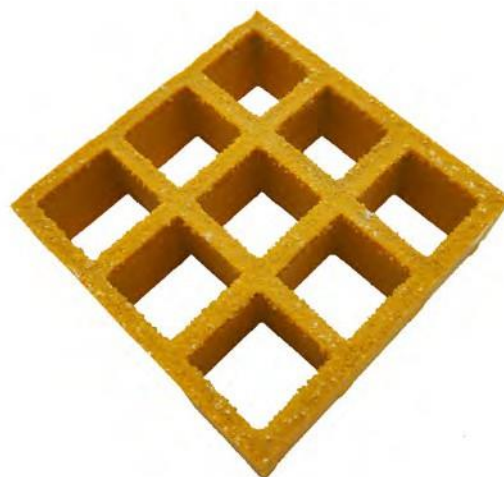
Resin	Environment	Fire Rating	Availability
Isophthalic	For highly acidic environments	ASTM E84<25	Stocked
Fire Retardant Isophthalic	For highly acidic environments where fire performance is also required.	ASTM E84<25	Custom
Vinyl Ester	For the most extreme corrosive environment	ASTM E84<25	Selected Items Stocked
Fire Retardant Vinyl Ester	For the most extreme corrosive environment where fire performance is also required.	ASTM E84<25	Custom
Phenolic	For oil rigs, underground and any other environments where low smoke emission & toxicity is critical.	ASTM E84<10	Custom

# PermaStruct® Standard Mesh Grating

PermaStruct® Standard Mesh Grating is the ultimate industrial walking surface for a wide range of commercial applications.

Featuring an anti-slip surface rated to the highest levels of slip resistance, it will not corrode and is far stronger, yet up to 60% lighter than traditional materials.

Consisting of a mixture of fibreglass and resin, it can be made into one-piece panels or custom made to fit the unique shape of a floor.



Thickness mm	Panel Size mm	Hole Size mm	Approx. Panel Weight kg	Open Area	Colours	Slip Rating
15	3660 x 615	32 x 32	20.26	68%	Yellow RAL 1003	P5
25	3660 x 1220	32 x 32	54.00	68%	Yellow RAL 1003   Green RAL 6010   Grey RAL 7047	P5
30	3660 x 1220	32 x 32	65.16	68%	Custom Order Item	P5
38	3660 x 1220	32 x 32	87.07	68%	Yellow RAL 1003   Green RAL 6010   Grey RAL 7047	P5
50	3660 x 1220	42 x 42	104.93	71%	Yellow RAL 1003   Green RAL 6010	P5
50 HD	4010 x 1230	26 x 26	207.16	42%	Yellow RAL 1003	P5

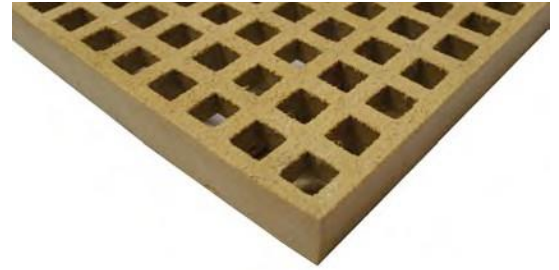
**Please Note:** All PermaStruct® panel sizes may vary by +/- 3mm due to manufacturing tolerances. The specification is a specification of performance and is subject to verification by the production of certified test results of actual products manufactured pursuant to any order.



# PermaStruct® Mini Mesh Grating

PermaStruct® Mini Mesh Grating combines all the benefits of PermaStruct® Standard Mesh Grating and features a smaller hole size.

PermaStruct® Mini Mesh Grating is perfect for boardwalk and marine applications.



Thickness mm	Panel Size mm	Hole Size mm	Approx. Panel Weight kg	Open Area	Colours	Slip Rating
14	3687 x 1247	13 x 13	48	42%	Custom Order Item	P5
21	3687 x 1247	13 x 13	69	42%	<div style="display: flex; gap: 10px;"> <div style="background-color: #f0e68c; border-radius: 50%; padding: 5px; text-align: center;">Sand RAL 1001</div> <div style="background-color: #333333; color: white; border-radius: 50%; padding: 5px; text-align: center;">Dark Grey RAL 7024</div> </div>	P5
30	3687 x 1247	13 x 13	84	42%	Custom Order Item	P5
38	3687 x 1247	13 x 13	108	42%	<div style="display: flex; gap: 10px;"> <div style="background-color: #f0e68c; border-radius: 50%; padding: 5px; text-align: center;">Sand RAL 1001</div> <div style="background-color: #cccccc; border-radius: 50%; padding: 5px; text-align: center;">Grey RAL 7047</div> </div>	P5

**Please Note:** All PermaStruct® panel sizes may vary by +/- 3mm due to manufacturing tolerances. The specification is a specification of performance and is subject to verification by the production of certified test results of actual products manufactured pursuant to any order.



# PermaStruct® Micro Mesh Grating

PermaStruct® Micro Mesh Grating combines all the benefits of PermaStruct® Standard Mesh Grating and features a smaller hole size.

PermaStruct® Micro Mesh Grating is perfect for boardwalk and marine applications



Thickness mm	Panel Size mm	Hole Size mm	Approx. Panel Weight kg	Open Area	Colours	Slip Rating
21	3687 x 1247	8 x 8	70.3	36%	<div style="display: flex; gap: 10px;"> <div style="background-color: #c4a33d; border-radius: 50%; padding: 5px; text-align: center;">Sand RAL 1001</div> <div style="background-color: #808080; border-radius: 50%; padding: 5px; text-align: center;">Grey RAL 7047</div> </div>	P5
30	3687 x 1247	8 x 8	86	36%	Custom Order Item	P5

**Please Note:** All PermaStruct® panel sizes may vary by +/- 3mm due to manufacturing tolerances. The specification is a specification of performance and is subject to verification by the production of certified test results of actual products manufactured pursuant to any order.





# PermaStruct® Light Solid Top

PermaStruct® Light Solid Top is a fibreglass structural flooring solution. One high strength fibreglass solid plate are bonded to each side of a fibreglass mesh core material.

PermaStruct® Light Solid Top exhibits an incredible strength to weight ratio producing a composite flooring structure that is stiff and strong surface.



Thickness mm	Panel Size mm	Approx. Panel Weight kg	Specification	Colours
18	3660 x 1220	66.9	13mm Grating Core + 5mm Fibreglass Plate (Top)	Custom Order Item
25	3660 x 1220	84.8	20mm Grating Core + 5mm Fibreglass Plate (Top)	Custom Order Item
30	3660 x 1220	107.2	25mm Grating Core + 5mm Fibreglass Plate (Top)	Custom Order Item
35	3660 x 1220	116.1	30mm Grating Core + 5mm Fibreglass Plate (Top)	<b>Yellow</b> RAL 1003
41	3660 x 1220	133.9	38mm Grating Core + 3mm Fibreglass Plate (Top) <sup>RA</sup>	<b>Yellow</b> RAL 1003 <b>Green</b> RAL 6010 <b>Grey</b> RAL 7047
55	3660 x 1220	151.8	50mm Grating Core + 5mm Fibreglass Plate (Top)	Custom Order Item
65	3660 x 1220	245.58	60mm Grating Core + 5mm Fibreglass Plate (Top)	Custom Order Item

**Please Note:** All PermaStruct® panel sizes may vary by +/- 3mm due to manufacturing tolerances. The specification is a specification of performance and is subject to verification by the production of certified test results of actual products manufactured pursuant to any order.



# PermaStruct® Heavy Duty Solid Top

PermaStruct® Heavy Duty Solid Top is a fibreglass structural flooring solution. Two high strength fibreglass solid plate are bonded to each side of a fibreglass mesh core material.

PermaStruct® Heavy Duty Solid Top exhibits an incredible strength to weight ratio producing a composite flooring structure that is stiff and strong surface.



Thickness mm	Panel Size mm	Approx. Panel Weight kg	Specification	Colours
19	3660 x 1220	84.8	13mm Grating Core + 3mm Fibreglass Plate (Top) + 3mm Fibreglass Plate (Bottom)	Custom Order Item
37	3660 x 1220	160.7	25mm Grating Core + 6mm Fibreglass Plate (Top) + 6mm Fibreglass Plate (Bottom)	Custom Order Item
42	3660 x 1220	171.9	30mm Grating Core + 6mm Fibreglass Plate (Top) + 6mm Fibreglass Plate (Bottom)	Custom Order Item
50	3660 x 1220	187.5	38mm Grating Core + 6mm Fibreglass Plate (Top) + 6mm Fibreglass Plate (Bottom)	Custom Order Item
62	3660 x 1220	205.4	50mm Grating Core + 6mm Fibreglass Plate (Top) + 6mm Fibreglass Plate (Bottom)	Custom Order Item
74	3660 x 1220	312.6	50mm Grating Core + 12mm Fibreglass Plate (Top) + 12mm Fibreglass Plate (Bottom)	Custom Order Item

**Please Note:** All PermaStruct® panel sizes may vary by +/- 3mm due to manufacturing tolerances. The specification is a specification of performance and is subject to verification by the production of certified test results of actual products manufactured pursuant to any order.

# PermaStruct® Grating Load Table - UDL

## HOW TO USE LOAD TABLE

1. Choose your desired load.
2. Choose your desired span.
3. Read off table across span column and look for corresponding value of deflection value in mm.
4. Compare deflection value with required maximum deflection limit.

3KPA - 300kg/m <sup>2</sup>								
Grating Type	500mm	600mm	700mm	800mm	900mm	1000mm	1100mm	1200mm
PermaStruct® Standard Mesh Grating (38 x 38, 32 x 32 Hole Size)								
15mm Thick	7.93	-	-	-	-	-	-	-
25mm Thick	0.93	1.89	3.45	5.83	9.28	14.08	-	-
30mm Thick	0.62	1.26	2.29	3.86	6.14	9.30	13.56	-
38mm Thick	0.30	0.59	1.05	1.76	2.78	4.20	6.11	8.60
PermaStruct® Standard Mesh Grating (50 x 50, 42 x 42 Hole Size)								
50mm Thick	0.16	0.31	0.54	0.89	1.39	2.09	3.02	4.23
PermaStruct® Standard Mesh Grating (38 x 38, 26 x 26 Hole Size)								
50mm Thick	0.10	0.19	0.33	0.54	0.85	1.28	1.84	2.59
PermaStruct® Mini Mesh Grating (20 x 20, 40 x 40, 13 x 13 Hole Size)								
21mm Thick	1.30	2.64	4.85	8.23	-	-	-	-
38mm Thick	0.28	0.55	0.99	1.65	2.61	3.94	5.73	8.07
PermaStruct® Micro Mesh Grating (13 x 13, 40 x 40, 8 x 8 Hole Size)								
21mm Thick	1.24	2.54	4.67	7.93	-	-	-	-
38mm Thick	0.21	0.42	0.76	1.27	2.01	3.04	4.41	6.21
PermaSlab Light Solid Top								
35mm Thick (30 + 5mm)	0.29	0.55	0.97	1.59	2.49	3.72	5.37	7.53
41mm Thick (38 + 3mm)	0.18	0.35	0.61	1.01	1.59	2.38	3.43	4.81
PermaSlab Heavy Duty Solid Top								
42mm Thick	0.13	0.23	0.36	0.55	0.81	1.16	1.62	2.20
62mm Thick	0.07	0.12	0.18	0.27	0.39	0.54	0.74	0.99

# PermaStruct® Grating Load Table - UDL

If the table does not indicate desired grating product, or cannot satisfy design requirements, please contact us directly for further information.

## DISCLAIMER

This table is made available for Perma Composites® for informative and educational purposes only, as well as provide a general understanding of grating products. It is NOT for providing specific engineering counsel. By using the following table, any misinterpretation of information, is not to be held against Perma Composites®. This table is not a substitution for professional engineering advice, and Perma Composites® should be contacted directly if any advice is required.


5KPA - 500kg/m <sup>2</sup>								
Grating Type	500mm	600mm	700mm	800mm	900mm	1000mm	1100mm	1200mm
PermaStruct® Standard Mesh Grating (38 x 38, 32 x 32 Hole Size)								
25mm Thick	1.55	3.14	5.75	9.72	-	-	-	-
30mm Thick	1.04	2.10	3.82	6.44	10.23	-	-	-
38mm Thick	0.49	0.98	1.76	2.94	4.64	7.00	10.18	14.33
PermaStruct® Standard Mesh Grating (50 x 50, 42 x 42 Hole Size)								
50mm Thick	0.27	0.51	0.90	1.48	2.32	3.48	5.03	7.05
PermaStruct® Standard Mesh Grating (38 x 38, 26 x 26 Hole Size)								
50mm Thick	0.16	0.31	0.55	0.91	1.42	2.13	3.07	4.31
PermaStruct® Mini Mesh Grating (20 x 20, 40 x 40, 13 x 13 Hole Size)								
21mm Thick	2.16	4.41	8.09	-	-	-	-	-
38mm Thick	0.46	0.91	1.64	2.75	4.35	6.57	9.55	13.45
PermaStruct® Micro Mesh Grating (13 x 13, 40 x 40, 8 x 8 Hole Size)								
21mm Thick	2.07	4.24	7.79	-	-	-	-	-
38mm Thick	0.36	0.71	1.27	2.12	3.35	5.06	7.35	10.36
PermaSlab Light Solid Top								
35mm Thick (30 + 5mm)	0.48	0.92	1.61	2.65	4.15	6.20	8.96	12.55
41mm Thick (38 + 3mm)	0.30	0.58	1.02	1.69	2.64	3.96	5.72	8.02
PermaSlab Heavy Duty Solid Top								
42mm Thick	0.22	0.38	0.60	0.92	1.35	1.94	2.69	3.66
62mm Thick	0.12	0.20	0.31	0.45	0.65	0.90	1.23	1.64



# PermaStruct® Fixing Clips

Fixing	Hole Diameter	FRP Grating	Part Number	ISO	Elevation
Clip	8 mm	Mini Mesh	IF MT 12		
M Clip	8 mm	15mm Mesh	IF MT 15		
M Clip	8 mm	25mm Mesh	IF MT 25		
M Clip	8 mm	38mm Mesh	IF MT 38		
M Clip	8 mm	50mm Mesh	IF MT 50 HD		
J Clip	8 mm	Standard Mesh	IF JC		
G Clamp / Panel Joiner	6 mm	15mm Mesh	IF PJ 15		

# PermaStruct® Fixing Clips

Fixing	Hole Diameter	FRP Grating	Part Number	ISO	Elevation
G Clamp / Panel Joiner	6 mm	25mm Mesh	IF PJ 25		
G Clamp / Panel Joiner	6 mm	38mm Mesh	IF PJ 38		
L Clip	8 mm	15mm Mesh	IF LC		
Dome Washer	6 mm	Mini/Micro Mesh	IF SD6		
Dome Washer	8 mm	Standard Mesh	IF SD8		
Square Recessed Washer	8 mm	Standard Mesh	IF SRC		
Circular Recessed Washer	8 mm	All Meshes	IF CRC		

# PermaStruct® Closed Load Bar

<b>38x38mm Square Standard Mesh</b>									
No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm
2	45.1	22	807.1	42	1569.1	62	2331.1	82	3093.1
3	83.2	23	845.2	43	1607.2	63	2369.2	83	3131.2
4	121.3	24	883.3	44	1645.3	64	2407.3	84	3169.3
5	159.4	25	921.4	45	1683.4	65	2445.4	85	3207.4
6	197.5	26	959.5	46	1721.5	66	2483.5	86	3245.5
7	235.6	27	997.6	47	1759.6	67	2521.6	87	3283.6
8	273.7	28	1035.7	48	1797.7	68	2559.7	88	3321.7
9	311.8	29	1073.8	49	1835.8	69	2597.8	89	3359.8
10	349.9	30	1111.9	50	1873.9	70	2635.9	90	3397.9
11	388	31	1150	51	1912	71	2674	91	3436
12	426.1	32	1188.1	52	1950.1	72	2712.1	92	3474.1
13	464.2	33	1226.2	53	1988.2	73	2750.2	93	3512.2
14	502.3	34	1264.3	54	2026.3	74	2788.3	94	3550.3
15	540.4	35	1302.4	55	2064.4	75	2826.4	95	3588.4
16	578.5	36	1340.5	56	2102.5	76	2864.5	96	3626.5
17	616.6	37	1378.6	57	2140.6	77	2902.6	97	3664.6
18	654.7	38	1416.7	58	2178.7	78	2940.7	98	3702.7
19	692.8	39	1454.8	59	2216.8	79	2978.8	99	3740.8
20	730.9	40	1492.9	60	2254.9	80	3016.9	100	3778.9
21	769	41	1531	61	2293	81	3055	101	3817

<b>50x50mm Square Standard Mesh</b>									
No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm
2	58	22	1058	42	2058	62	3058	82	4058
3	108	23	1108	43	2108	63	3108	83	4108
4	158	24	1158	44	2158	64	3158	84	4158
5	208	25	1208	45	2208	65	3208	85	4208
6	258	26	1258	46	2258	66	3258	86	4258
7	308	27	1308	47	2308	67	3308	87	4308
8	358	28	1358	48	2358	68	3358	88	4358
9	408	29	1408	49	2408	69	3408	89	4408
10	458	30	1458	50	2458	70	3458	90	4458
11	508	31	1508	51	2508	71	3508	91	4508
12	558	32	1558	52	2558	72	3558	92	4558
13	608	33	1608	53	2608	73	3608	93	4608
14	658	34	1658	54	2658	74	3658	94	4658
15	708	35	1708	55	2708	75	3708	95	4708
16	758	36	1758	56	2758	76	3758	96	4758
17	808	37	1808	57	2808	77	3808	97	4808
18	858	38	1858	58	2858	78	3858	98	4858
19	908	39	1908	59	2908	79	3908	99	4908
20	958	40	1958	60	2958	80	3958	100	4958
21	1008	41	2008	61	3008	81	4008	101	5008

**Note:** Please be advised that the numbers are approximate. Manufacturing tolerances should be considered.



# PermaStruct® Closed Load Bar

20x20mm Square Mini Mesh									
No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm
2	47	22	847	42	1647	62	2447	82	3247
3	87	23	887	43	1687	63	2487	83	3287
4	127	24	927	44	1727	64	2527	84	3327
5	167	25	967	45	1767	65	2567	85	3367
6	207	26	1007	46	1807	66	2607	86	3407
7	247	27	1047	47	1847	67	2647	87	3447
8	287	28	1087	48	1887	68	2687	88	3487
9	327	29	1127	49	1927	69	2727	89	3527
10	367	30	1167	50	1967	70	2767	90	3567
11	407	31	1207	51	2007	71	2807	91	3607
12	447	32	1247	52	2047	72	2847	92	3647
13	487	33	1287	53	2087	73	2887	93	3687
14	527	34	1327	54	2127	74	2927	94	3727
15	567	35	1367	55	2167	75	2967	95	3767
16	607	36	1407	56	2207	76	3007	96	3807
17	647	37	1447	57	2247	77	3047	97	3847
18	687	38	1487	58	2287	78	3087	98	3887
19	727	39	1527	59	2327	79	3127	99	3927
20	767	40	1567	60	2367	80	3167	100	3967
21	807	41	1607	61	2407	81	3207	101	4007

13x13mm Square Micro Mesh									
No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm	No. of Bars	mm
2	46.5	22	846.5	42	1646.5	62	2446.5	82	3246.5
3	86.5	23	886.5	43	1686.5	63	2486.5	83	3286.5
4	126.5	24	926.5	44	1726.5	64	2526.5	84	3326.5
5	166.5	25	966.5	45	1766.5	65	2566.5	85	3366.5
6	206.5	26	1006.5	46	1806.5	66	2606.5	86	3406.5
7	246.5	27	1046.5	47	1846.5	67	2646.5	87	3446.5
8	286.5	28	1086.5	48	1886.5	68	2686.5	88	3486.5
9	326.5	29	1126.5	49	1926.5	69	2726.5	89	3526.5
10	366.5	30	1166.5	50	1966.5	70	2766.5	90	3566.5
11	406.5	31	1206.5	51	2006.5	71	2806.5	91	3606.5
12	446.5	32	1246.5	52	2046.5	72	2846.5	92	3646.5
13	486.5	33	1286.5	53	2086.5	73	2886.5	93	3686.5
14	526.5	34	1326.5	54	2126.5	74	2926.5	94	3726.5
15	566.5	35	1366.5	55	2166.5	75	2966.5	95	3766.5
16	606.5	36	1406.5	56	2206.5	76	3006.5	96	3806.5
17	646.5	37	1446.5	57	2246.5	77	3046.5	97	3846.5
18	686.5	38	1486.5	58	2286.5	78	3086.5	98	3886.5
19	726.5	39	1526.5	59	2326.5	79	3126.5	99	3926.5
20	766.5	40	1566.5	60	2366.5	80	3166.5	100	3966.5
21	806.5	41	1606.5	61	2406.5	81	3206.5	101	4006.5

**Note:** Please be advised that the numbers are approximate. Manufacturing tolerances should be considered.

# PermaStruct® Product Specification

## Manufacturing Tolerances

Standard Panel Size	+3mm	-3mm
Cut Panel Size	+3mm	-3mm
Thickness	+1mm	-1mm
Mesh Pattern	+0.5mm	-0.5mm

## Colour and Surface Finish

PermaStruct® FRP Grating can be made in any RAL colour.

## Chemical Resistance

PermaStruct® FRP Grating standard product is resistant against a wide range of chemicals and temperature spectrum. PermaStruct® FRP Grating can be manufactured in different resin systems to achieve specific chemical resistant properties.



## Section 1 - Product Identifier & Chemical Identity

Product Identifier	PermaStruct® FRP
Details of Manufacturer or Importer	Perma Composites® Pty Ltd
Emergency Phone Number	1300 366 938

## Section 3 - Composition & Information on Ingredients

Chemical Component	CAS Number	Percent (%)
Polymerized Resin	None	30 – 75
Fibreglass	65997-17-3	20 – 70
Quartz Sand	14808-60-7	1

## Section 4 - First Aid Measures

Description of Necessary First Aid Measures	Wash skin well without rubbing. Change clothing after exposure and apply antiseptic to any abraded skin. For eyes, use a sterile solution and flood the eye area.
Symptoms Caused by Exposure	Temporary irritation and itching to skin or eyes. Scratchiness or burning of the nose and/or throat if exposed to a large amount of airborne dust from cutting or machining.

## Section 5 - Firefighting Measures

Suitable Extinguishing Equipment	Water, Foam, CO2 Dry Chemical
Specific Hazards Arising from the Chemical	Burning FRP creates a complex mixture of solid, liquid and gases. Carbon monoxide and other organic compounds may be given off.
Special Protective Equipment and Precautions for Firefighters	Use self-contained breathing apparatus with full face operated in pressure mode.

## Section 6 - Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures	No-sparking tools shall be used. Avoid dispersal of dust in the air.
Environmental Precautions	Prevent dust from cutting, grinding or sanding from entering water systems or down drains.
Methods and Materials for Containment and Cleaning Up	Dust deposits from fabrication should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.



## Section 7 - Handling & Storage

Handling	Use personal protection equipment to minimize skin, respiration and eye exposure to dust and fumes when cutting or grinding product. Do not rub or scratch skin if dust particles have accumulated on exposed skin. Wash all exposed skin areas thoroughly after cutting or grinding.
Storage	No special storage conditions exist

## Section 8 - Exposure Controls & Personal Protection

Eye and Face Protection	Wear protective eyewear with side shield or ventilated goggles when cutting or grinding.
Skin Protection	Barrier cream or long sleeve shirts with closed collars, long pants or protective clothing may be worn to prevent dust exposure when cutting or grinding product.
Respiratory Protection	Approved dust mask with PEL not less than 0.1 mg/M <sup>3</sup> when cutting or grinding
Protective Gloves	Wear cloth gloves when handling products to prevent cuts, scratches or abrasions

## Section 9 - Physical & Chemical Properties

Appearance	Solid Article, Various Colours
Auto Ignition Temperature	>420 Degrees Celsius
Odour	Mild, Characteristic Odour
Relative Density	1.6 – 2.0

## Section 10 - Stability & Reactivity

Chemical Stability	Yes
Possibility of Hazardous Reactions	Not Applicable
Conditions to Avoid	Sources of ignition, sparks, or flames, extremely high temperatures

## Section 11 - Toxicological Information

Acute Toxicity	Not Applicable
Skin Corrosion / Irritation	Dust from machining can cause irritation
Serious Eye Damage / Irritation	Dust from machining can cause irritation
Respiratory or Skin Sensitisation	Dust from machining can cause irritation
Germ Cell Mutagenicity	Not Applicable
Carcinogenicity	Not Applicable
Reproductive Toxicity	Not Applicable
Aspiration Hazard	Not Applicable

## Section 12 - Ecological Information

Environmental Data	Dust, generated from cutting, sanding or grinding, may be harmful to the environment if allowed to directly enter water sources.
Ecotoxicology Information	Not Applicable
Bioaccumulation Accumulation	Not Applicable
Distribution	Not Applicable
Aquatic Toxicity	Not Applicable
Chemical Fate Information	Not Applicable

## Section 13 - Disposal Considerations

Disposal Containers and Methods	Control and collect any dust generated in sturdy containers to pre- vent dispersal. Dispose of in accordance with all federal, state and local regulations.
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## Section 14 - Transport Information

Proper Shipping Name	Not Applicable
Transport Hazard Class	Not Hazardous

## Section 15 - Other Relevant Information

Date of Preparation	18/10/2022
Version Number	3

# PermaStruct® Fabrication Guidelines

## Essential Safety Guidelines for Working with FRP Products:

### *Familiarize Yourself:*

Before cutting FRP products, make sure to thoroughly read the Materials Data Sheet (MSDS). If it is not available, contact Perma Composites or visit our website [www.permacomposites.com](http://www.permacomposites.com) for additional information before proceeding with fabrication. For the safety and well-being of individuals with respiratory ailments, it is strongly advised to refrain from engaging in the fabrication of FRP products.

### *Personal Protective Equipment (PPE):*

Practice standard safety precautions when using cutting tools. Always wear protective gloves when handling FRP products. Utilize approved safety glasses or goggles to safeguard your eyes and wear an approved mask (with a permissible exposure limit (PEL) of not less than 0.1 mg/M<sup>3</sup>) to minimize dust inhalation. Dust produced during cutting FRP products can cause skin irritation. Wear appropriate clothing to reduce skin exposure to dust. IF CUTTING LEADS TO BREATHING DIFFICULTIES OR EXCESSIVE SKIN IRRITATION, STOP IMMEDIATELY AND SEEK MEDICAL ADVICE.

### *Epoxy/Sealing Coating Precautions:*

When using epoxy/sealing coatings, adhere to general safety practices. Carefully read and follow the instructions provided with the product before application. Always wear PPE when working with FRP products or using epoxy/sealing coatings. AVOID SKIN CONTACT WITH RESIN OR CATALYST.

By adhering to these recommended safety practices, you can ensure a safer working environment when handling FRP products and protect yourself from potential hazards.

## Essential Tools for FRP Fabrication:

- A power circular saw with a masonry or diamond blade for straight cuts.
- Power Jig saw with a masonry or diamond blade for circular cuts.
- For extensive fabrication tasks, it is recommended to utilize a diamond grit blade for enhanced efficiency.
- Sawhorses or a sturdy platform are required to provide adequate support to the products during the cutting process.
- To ensure precise cuts, have a tape measure, straight-edge, and chalk lines or a felt-tip pen on hand for marking the cutting lines. These marking tools will help you achieve accurate dimensions and shapes.

# PermaStruct® Fabrication Guidelines

## FRP Installation Procedure:

### *Cutting and Shaping:*

- Firmly support the panel to avoid flexing or shifting during cutting.
- Mark the cutting lines clearly and precisely.
- Avoid splitting of bars.
- Cut from the smooth side (bottom) of a gritted panel to achieve cleaner edges.
- Apply even and steady pressure when cutting to avoid generating excessive heat or producing ragged edges. Regularly replace blunt or worn blades to maintain clean cuts and prevent buildup.

### *Surface Protection:*

Coat all holes, cut/trimmed edges or sanded surfaces with a sealer to safeguard against corrosive chemicals reaching exposed fibres. Follow the provided instructions for the epoxy sealer.

### *Fixing clips:*

Utilize recommended fixing clips, spacing them a maximum of every 1000mm and using a minimum of four clips per panel for secure fastening.

By following these meticulous installation procedures, you'll ensure the longevity and integrity of the FRP installation while achieving a professional and aesthetically pleasing outcome.

## **Tips:**

- One of the significant benefits of utilizing PermaStruct FRP grating lies in the straightforward fabrication process.
- The procedures such as sawing, grinding, drilling, and machining closely resemble working with other construction materials.
- To enhance precision, conduct fabrication on-site whenever possible.
- When performing take-offs and layouts, it is essential to account for the saw thickness.



# Note

# Note



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