

DURA SLAB MOULDED – TECHNICAL SPECIFICATIONS – JANUARY 2014

Definition

Glass-reinforced plastic (GRP) 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.

Applications

GRP is an immensely versatile material which combines lightweight with inherent strength to provide a resilient finished product with 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/chemical/electrical resistance, low tooling/installation cost, long life. GRP products compete very favourably on a performance/life cycle cost basis versus traditional materials. Can be cut in any direction for awkward shapes.

Material

Two main components produce composite GRP: polyester resin and glass fibres. There are several types of resin systems depending on the application: Isophthalic, Orthophthalic, Vinylester and Phenolic. Isophthalic & Orthophthalic polyesters are the most widely used resin types and are suitable for most industrial applications. Phenolic & Vinylester are available by special order.

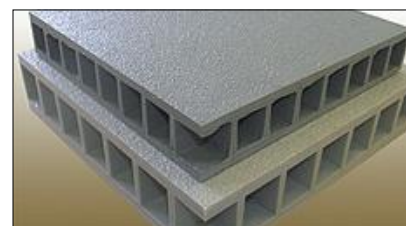
Typical Material Properties	Resin	Glassfibre
Density kg/m ³ (Specific Gravity)	1200	2100
Hardness (Barcol)	38	45
Tensile Strength Mpa	55	207
Modulus of Elasticity GPa / (Tensile Modulus)	3.5	16
Compressive Strength MPa	140	18
Flexural Strength MPa	78	182
Interlaminar Shear Strength MPa	Na	9
Water Absorption %	0.15	0
Voltage breakdown (k volts/mm)	-	18
Thermal Conductivity W/m°C	0.21	0.29
Max Operating Temp (deg. °C)	140	200
Specific Heat (kJ/kg °C)	2.3	na



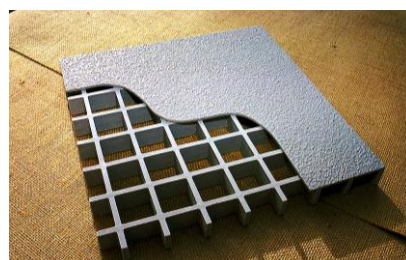
Product

Both **Dura Slab Moulded** product versions exhibit incredible strength to weight ratio producing a composite flooring structure that is stiff, strong, light-weight, non-corrosive, durable and maintenance free with an anti-slip surface.

Dura Slab Moulded - Standard is a heavy duty fibreglass structural flooring solution. Two high strength fibreglass solid plates are bonded to each side of a fibreglass mesh core material.



Dura Slab Moulded - Light is a slightly lower duty fibreglass structural flooring solution where a single fibreglass solid plate is bonded to the top surface of a fibreglass mesh core material.



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Industrial Marine Landscaping Architectural

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Size Specifications

Dura Slab Moulded - Light

The finished product is available in several panel thicknesses and lengths/widths. Bespoke sizes are available on request.

Depth	Panel Size	Panel Specification	Weight/m2
18mm	Upto 3.66m x 1.22m	12.7mm grating core + 5mm fibreglass plate (top)	15kg
25mm	Upto 3.66m x 1.22m	20mm grating core + 5mm fibreglass plate (top)	19kg
30mm	Upto 3.66m x 1.22m	25mm grating core + 5mm fibreglass plate (top)	24kg
35mm	Upto 4m x 1.22m	30mm grating core + 5mm fibreglass plate (top)	26kg
43mm	Upto 3.66m x 1.22m	38mm grating core + 6mm fibreglass plate (top)	30kg
55mm	Upto 3.66m x 1.22m	50mm grating core +5mm fibreglass plate (top)	34kg
65mm	Upto 3.66m x 1.22m	60mm grating core + 5mm fibreglass plate (top)	55kg

Dura Slab Moulded - Standard

The finished product is available as a bespoke item only.

Depth	Panel Size	Panel Specification	Weight/m2
19mm	Upto 3.66m x 1.22m	12.7mm grating core + 3mm fibreglass plate (top) + 3mm fibreglass plate (bottom)	19kg
37mm	Upto 3.66m x 1.22m	25mm grating core + 6mm fibreglass plate (top) + 6mm fibreglass plate (bottom)	36kg
42mm	Upto 3.66m x 1.22m	30mm grating core + 6mm fibreglass plate (top) + 6mm fibreglass plate (bottom)	38.5kg
50mm	Upto 4m x 1.22m	38mm grating core + 6mm fibreglass plate (top) + 6mm fibreglass plate (bottom)	42kg
62mm	Upto 3.66m x 1.22m	50mm grating core + 6mm fibreglass plate (top) + 6mm fibreglass plate (bottom)	46kg
74mm	Upto 3.66m x 1.22m	60mm grating core +7mm fibreglass plate (top) +7mm fibreglass plate (bottom)	55kg

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Load and Deflection Data

Dura Slab Moulded - Light

Load bearing capacity and panel deflection depend on panel thickness and unsupported span.

Panel Specifications	SPAN (mm)	Point Load (Kg) @ 1% Deflection	Concentrated Line Load (Kg/m) @ 1% Deflection	Uniformly Distributed Load (Kg/m²) @ 1% Deflection
18mm 12.7mm Grating with 5mm fibreglass plate top	250mm	958	1,222	1,955
	500mm	362	306	489
	600mm	251	212	346
	750mm	161	136	217
	1000mm	90	76	122
25mm 20mm Grating with 5mm fibreglass plate top	250mm	1,998	2,771	5,547
	500mm	840	920	1,473
	750mm	373	409	655
	1000mm	210	230	368
	1200mm	146	160	256
	1500mm	93	102	164
30mm 25mm Grating with 5mm fibreglass plate top	250mm	3,512	4,870	9,750
	500mm	1,741	1,867	2,987
	750mm	774	830	1,327
	1000mm	435	467	747
35mm 30mm Grating with 5mm fibreglass plate top	250mm	5,045	6,726	13,467
	500mm	2,522	3,008	4,813
	750mm	1,229	1,337	2,139
	1000mm	691	752	1,203
43mm 38mm Grating with 5mm fibreglass plate top	250mm	6,691	9,278	18,575
	500mm	3,345	4,639	8,156
	750mm	2,089	2,265	3,625
	1000mm	1,175	1,274	2,039
	1200mm	816	885	1,416
55mm 50mm Grating with 5mm fibreglass plate top	500mm	4,663	6,217	12,433
	750mm	3,108	3,883	6,213
	1000mm	2,012	2,184	3,495
	1200mm	1,397	1,517	2,427
	1500mm	894	971	1,553

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Dura Slab Moulded - Standard

Load bearing capacity and panel deflection depend on panel thickness and unsupported span.

Panel Specifications	Span (mm)	Point Load Kg @ 1% Deflection	Concentrated Line Load Kg/m @ 1% Deflection	Uniformly Distributed Load Kg/m² @ 1% Deflection
19mm 12.7mm Grating with 3mm fibreglass plate top & bottom	250	3,008	3,875	6,273
	500	752	980	1,568
	600	522	681	1,089
	750	334	436	697
	1000	188	245	392
	1200	131	170	272
37mm 25mm Grating with 6mm fibreglass plate top & bottom	250	12,244	16,325	32,683
	500	5,607	7,717	12,348
	600	3,894	5,359	8,575
	1000	1,402	1,929	3,087
	1500	623	857	1,372
	1750	458	630	1008
42mm 30mm Grating with 6mm fibreglass plate top & bottom	500	7,388	9,850	16,914
	600	5,239	7,341	11,746
	750	3,353	4,698	7,518
	1000	1,886	2,643	4,229
	1500	838	1,175	1,879
	2000	472	661	1,057
50mm 38mm Grating with 6mm fibreglass plate top & bottom	600	7,907	10,580	18,024
	750	5,060	7,209	11,535
	1000	2,846	4,055	6,489
	1200	1,977	2,816	4,506
	1500	1,265	1,802	2,884
	2000	712	1,014	1,622
	2500	455	649	1,038
62mm 50mm Grating with 6mm fibreglass plate top & bottom	500	13,100	17,466	34,933
	600	10,916	14,555	29,111
	750	8,453	11,644	19,678
	1000	4,755	6,918	11,069
	1500	2,113	3,075	4,919
	2000	1,189	1,729	2,767
	2500	761	1,107	1,771
74mm 50mm Grating with 12mm fibreglass plate top & bottom	750	16,542	16,658	44,111
	1000	10,942	12,493	25,025
	1500	4,863	7,236	11,122
	2000	2,736	4,070	6,513
	2500	1,751	2,605	4,168
	3000	1,216	1,809	2,809

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Product Specifications

Characteristics	Unit	Reference
Tensile Strength	220Mpa	ASTM D1037-93
Modulus of Elasticity	21Gpa	ASTM D1037-93
Flexural Strength	280Mpa	ASTM D1037-93
Compressive Strength	145Mpa	ASTM D1037-93
Voltage breakdown	18K volts/mm	ASTM D149
Density kg/m ³ (Specific Gravity)	2100	ISO 9001
Thermal Expansion Factor	13 x 10 ⁻⁶ mm/mm °C	ISO 9001
Water Absorption rate	0.45 x 24 hrs	ASTM D570
Operating Temperature	-100 °C to +200 °C	ISO 9001
Flammability resistance	Class 2, Option of Class 2, 1 or Class 0	BS476 Part 7 & 6
Frost resistance	No Effect	DD CEN/TS 772-22:2006
Weatherability	Pass	MOAT 22
Anti-Slip Surface	1.04 CoF (with anti-slip finish only)	BS 4592-0
UV Weather	5000hrs	ISO 4892-2 Xenon Arc

Testing Standards

Fire Certificate

- Standard Iso Resin - BS 476 Part 7 Class 2.
Special Order Iso Resin - BS 476 Part 7 Class 1.
Special Order Phenolic Resin - BS 476 Part 6 & 7 Class 0.

ASTM-E84 Flame Spread 25, Smoke Density 325

Slip Certificate

BS 7976-2 Pendulum Test – Dry Value – 72, Wet Value 66.
BS 4592-0 Ramp Test – Wet 1.04 Cof.

Load Certificate

BS EN 124 – Class A15, B125, C250, D400.

UV Certificate

UV Weather ISO 4892-2 Xenon Arc 5000hrs

Colour and Surface Finish

The product can be made in any RAL Colour. (Colour range is more limited for Class 1 & 0 fire rated product). Supplied in smooth or gritted (Silicone Carbide), different grit sizes available.

Chemical Resistance

Dura Slab Moulded is resistant against wide a range of chemicals across wide temperature spectrum. **Dura Slab Moulded** can be made of different resin systems to achieve specific chemical resistant properties. Refer to chemical resistance charts.

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Dura Slab Moulded - Chemical Resistance Table

RESIN TYPE	Vinylester		Isophthalic		Orthophthalic	
	%Conc.	Max.Oper. Temp.F/C.	%Conc.	Max.Oper. Temp.F/C.	%Conc.	Max.Oper. Temp.F/C.
Acetic Acid	50	180/82	50	125/52	25	N/R
Aluminum Hydroxide	100	180/82	100	160/71	ALL	-
Ammonium Chloride	ALL	210/99	ALL	170/77	ALL	-
Ammonium Bicarbonate	50	160/70	15	125/52	ALL	-
Ammonium Hydroxide	28	100/38	28	N/R	ALL	N/R
Ammonium Sulfate	ALL	210/99	ALL	170/77	ALL	-
Benzene	ALL	N/R	ALL	N/R	ALL	N/R
Benzoic Acid	SAT	210/99	SAT	150/66	ALL	77/25
Borax	SAT	210/99	SAT	170/77	ALL	-
Calcium Carbonate	ALL	180/82	ALL	170/77	ALL	-
Calcium Nitrate	ALL	210/99	ALL	180/82	ALL	-
Carbon Tetrachloride	100	150/65	100	N/R	100	N/R
Chlorine Dry Gas	-	210/99	-	140/60	-	N/R
Chlorine Water	SAT	200/93	SAT	80/27	SAT	N/R
Chromic Acid	10	150/65	5	70/21	5	N/R
Citric Acid	ALL	210/99	ALL	170/77	ALL	77/25
Copper Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Copper Cyanide	ALL	210/99	ALL	170/77	ALL	77/25
Copper Nitrate	ALL	210/99	ALL	170/77	ALL	-
Ethanol	50	100/38	50	75/24	10	77/25
Ethylene Glycol	100	200/93	100	90/32	100	104/40
Ferrous Chloride	ALL	210/99	ALL	170/77	ALL	86/30
Formaldehyde	ALL	150/65	50	75/24	25	-
Gasoline	100	180/82	100	80/27	100	77/25
Glucose	100	210/99	100	170/77	ALL	-
Glycerin	100	210/99	100	150/66	100	-
Hydrobromic Acid	50	150/65	50	120/49	18	-
Hydrochloric Acid	37	150/65	37	75/24	10	86/30
Hydrogen Peroxide	30	150/65	5	100/38	5	N/R
Lactic Acid	ALL	210/99	ALL	170/77	ALL	77/25
Lithium Chloride	SAT	210/99	SAT	150/66	ALL	-
Magnesium Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Magnesium Nitrate	ALL	210/99	ALL	140/60	ALL	86/30
Magnesium Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Mercuric Chloride	100	210/99	100	150/66	100	104/40
Mercurous Chloride	ALL	210/99	ALL	140/60	ALL	104/40
Nickel Chloride	ALL	210/99	ALL	170/77	ALL	104/40

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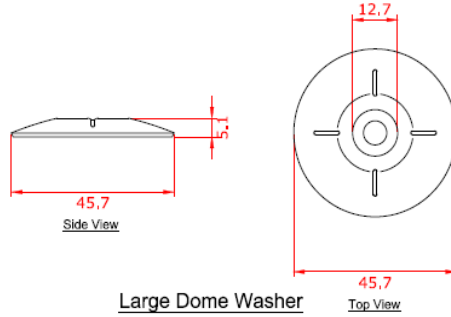
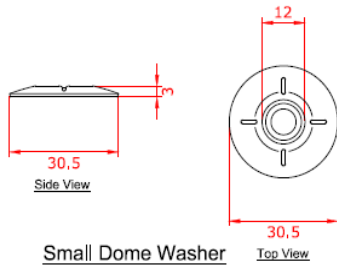
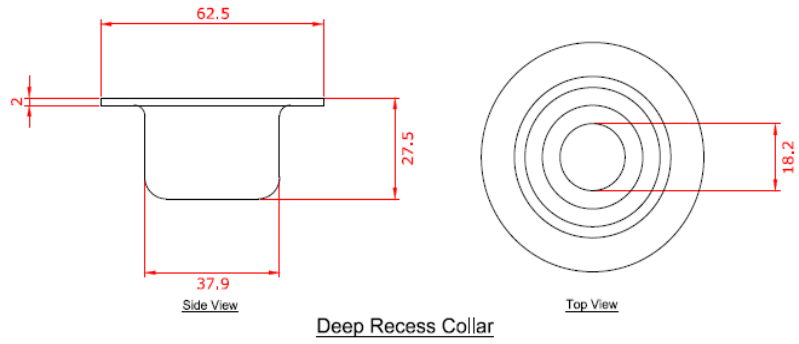
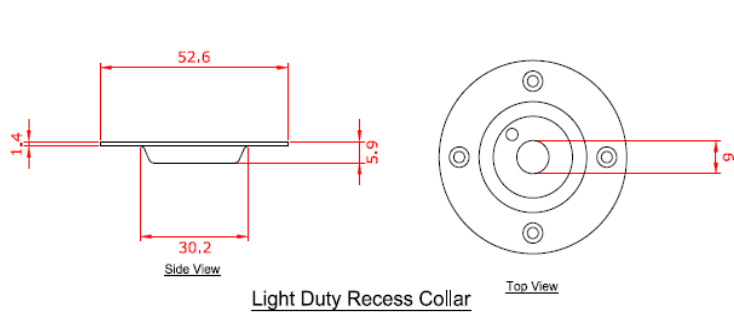
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RESIN TYPE	Vinylester		Isophthalic		Orthophthalic	
	%Conc.	Max. Oper. Temp.F/C.	%Conc.	Max. Oper. Temp.F/C.	%Conc.	Max. Oper. Temp.F/C.
Nickel Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Nitric Acid	20	120/49	20	70/21	2	N/R
Oxalic Acid	ALL	210/99	ALL	75/24	ALL	N/R
Perchloric Acid	30	100/38	10	N/R	10	N/R
Phosphoric Acid	100	210/99	100	120/49	80	N/R
Potass.Chloride	ALL	210/99	ALL	170/77	ALL	104/40
Potassium Dichromate	ALL	210/99	ALL	170/77	ALL	77/25
Potassium Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Propylene Glycol	ALL	210/99	ALL	170/77	ALL	104/40
Sodium Acetate	ALL	210/99	ALL	160/71	ALL	104/40
Sodium Bisulfate	ALL	210/99	ALL	170/77	ALL	-
Sodium Bromide	ALL	210/99	ALL	170/77	5	-
Sodium Cyanide	ALL	210/99	ALL	170/77	5	N/R
Sodium Hydroxide	25	180/82	N/R	N/R	1	N/R
Sodium Nitrate	ALL	210/99	ALL	170/77	ALL	104/40
Sodium Sulfate	ALL	210/99	ALL	170/77	ALL	104/40
Stannic Chloride	ALL	210/99	ALL	160/71	ALL	104/40
Sulfuric Acid	75	100/38	25	75/24	10	-
Tartaric Acid	ALL	210/99	ALL	170/77	ALL	-
Vinegar	100	210/99	100	170/77	ALL	-
Water Distilled	100	180/82	100	170/77	ALL	86/30
Zinc Nitrate	ALL	210/99	ALL	170/77	ALL	104/40
Zinc Sulfate	ALL	210/99	ALL	170/77	ALL	104/40

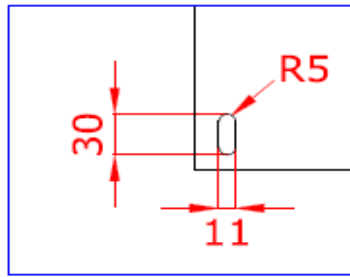
Dura Slab Moulded Fixings & Accessories

Surface Mounted Fixings

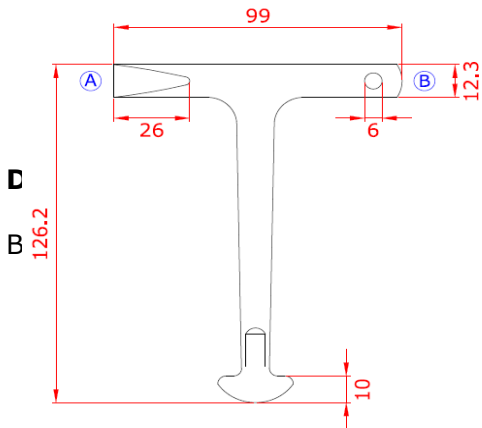
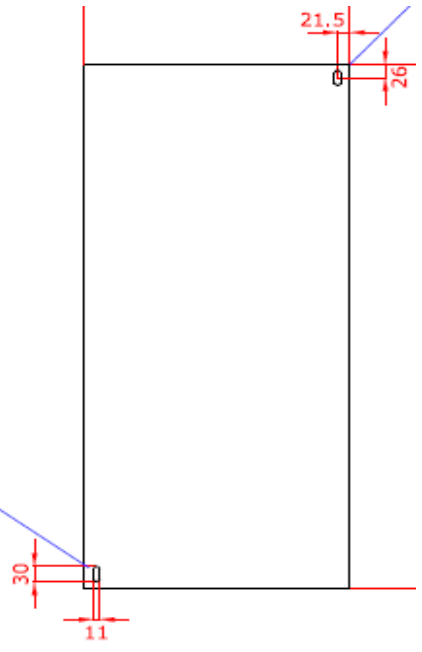


Special Bolt Fixings to Suit Clip and Type of Substrate are available.

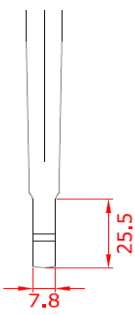
Lifting Eyes and Keys



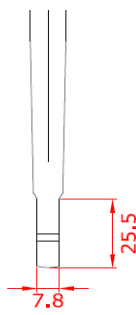
Close-Up View



Front View



Side View (A)



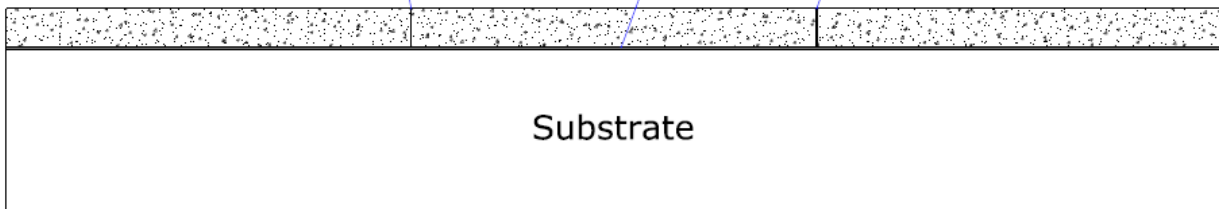
Side View (B)



Neoprene Seal Close-Up

3mm Neoprene Seal
Single Side Adhesive

1mm Neoprene Seal
Single Side Adhesive



Substrate

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Safety Data Sheet

This section provides data for protection against substances hazardous to health.

Material Identification and Use

Chemical Name: Fibreglass Reinforced Polyester
Common Name: GRP (Glass Reinforced Plastics, Fibreglass)
Product Identification: **Dura Slab Moulded**
Uses: Structural flooring, duct, trench or gully covers

Composition

Glass fibres, thermosetting plastic resin, catalysts, styrene, aluminium oxide, pigments. Components are chemically and thermally cured and bonded together.

Hazard Identification

None by contact. Dust produced by cutting or grinding can penetrate pores and skin causing itching. Avoid breathing dust.

First Aid procedure: Skin – shower with water and soap. Eyes – flush with sterile eye wash solution.

Product Appearance

Solid, flat panels. Sharp edges, grit applied to top surface. Zero odours. Not solvable in water. Standard colour Grey RAL 7047, others available on request.

Fire Fighting Measures

Standard extinguishing equipment, water, foam, A, B or C fire extinguishers. Produces black smoke while burning, carbon particles. Use air respirator.

Waste Disposal

Product is not considered a hazardous waste. Abide by local laws and procedures.

Handling/Cutting

Wear masks and goggles when cutting or grinding. Cover exposed parts of the body. Wear gloves when moving or lifting. Use diamond tipped tools for cutting. Avoid direct fire source.

Product Warranty

25 Year warranty. Details available on request.

Company Information

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