

FRP MOULDED GRATING

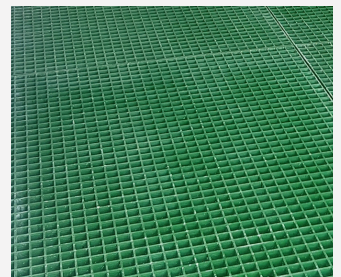
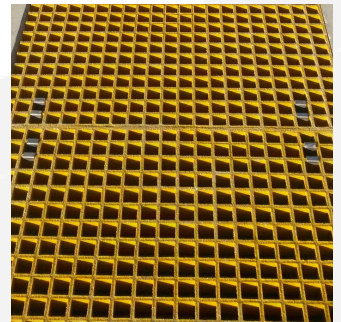
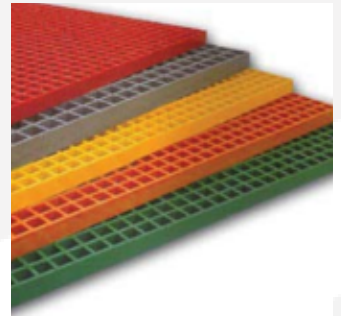
Superior Alternative to Traditional Materials

FRP moulded grating combines exceptional corrosion resistance, high bi-directional strength and long service life, making it a superior alternative to traditional materials such as galvanised steel, aluminium and stainless steel.

Manufactured by integrating premium-grade fibreglass rovings with a range of thermosetting resin systems, FRP moulded grating can be tailored to suit a wide variety of applications and operating environments. All resin systems are supplied with built-in UV inhibitors and fire-retardant additives, achieving a Flame Spread Index (FSI) of 25 or less in accordance with ASTM E84 Class 1 standards.

Available in a range of thicknesses from 12mm to 100mm and in multiple mesh configurations, FRP moulded grating can be specified for anything from light-duty walkways through to heavy-duty accessways capable of supporting vehicle loads.

For enhanced safety, grating is manufactured with either a meniscus (concave) surface or an applied quartz grit finish to provide superior slip resistance. FRP moulded grating complies with AS/NZS 4586:2004 for slip resistance of pedestrian surfaces, achieving classifications up to R13 / P5.



CORROSION RESISTANT
Ideal for harsh environments



LIGHTWEIGHT & STRONG
High strength with reduced weight



LOW MAINTENANCE
No painting, rusting or rotting



SAFE & COMPLIANT
Slip resistant options up to R13 / P5



UV & FIRE RESISTANT
Built-in UV inhibitors and flame retardants

GET IN TOUCH

+61 08 9455 4343

enquiries@frpengineering.net
www.frpengineering.net

28 Baile Road, Canning
Vale WA 6155

FRP MOULDED GRATING IS AVAILABLE IN MANY THICKNESSES, COLOURS AND RESIN SYSTEMS

FRP Moulded Grating comes in a variety of thicknesses, colors, and resin systems. For thinner grating options, please refer to the Machinery Grating or Roof Walkway brochure.

Thickness (mm)	Mesh (mm)	Weight (M2)	Panels		
			1000 x 4080	1220 x 3660	3050 x 1525
25	38 x 38	12.3	X	X	
38	38 x 38	19.5	X	X	X
50	50 x 50	23.5		X	

RESIN SYSTEMS

FRP Engineering offers 3 resin options as standard for moulded floor grating:



ISOPHTHALIC FIRE RETARDANT (ISOFR) – The most popular resin system for marine and industrial applications. ISOFR provides long-lasting performance in areas where corrosion is traditionally an issue. Including Fire Retardant additives gives the grating a low flame spread score (ASTM E84 – 25 or less).



VINYL ESTER FIRE RETARDANT (VEFR) – The premium resin for all applications. VEFR is designed to offer a long service life in the harshest of environments where acids and caustics are present. Moulded grating constructed from this resin is used in, among others, Heavy Industry, chemical plants, and fertiliser operations. Including Fire Retardant additives gives the grating a low flame spread score (ASTM E84 – 25 or less).



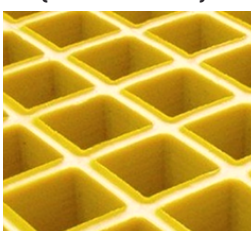
PHENOLIC (P) – A highly specialised resin designed to be used where fire resistance and smoke suppression are critical. Typically, this type of grating is used in offshore and confined space applications to assist in providing safe access and egress in emergencies. This grating has a very low flame spread index and very low smoke emissions (ASTM E84 – 10 or less Unpainted; ASTM E84 – 15 or less Painted).



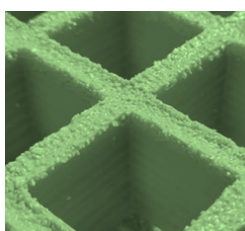
SURFACE SELECTION

FRP Engineering offers a range of surface options to suit different environments, safety requirements and application needs. Selecting the appropriate surface profile is essential to achieving optimal slip resistance, performance and usability.

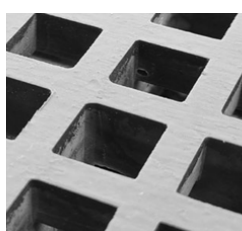
CONCAVE
(MENISCUS TOP)



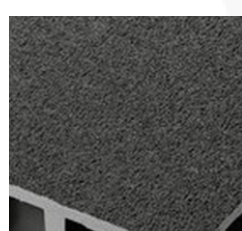
GRITTED



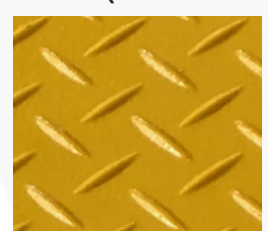
SMOOTH



SOLID TOP WITH GRIT



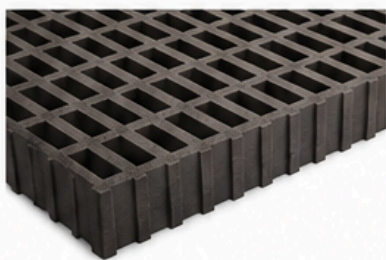
SOLID TOP WITH
CHEQUER PLATE



UNIFORM LOAD

Clear Span mm	Thickness mm	Mesh mm x mm	Uniform Load – kN/m ² (Deflection in mm)						Max. Load (kN/m ²)	Ultimate (kN/m ²)
			2.5	5	10	25	50	100		
300	25	38 x 38	< 0.20	< 0.20	< 0.20	0.25	1.02	2.03	75.65	324.14
	38	38 x 38	0.1	0.1	0.2	0.5	1	2	103.07	824.55
	50	50 x 50	< 0.10	< 0.10	< 0.10	0.1	0.51	1.02	119.70	460.60
400	25	38 x 38	0.25	0.25	0.25	0.51	1.27	2.79	47.56	209.23
	38	38 x 38	0.1	0.2	0.3	0.5	1.4	2.7	65.51	524.06
	50	50 x 50	0.25	0.25	0.42	1.02	1.69	3.22	75.33	358.13
500	25	38 x 38	0.85	1.02	1.7	3.47	–	–	42.93	194.23
	38	38 x 38	0.3	0.4	0.6	1.2	3	–	45.94	367.53
	50	50 x 50	0.2	0.3	0.4	0.8	2.1	4.2	45.33	281.37
600	25	38 x 38	1.52	2.03	3.05	6.35	–	–	18.67	85.22
	38	38 x 38	0.6	0.7	1.2	2.3	5.8	10.67	33.60	263.77
	50	50 x 50	0.3	0.4	0.7	1.3	3.3	5.08	39.37	314.98
700	25	38 x 38	2.88	3.72	5.59	8.55	–	–	14.20	64.80
	38	38 x 38	1	1.2	2.1	4.1	10.3	–	26.00	208.02
	50	50 x 50	0.6	0.7	1.2	2.3	5.8	–	29.51	236.04
900	25	38 x 38	7.87	10.16	–	–	–	–	8.78	40.62
	38	38 x 38	2.6	3.1	5.2	10.5	–	–	16.93	135.46
	50	50 x 50	1.5	1.8	3	6	11.18	–	18.31	146.46
1000	25	38 x 38	12.45	–	–	–	–	–	6.94	32.80
	38	38 x 38	3.9	4.7	7.8	15.7	–	–	14.05	112.37
1220	38	38 x 38	7.9	9.5	15.8	–	–	–	9.93	79.44
	50	50 x 50	4.5	5.4	9	17.9	–	–	10.43	83.40

POINT LOAD



AVAILABLE IN
“HIGH LOAD CAPACITY”

The load data provided is for general information only, as the actual environment and operational conditions are beyond our control. For these reasons, FRP Engineering cannot guarantee that the actual performance under operational conditions will correspond to the load tables provided.

Clear Span mm	Thickness mm	Mesh mm x mm	Point Load – KG (Deflection in mm)					
			50	100	150	250	500	1000
450	25	38 x 38	<0.1	0.3	0.5	0.8	1.5	6.9
	38	38 x 38	<0.1	0.3	0.5	0.8	1.5	3.3
	50	50 x 50	<0.1	0.3	0.5	0.8	1.3	2.5
600	25	38 x 38	0.8	1.3	2.0	3.3	6.6	–
	38	38 x 38	0.3	0.5	0.8	1.5	3.0	5.8
	50	50 x 50	<0.1	0.3	0.5	1.0	1.8	3.6
750	25	38 x 38	1.3	2.5	3.8	6.6	–	–
	38	38 x 38	0.5	1.0	1.5	2.5	5.1	–
	50	50 x 50	0.3	0.5	0.8	1.5	3.0	5.8
900	25	38 x 38	1.8	3.6	5.1	8.6	–	–
	38	38 x 38	0.8	1.5	2.3	3.8	7.6	–
	50	50 x 50	0.3	0.8	1.0	1.8	3.8	7.4
1000	25	38 x 38	3.0	5.8	8.9	–	–	–
	38	38 x 38	1.0	2.3	3.3	5.6	11.2	–
	50	38 x 50	0.5	1.3	2.0	3.0	6.4	12.7
1220	38	38 x 38	1.5	3.0	4.6	7.4	–	–
	50	50 x 50	0.8	1.5	2.3	3.8	–	–

MATERIAL PERFORMANCE & PROPERTIES

MECHANICAL PROPERTIES

PROPERTY	ASTM	UNITS	VALUE
Tensile, LW	D-638	psi MPa	23000 206.8
Tensile Stress, CW	D-638	psi MPa	7600 41.2
Tensile Modulus, LW	D-638	10 ⁶ psi GPa	2.5 17.2
Tensile Modulus, CW	D-638	10 ⁶ psi GPa	0.8 5.5
Compressive Stress, LW	D-695	psi MPa	23000 206.8
Compressive Stress, CW	D-695	psi MPa	15000 103.4
Compressive Modulus, LW	D-695	10 ⁶ psi GPa	2.5 17.2
Compressive Modulus, CW	D-695	10 ⁶ psi GPa	6.9

LW = Longitudinal CW = Crosswise PF = Perpendicular to Laminate Face

PROPERTY	ASTM	UNITS	VALUE
Flexural Stress, LW	D-790	psi MPa	26000 206.8
Flexural Stress, CW	D-790	psi MPa	16000 106.9
Flexural Modulus, LW	D-790	10 ⁶ psi GPa	1.8 12.4
Flexural Modulus, CW	D-790	10 ⁶ psi GPa	0.8 5.5
Modulus of Elasticity, E	FULL SECTION	10 ⁶ psi GPa	2.8 19.3
Shear Modulus	—	10 ⁶ psi GPa	0.45 3.1
Short Beam Shear	D-2344	psi MPa	4500 31

ADDITIONAL MECHANICAL PROPERTIES

PROPERTY	ASTM	UNITS	VALUE
Bearing Stress, CW	D-953	psi MPa	30000 206.8
Notched Izod Impact, LW	D-256	ft-lb/in J/m	2.3 1.33
Notched Izod Impact, CW	D-256	ft-lb/in J/m	0.21

PHYSICAL PROPERTIES

PROPERTY	ASTM	UNITS	VALUE
Barcol Hardness	D-2583	—	45
24 Hour Water Absorption	D-570	% Max	0.45
Density	D-792	lb/in ³ g/cm ³	0.058
Coefficient of Thermal Expansion, LW	D-696	10 ⁻⁶ in/in/°F 10 ⁻⁶ mm/mm/°C	4 8

ELECTRICAL PROPERTIES

PROPERTY	ASTM	UNITS	VALUE
Arc Resistance, LW	D-495	Seconds	126
Dielectric Strength, LW	D-149	kV/in	25
Dielectric Strength, PF	D-149	volts/mil	200
Coefficient of Thermal Expansion, LW	D-150	at 60Hz	5

FLAMMABILITY PROPERTIES

PROPERTY	ASTM	UNITS	VALUE
Tunnel Test Flammability	E-84	Flame Spread Non burning	25

ELEVATED TEMPERATURE EFFECTS

The approximate retention of mechanical properties at elevated temperatures are:

PROPERTY	TEMPERATURE	ISO/R75/0.45 (MPa)	VEF (%)
Ultimate Stress	37°C	82%	90%
	50°C	70%	80%
	65°C	50%	80%
	80°C	Not recommended	75%
	90°C	Not recommended	50%
Modulus of Elasticity	37°C	100%	100%
	50°C	91%	95%
	65°C	85%	90%
	80°C	Not recommended	88%
	90°C	Not recommended	80%

CHEMICAL RESISTANCE | MOULDED & PULTRUDED GRATING

MOULDED & PULTRUDED GRATING

CHEMICAL ENVIRONMENT	% CONCENTRATION	TEMP °C	MOULDED VEFR	MOULDED ISOFR	PULTRUDED VEFR	PULTRUDED ISOFR
Acetic Acid	50	Max	C	C	C	C
Acetone	100	24*	S	I	I	N
Alcohols	100	49	C	I	I	I
Alum	All	Max	C	C	C	C
Aluminium Chloride	All	Max	C	C	C	C
Aluminium Fluoride	20	24	C	N	I	N
Ammonium Hydroxide	30	24	C	N	I	N
Ammonium Salts-Neutral	All	49	C	C	C	S
Ammonium Salts-Aggressive	All	24	S	I	T	N
Aromatic Solvents	All	24	T	N	N	N
Barium Salts	All	Max	C	C	C	C
Benzene	100	60	I	I	I	C
Black Liquor (Pulp Mill)	All	Max	C	I	I	N
Bleach Liquor (Pulp Mill)	All	Max	C	I	I	N
Calcium Hydroxide	25	Max	C	S	S	I
Calcium Hypochlorite	All	Max	C	I	I	N
Calcium Salts	All	Max	C	C	C	C
Carbon Tetrachloride	100	24	C	I	S	N

C = Continuous | S = Satisfactory | I = Intermittent | T = Temporary | N = Not Recommended

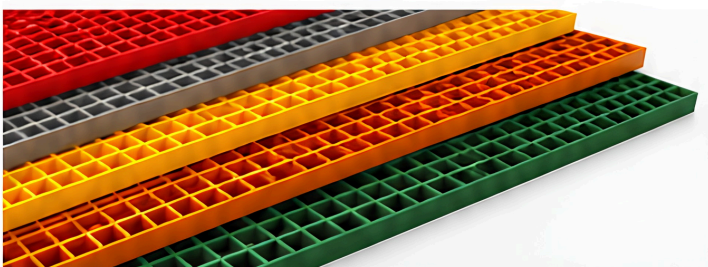
* = Test Temperature

GRATING FASTENERS

Supplied in marine grade 316 stainless steel as standard for the longest possible service life. Other materials of construction are available upon request.



COMPLIMENTARY PRODUCTS



Stair Treads | Machinery Guards | Handrails
Ladders & Cages | Platforms & Structures
Cable Ladders | Trays | Louvres
Safety Gates | Cladding

CHEMICAL RESISTANCE | MOULDED & PULTRUDED GRATING

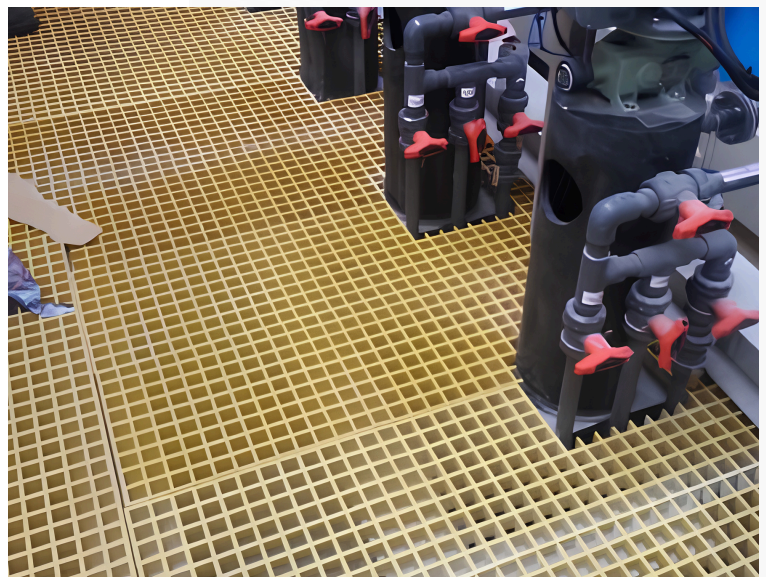
CHEMICAL ENVIRONMENT	% CONCENTRATION	TEMP °C	MOULDED VEFR	MOULDED ISOFR	PULTRUDED VEFR	PULTRUDED ISOFR
Chlorinated Hydrocarbons	100	24	T	T	T	T
Chlorine Dioxide	SAT	60	C	N	S	N
Chlorine Water	SAT	49	C	I	I	N
Chlorine, Wet	SAT	Max	C	N	N	N
Chlorobenzene	100	24	S	N	N	N
Chlorobenzene	All	Up to 38	C	N	N	N
Chloroform	100	24	N	N	N	N
Chromic Acid	50	60	S	S	I	N
Citric Acid	All	Max	C	C	C	C
Copper Cyanide Plating	All	51	C	S	S	I
Copper Salts	All	Max	C	C	C	C
Crude Oil (Sweet or Sour)	All	Max	C	C	C	C
Dichlorobenzene	100	24	T	N	N	N
Ethers		24	T	N	N	N
Ferric Chloride	100	Max	C	C	C	C
Fluoride Salts = HCl	All	24	C	S	I	N
Fluosilicic Acid	10	24	C	S	S	I
Formaldehyde	37	66	C	I	S	I
Formic Acid	25	38	C	S	S	I
Fuel (Diesel, Jet, Petrol)	All	38	C	C	C	C
Glycerine	100	Max	C	C	C	C
Green Liquor (Pulp Mill)	All	Max	C	N	I	N
Hydrobromic Acid	48	Max	S	S	I	N
Hydrochloric Acid	10	Max	C	S	S	S
Hydrochloric Acid	30	Max	C	S	I	I
Hydrochloric Acid (concentrated)	All	Up to 82	I	N	N	N
Hydrocyanic Acid	All	Max	C	I	S	I
Hydrofluoric Acid	20	24	S	N	N	N
Hydrogen Peroxide	30	24	C	N	S	N
Lactic Acid	100	Max	C	C	C	C
Lime Slurry	SAT	Max	C	C	C	C
Lithium Chloride	SAT	Max	N	N	N	N
Lithium Salts	All	Max	C	C	N	N
Magnesium Salts	All	Max	C	C	C	C
Maleic Acid	100	Max	C	S	S	I
Mercury Chloride	100	Max	C	C	C	C
Nickel Salts	All	Max	C	C	C	C
Nitric Acid	100	Max	C	S	I	I
Nitric Acid	20	49	C	N	I	N
Nitric Acid	35	38	I	N	N	N
Nitric Acid	40	Ambient	I	N	N	N
Nitric, Hydrofluric	20:02	24	I	N	N	N

CHEMICAL RESISTANCE | MOULDED & PULTRUDED GRATING

CHEMICAL ENVIRONMENT	% CONCENTRATION	TEMP °C	MOULDED VEFR	MOULDED ISOFR	PULTRUDED VEFR	PULTRUDED ISOFR
Nitrous Acid	10	24	C	C	C	C
Ozone for Sewage Treatment		38	C	C	C	C
Perchloroethylene	100	24	S	N	I	N
Phenol	10	24	C	N	I	N
Phenol	88	Ambient	S	N	N	N
Phosphonic Acid	85	Max	C	C	C	S
Phosphonic Acid, Super	115	Max	C	I	S	N
Potassium Hydroxide	10	49	C	I	S	N
Potassium Salts	All	Max	C	C	C	C
Silver Nitrate	100	Max	C	C	C	C
Sodium Cyanide	All	Max	C	I	S	I
Sodium Hydroxide	50	Max	C	I	I	N
Sodium Hydroxide	10	Max	C	N	N	N
Sodium Hypochlorite (Stable)	10	38	C	S	S	I
Sodium Salts - Neutral	All	Max	C	C	C	C
Sodium Salts - Aggressive	All	24	S	I	T	N
Sulfur Dioxide	SAT	Max	C	S	S	S
Sulfuric Acid	25	Max	C	S	S	I
Sulfuric Acid	50	Max	C	S	S	N
Sulfuric Acid	75	38	C	I	I	N
Toluene	100	49	S	I	I	N
Trichloroethane 1,1,1	All	24	S	I	I	N
Trisodium Phosphate	50	Max	C	I	I	N
Water (Fresh, Salt, Moderate, D.I.)	100	Max	C	C	C	C
Wet Chlorine/ Hydrochloric Acid	10 to 20	Up to 176	S	N	N	N
White Liquor (Pulp Mill)	All	Max	C	I	S	N
Zinc Chloride Plating	All	24	C	S	S	N
Zinc Salts	100	Max	C	C	C	C

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* = Test Temperature



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