



CERTIFICATE NUMBER 19-SQ1839442-PDA
EFFECTIVE DATE 20-Mar-2019
EXPIRATION DATE 19-Mar-2024
ABS TECHNICAL OFFICE CN Shanghai SOED

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

**JIANGSU AULLAND NEW MATERIAL
TECHNOLOGY CO., LTD.**

located at

**JIANGYUN ROAD, DEVELOPMENT ZONE, NANTONG, JIANGSU, CHINA,
226017**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product FRP Grating

Model IFR and VEFR

This Product Design Assessment (PDA) Certificate remains valid until 19/Mar/2024 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau of Shipping

Li Li, Managing Principal Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)



Test Report

Report Number: 160622008SHF-BP-1

Applicant Name: Nantong Aulland Composites.,LTD

Report Date: 2016-07-06

Applicant Address: Guoqiang Road Feiqiao Industry Zone, Nantong Jiangsu

Attn: Ava Zhao

Sample Description:

Product: FRP MOLDED GRATING

Model: 38x38-38

Sample Quantity: 2 pieces

Sample ID: 160622008SHF.001

Date Received: 2016/06/16

Date Test Conducted: 2016/07/01

Tests Conducted:

As requested by the applicant, for details refer to attached pages(s).

Conclusion:

For details refer to attached page(s).

The conclusions of this test report may not be used as part of the requirements for Intertek product certification. Authority to Mark must be issued for a product to become certified.

Intertek Testing Services Ltd., Shanghai

No.7 Building, No. 6958 Daye Road, Fengxian District, Shanghai

Tel: 021-61136116 Fax: 021-61189921 Website: www.intertek.com

Report template version: 2016/1/1

Page 1 of 7

Test Report

Report Number:160622008SHF-BP-1

I. INTRODUCTION

This report describes the results of the ASTM E84-15b TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS a method for determining the comparative surface burning behavior of building materials. This test is applicable to exposed surfaces, such as ceilings or walls, provided that the material or assembly of materials, by its own structural quality or the manner in which it is tested and intended for use, is capable of supporting itself in position or being supported during the test period.

The purpose of the method is to determine the relative burning behavior of the material by observing the flame spread along the specimen. Flame spread and smoke density developed are reported, however, there is not necessarily a relationship between these two measurements.

"The use of supporting materials on the underside of the test specimen may lower the flame spread index from that which might be obtained if the specimen could be tested without such support. This method may not be appropriate for obtaining comparative surface burning behavior of some cellular plastic materials. Testing of materials that melt, drip, or delaminate to such a degree that the continuity of the flame front is destroyed, results in low flame spread indices that do not relate directly to indices obtained by testing materials that remain in place."

This test method is also published under the following designations:

NFPA 255
UL 723
UBC 8-1

This standard should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment which takes into account all of the factors which are pertinent to an assessment of the fire hazard of a particular end use.

II. PURPOSE

The ASTM E84 (25 foot tunnel) test method is intended to compare the surface flame spread and smoke developed measurements to those obtained from tests of fiber cement board and select grade red oak flooring. The test specimen surface (18 inches wide and 24 feet long) is exposed to a flaming fire exposure during the 10 minute test duration, while flame spread over its surface and density of the resulting smoke are measured and recorded. Test results are presented as the computed comparisons to the standard calibration materials.

The furnace is considered under calibration when a 10 minute test of red oak decking will pass flame out the end of the tunnel in five minutes, 30 seconds, plus or minus 15 seconds. The fiber cement board which complies with Annex A3 of the ASTM E 84 standard forms the zero point for both flame spread and smoke developed indexes, while the red oak flooring smoke developed index is set as 100.

III. TEST PROCEDURE

The tests were conducted in accordance with the procedures outlined in the ASTM E84. The specimens are placed directly on the tunnel ledges. As required by the standard, one or more layers of 0.25 inch thick reinforced concrete board are placed on top of the test sample between the sample and the tunnel lid. After the test, the samples are removed from the tunnel, examined and disposed of.

IV. DESCRIPTION OF TEST SPECIMENS

Date received: 6/16/2016

Date placed in the conditioning room: 6/17/2016

Conditioning (73°F & 50% R.H.): 14 days

Specimen Width (in): 24.02

Specimen Length (ft): 23.98

Specimen Thickness (in): 1.50

Total Specimen Weight (lbs): 189.36

Specimen Description:

The specimen was described by the client as "FRP MOLDED GRATING, model of 38x38-38".

The 23.98-ft. long specimen consisted of one 11.96-ft. long x 24.02-in. wide x 1.50-in. thick and one 12.02-ft. long x 24.02-in. wide x 1.50-in. thick "FRP MOLDED GRATING, model of 38x38-38"

Test Report

Report Number:160622008SHF-BP-1

V. TEST RESULTS

The test results, computed on the basis of observed flame front advance and electronic smoke density measurements are presented in the following table.

Test Specimen	Flame Spread Index	Smoke Developed Index
FRP MOLDED GRATING 38x38-38	15	200

The data sheets are included in Page 6. These sheets are actual print-outs of the computerized data system which monitors the tunnel furnace, and contain all calibration and specimen data needed to calculate the test results.

VI. OBSERVATIONS

During the test, the specimen was observed to behave in the following manner.

Time (min:sec)	Observations
0:00	The test burners were turned on.
1:18	Transient flame was observed.
3:14	Steady flame was observed.
10:00	The test burners were shut off.

After the burners were turned off, 44 seconds after flame was observed.

After the test, the specimen was observed to be damaged as follows:

Distance (FEET)	Damage Descriptions
0 - 8	The specimen was charred.
8 - 24	The specimen was discolored turning black.

Test Report

Report Number:160622008SHF-BP-1

Mounting Method:

The specimen was self-supporting.

The smooth side was unexposed to the flames.

Mounting Method pic



Intertek Testing Services Ltd., Shanghai

No.7 Building, No. 6958 Daye Road, Fengxian District, Shanghai

Tel: 021-61136116 Fax: 021-61189921 Website: www.intertek.com

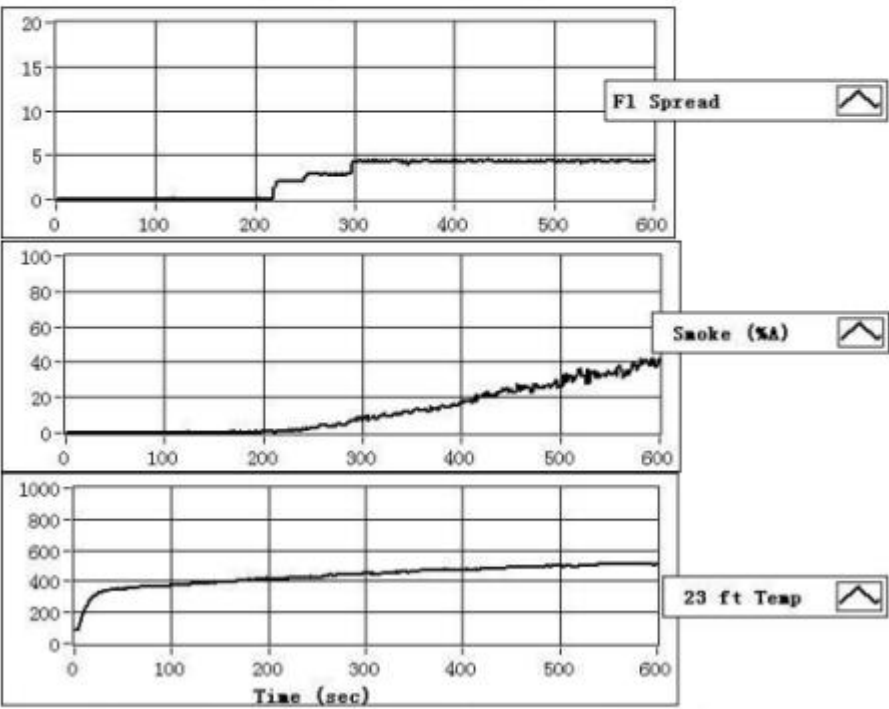
Report template version: 2016/1/1

Page 5 of 7

Test Report

Report Number:160622008SHF-BP-1

DATASHEET

Test Method	Lab ID	Project #
ASTM E84	Intertek Fire Laboratory	160622008
Date		
01 Jul 2016	Time (Test Start)	2:07 PM
Test No.		3
Specimen ID		
FRP MOLDED GRATING		
Specimen Description		
38x38-38		
Mounting Procedure		
Self-supporting		
Fuel (CF)	RO Smk Area	Smoke Area (%A min)
43.3	54.7	122.0
FS Area (ft-min)	Maximum FS	
25.9	4.60	
MAX FS Time (min)	Max Temp	
7.23	515	
		
Raw SD	Final FSI	Final SD
223	15	200
Time to 980F (min)		
0.00		

Intertek Testing Services Ltd., Shanghai

No.7 Building, No. 6958 Daye Road, Fengxian District, Shanghai

Tel: 021-61136116 Fax: 021-61189921 Website: www.intertek.com

Report template version: 2016/1/1

Test Report

Report Number: 160622008SHF-BP-1

Appendix A: Sample received photo

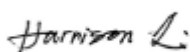


Approved by:



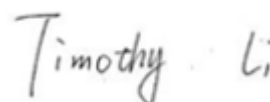
Name:

Title: Approver



Name:

Title: Reviewer



Name:

Title: Project Engineer

The End of Report

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.



Nantong Aulland Composites CO.,LTD.
Leading Manufacturer of FRP Grating & Profiles



Nantong Aulland Composites Co.,LTD

Add:Feiqiao industry park,Qinzao county,Gangzha district,
Nantong city,Jiangsu province,China

Post:226011

Tel: 0086-513-85671558 0086-513-85671598

0086-513-85670058 0086-513-85671568

Fax:0086-513-85670058 0086-513-85671598

0086-513-85670108

- **Molded gratings**
- **Pultruded gratings**
- **Pultruded profiles**
- **Handrail systems**
- **Hand lay-up products**

AULLAND

- Quality is the most powerful weapon to occupy the market.
- Assurance of quality results in confidence from customers.

CONTENTS



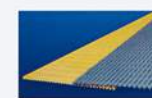
Aulland Company Brief.....04



Resin system.....06



Molded gratings.....07



Pultruded gratings.....19



Pultruded profiles.....34



FRP handrail system and ladder.....45



Other products.....48



Project pictures.....50



Company Brief

Nantong Aulland Composites Co., Ltd. is a leading and professional manufacturer specially engaged in FRP products which includes FRP molded gratings, FRP pultruded gratings, pultruded profiles, hand rails, stair treads, ladders and so on. Nowadays fibreglass products are widely used in chemical plant, construction engineering, water treatment plant, food and beverage plants, electronic industry, petrochemical engineering.

Our company is located in the Yangtze River Delta near Nantong port, 150 kilometers from Shanghai. The convenient transport makes the delivery of raw material and products much easier. All products have been certificated by ISO 9001 International Standard Quality System and ASTM E-84. Now our company has become one of the most reliable FRP suppliers in the world, with higher production volume, more advanced equipments, more stable quality and the products are mainly sold to Hong Kong, Japan, America, Southeast Asia and other countries and regions.

"Assurance of quality results in confidence from customers" is the policy we constantly stick to. With an R&D team including 16 experienced researchers, we are enormously confident of the continual development of our products. So please feel free to contact with us when you need our attention.



Resin System

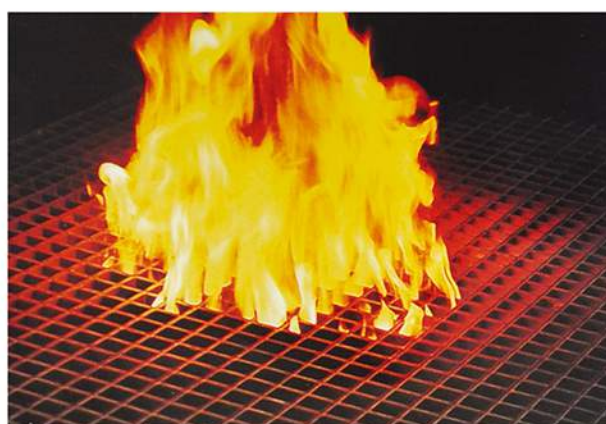
Resin base

Resin type	Resin base	Description	Corrosion resistance	Flame spread Rating ASTM E84	Colors available
VEFR-25	Vinyl ester	Supior corrosion resistance and retardant	Excellent	Class 1, 25 or less	Dark gray, orange
VEFR-10	Vinyl ester	Supior corrosion resistance and enhanced retardant	Excellent	Class 1, 10 or less	Dark gray
IFR-25	Isophthalic polyester	Industrial grade corrosion resistance and fire retardant	Very good	Class 1, 25 or less	Dark gray, Green
IFR-10	Isophthalic polyester	Industrial grade corrosion resistance and extra fire retardant	Very good	Class 1, 10 or less	custom
IFGR-30	Isophthalic polyester	Food grade corrosion resistance and fire retardant	Very good	Class 1, 25 or less	Light gray, light green
OFR-25	Ortho	Moderate corrosion resistance and fire retardant	Moderate	Class 1, 25 or less	Green, yellow light gray, dark gray
MP-5	Phenolic resin	Low smoke and superior fire resistance	Very good	Class 1, 5 or less	Reddish-brown, phenolic painting of the grating can be performed to obtain a gray or red finish
O-CR	Ortho	Moderate corrosion resistance	Moderate	No	Green, yellow light gray, dark gray

Fiberglass roving yarn

The fiberglass roving yarn in our company is bought from JUSHI GROUP with high quality.

E-Glass Direct Rovings for LFT are designed for reinforcing PP and PA resins.



Molded gratings

Aulland Molded Gratings

Aulland molded grating is manufactured in an open, heated mold system. Continuous E-glass roving's are placed in the mold in alternating layers and completely wetted out with resin. This continuous process produces an integral, one piece construction which provides excellent corrosion resistance as well as bi-directional strength. There are a number of different molds available resulting in a extensive range of panel sizes, thickness and mesh patterns.

Industries

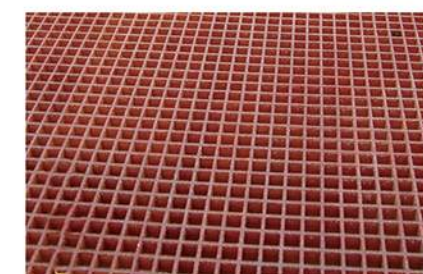
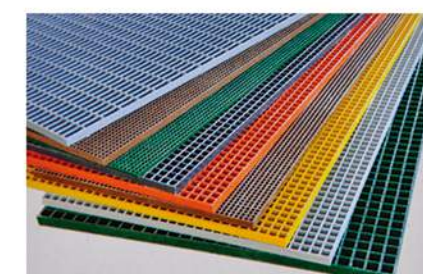
- Chemical plant and metal finishing;
- Construction engineering, traffic and transportation
- Petrochemical engineering, ocean survey, water engineering
- Food and beverage plants
- Textile printing and dyeing and electronic industry

Functions:

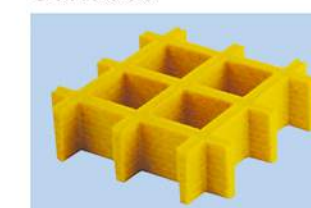
- Anti-slip floor, stair tread, foot bridge
- Operation platform, trench cover
- Security and safety fence, handrail
- Off-shore oil rig, shipyard, shipping deck, ceiling
- Ramp ladder, scaffold, railway
- Decorative grid, man-made fountain pool grid
- Non-conductive and non-magnetic

Advantages:

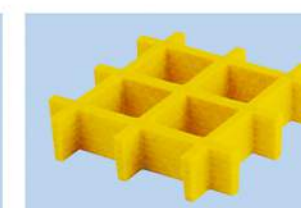
- Anti-fire
- Anti-corrosion and anti-aging
- Anti-slippery
- Light but high loaded strength
- Long service life and maintenance free
- Non-conduction or magnetic
- Easy installation and rich colors
- various sizes and colors available



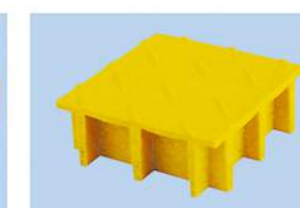
Surfaces



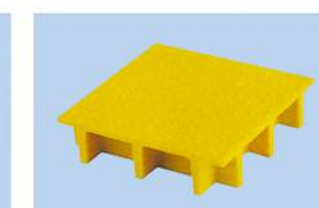
Concave Surface



Smooth Surface



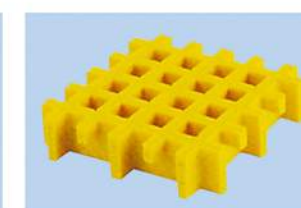
Diamond Top Cover



Gritted top Cover



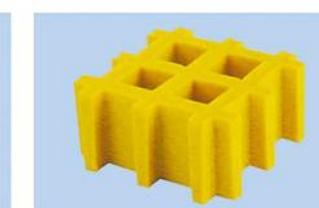
Gritted Surface



Mini mesh Surface



Micro mesh surface

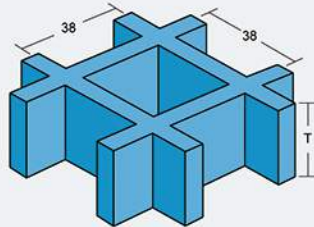


Heavy duty

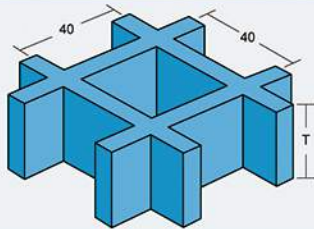
Aulland molded grating in details

(Thickness-T)

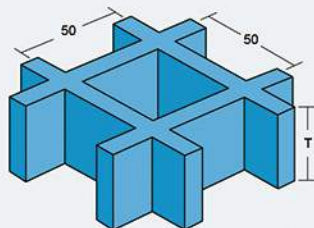
38×38

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	13	6.0/5.0	38×38	1220×3660, 1220×4000, 1220×2440, 921×3055, 1264×4010	6.0	78
	14	6.0/5.0	38×38	1220×3660, 1220×4000, 1220×2440, 921×3055, 1264×4010	6.5	78
	15	6.0/5.0	38×38	1220×3660, 1220×4000, 1220×2440, 921×3055, 1264×4010	7.0	78
	20	6.0/5.0	38×38	1220×3660, 1220×4000, 1524×4010, 997×3012	9.8	65
	25	6.5/5.0	38×38	1220×3660, 1226×4010, 1530×4010, 921×3055, 1524×4000, 997×3012	12.3	68
	30	6.5/5.0	38×38	1220×3660, 1220×4010, 921×3055, 1524×4010	14.6	68
	38	7.0/5.0	38×38	1220×3660, 1220×4010, 2100×4240, 998×4010, 1220×2440, 921×3055, 1530×4010, 1530×3050, 1000×4000, 1226×3665	19.5	68
	50	9.5/7.5 heavy duty	38×38	1000×1990, 1230×3666, 1230×4010	42	56
	60	10.5/8.5 heavy duty	38×38	1230×4010	50.4	54
	70	11.0/9.0 heavy duty	38×38	1230×4010	58.8	49

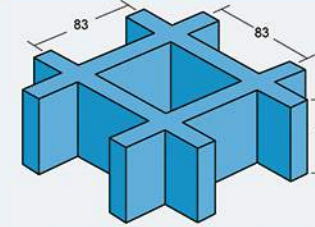
40×40

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	25	7.0/5.0	40×40	1007×3007, 1007×4007, 1247×4047, 1527×4047	12.3	67
	30	7.0/5.0	40×40	1527×4047, 1007×3007, 1247×4047	14.6	67
	38	7.0/5.0	40×40	1527×4047, 1247×4047, 1007×3007, 1007×4047	19.2	67
	40	7.0/5.0	40×40	1527×4047, 1007×3007, 1007×4047, 1247×4047	19.5	67

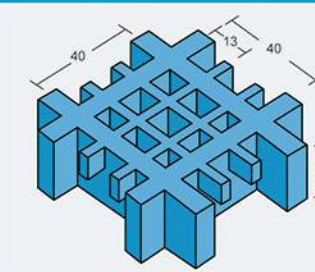
50×50

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	15	6.0/5.0	50×50	1228×4020	5.9	82
	25	7.0/6.0	50×50	1230×4020	11.5	78
	40	6.8/5.0	50×50	1787×4530	17.5	80
	50	8.0/6.0	50×50	1230×4020, 1532×4020	23.7	78

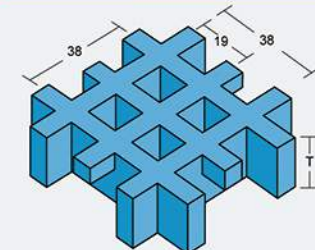
83×83

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	7.0/5.0	83×83	1007×4007, 1007×3007, 1007×4255	10.0	84
	40	7.0/5.0	83×83	1007×4007, 1007×3007, 1007×4255	11.0	84

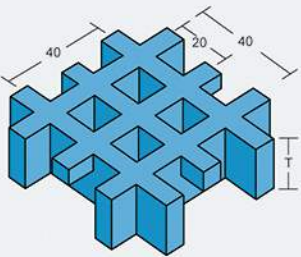
13×13/40×40 micro mesh

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	25	6.5/4.5/5.0	13×13 40×40	1247×4047, 1007×3007, 1007×4047, 1530×4047	17.8	30
	30	6.5/4.5/5.0	13×13 40×40	1527×4047, 1247×4047, 1007×3007, 1007×4047	19.1	30
	38	6.5/4.5/5.0	13×13 40×40	1527×4047, 1247×4047, 1007×3007, 1007×4047	23.8	30

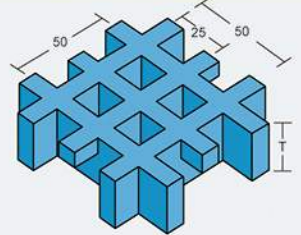
19×19/38×38 micro mesh

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	25	6.5/5.0	19×19 38×38	1220×3660, 1220×2440, 921×3055, 1226×4007, 1268×4007	16.8	30
	30	6.5/5.0	19×19 38×38	1220×3660, 1220×2440, 915×3050, 1220×4000, 1530×4007	18.8	30
	38	6.5/5.0	19×19 38×38	1220×3660, 1220×2440, 915×3050, 1220×4000, 1226×4007	23.5	30

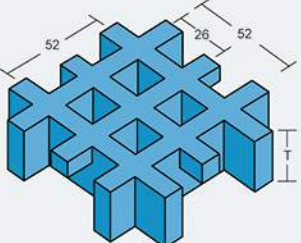
20×20/40×40 micro mesh

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	14	6.5/5.0	20×20 40×40	1247×4047, 1007×3007	10.5	42
	22	6.5/5.0	20×20 40×40	1247×4047, 1007×3007, 1527×4047	14.8	42
	25	6.5/5.0	20×20 40×40	1247×4047, 1527×4047	16.8	42
	30	7.0/5.0	20×20 40×40	1007×4047, 1007×3007, 1247×4047, 1527×4047	18.3	42
	38	7.0/5.0	20×20 40×40	1007×4047, 1007×3007, 1247×4047, 1527×4047	23.2	42
	40	7.0/5.0	20×20 40×40	1007×4047, 1007×3007, 1247×4047, 1527×4047	23.7	42

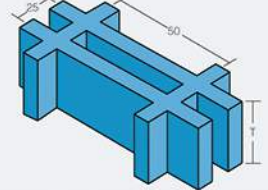
25×25/50×50 micro mesh

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	50	8.0/6.0	25×25 50×50	1518×4023	28.5	55

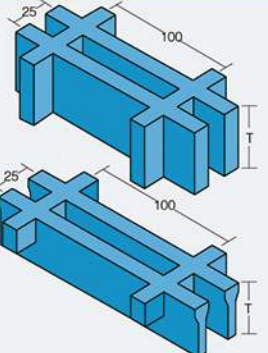
26×26/52×52 micro mesh

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	30	7.0/6.0	26×26 52×52	1534×4053	15.3	60
	38	6.0/5.0	26×26 52×52	1512×4012	19.5	60

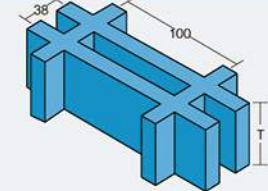
25×50

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	11.0/9.0 heavy duty	25×50	1220×1835	30.7	48
	50	12.0/9.0 heavy duty	25×50	1220×1835	41.8	48

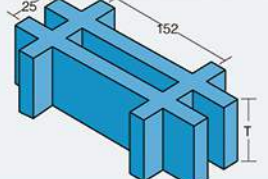
25×100/100×25

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	25	7.0/5.5	100×25	1007×3007, 1007×4007, 1500×4028	13.0	67
	25	7.0/5.0	25×100	1220×3660, 915×3050	13.83	67
	25	9.5/8.0 heavy duty	100×25	1220×3660, 1220×2440, 915×3050	19.5	52
	30	7.0/5.5	100×25	1007×3007, 1007×4007	15.6	67
	38	8.0/6.0 heavy duty	100×25	1220×3660	22.8	62
	38(T-shape)	15.0/5.0	25×100	1220×3660, 1225×4170	21	62

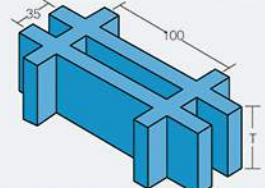
100×38

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	8.0/6.0	100×38	1226×3665, 1530×4047, 921×3050	16.4	65

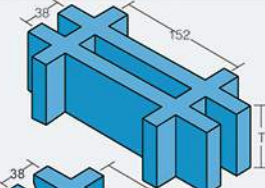
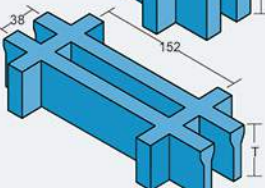
25×152

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	8.0/6.5	25×152	1220×3660, 1220×2440, 1220×4124, 921×3050	22.8	63

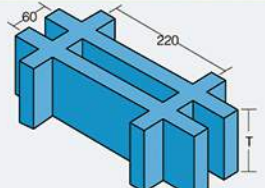
100×35

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	7.0/5.0	100×35	1407×4277, 2407×2982	15	63

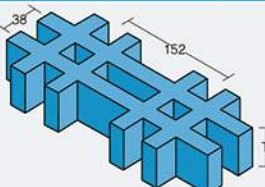
152×38

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	8.0/6.0	152×38	1220×3660, 1220×2440, 915×3050	15.92	67
	38(T-shape)	15.0/8.0	38×152	1500×3660	19	62

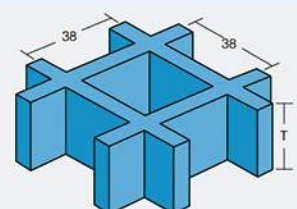
60×223

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	40	6.3/5.0	60×223	1788×2238, 1788×4250	9.0	67

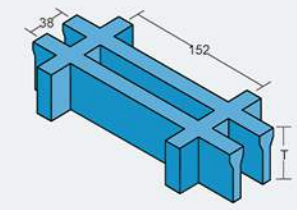
38×152

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38 stair treads	7.0/5.0	38×152	580×3660, 580×4120	17	65

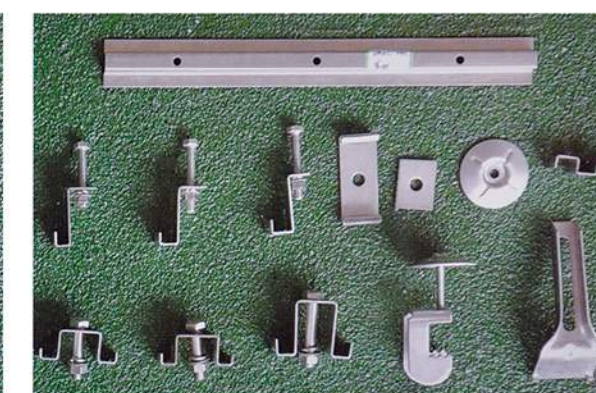
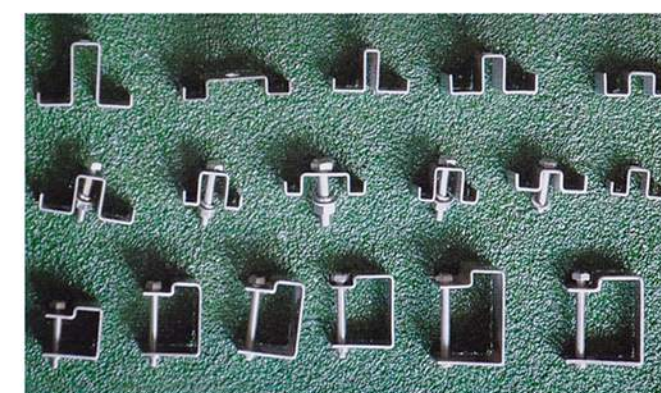
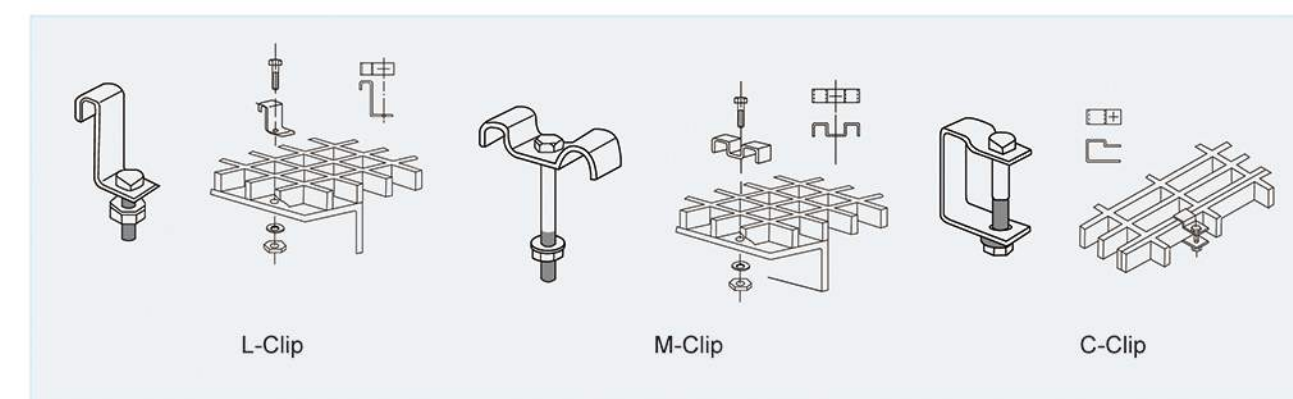
38×38 Phenolic grating

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38	7.0/5.0	38×38	1220×3660, 1416×3660, 1416×4010	19.5	68

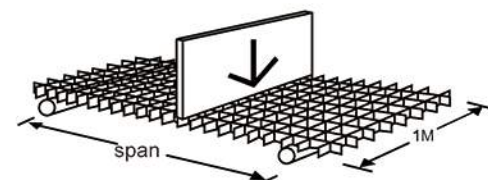
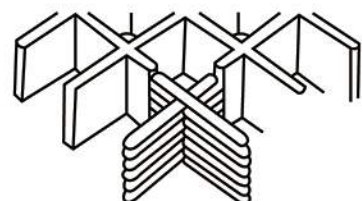
38×152 Phenolic grating

Legend	Thickness (mm)	Bar thickness (Top/Bottom)	Mesh size (mm)	Panel Size available (mm)	Weight (kg/m ²)	Open Rate (%)
	38(T-shape)	15.0/8.0	38×152	1500×3660	19.0	62

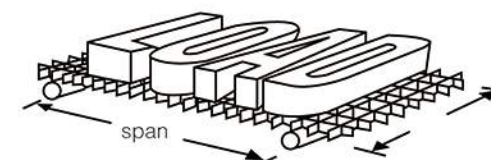
Installation Fixing for Molded Gratings



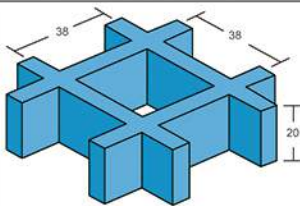
Aulland molded grating load deflection tables



Concentrated line load-deflection in mm



Uniform load-deflection in mm

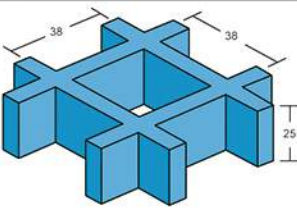
	Bar thickness (Top /Bottom) 6.0/5.0
	Distance between centers of bearing bars 38
	Open Area 65%
	Weight per square meter 9.8 kg/m ²
	Standard panel sizes: 1220x4000, 1220x3660, 1524x4010, 997x3012 Both directions

38x38x20

Deflection Span (mm)	Kg/m					Break Point
	75	150	300	450	750	
300	0.254	0.508	1.016	1.524	2.54	4470
450	0.762	1.524	3.302	4.826	8.128	2980
600	1.778	3.81	7.62	11.176	15.263	2235
750	2.794	5.588	11.43	17.658	21.134	1788
900	5.334	10.668	15.385	21.241	26.583	1490

38x38x20

Deflection Span (mm)	Kg/m						Break Point
	350	500	750	1000	1500	2500	
300	<0.254	0.254	0.508	0.508	1.016	1.524	29280
450	1.016	1.524	2.286	3.048	4.572	7.62	12980.8
600	3.084	4.572	7.112	9.398	12.283	14.103	7320
750	5.842	8.89	---	---	---	---	4084.8
900	7.158	---	---	---	---	---	3226.8

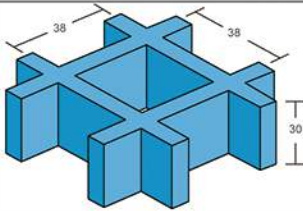
	Bar thickness (Top /Bottom) 6.4/5.0
	Distance between centers of bearing bars 38
	Open Area 68%
	Weight per square meter 12.3 kg/m ²
	Standard panel sizes: 1220x4010, 1220x3660, 1524x4010, 997x3012, 915x3050 Both directions

38x38x25

Deflection Span (mm)	Kg/m						Break Point
	75	150	300	450	600	750	
450	0.559	1.146	2.159	3.073	4.115	4.75	3910
600	1.16	2.32	4.64	6.97	9.29	11.62	2924
900	3.92	7.84	12.116	18.44	19.82	20.77	1948
1200	9.29	18.5	15.33	23.54	25.52	27.98	1461

38x38x25

Deflection Span (mm)	Kg/m						
	240	480	980	1450	2450	3650	4880
450	0.66	1.092	1.93	2.769	4.47	6.579	---
600	1.118	2.108	4.14	6.172	10.211	15.265	---
750	2.667	5.387	10.82	16.28	21.738	29.962	---
900	5.537	11.176	21.717	23.164	26.547	31.590	---

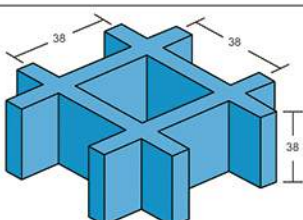
	Bar thickness (Top /Bottom) 6.5/5.0 Distance between centers of bearing bars 38 Open Area 68% Weight per square meter 14.6 kg/m²
Standard panel sizes: 1220x4010, 1220x3660, 1524x4000, 1524x4026, 915x3050 Both directions	

38x38x30

Deflection Span (mm)	Kg/m						Break Point
	75	150	300	450	750	1500	
300	<0.254	<0.254	0.254	0.508	0.762	1.524	9923.4
450	0.254	0.508	1.016	1.524	2.54	3.92	4827.6
600	0.508	1.27	2.286	3.556	5.842	7.38	4112.4
750	1.27	2.54	4.826	7.366	12.446	15.98	3173.7
900	2.27	4.54	9.08	13.63	18.72	22.05	2637.3

38x38x30

Deflection Span (mm)	Kg/m					
	350	500	750	1000	1500	2500
300	0.29	0.48	0.57	0.75	1.15	1.82
450	0.78	1.19	1.81	2.47	3.54	4.95
600	1.76	2.66	4.28	5.56	8.41	13.19
750	3.48	5.12	8.21	10.95	16.42	---
900	5.89	8.81	14.15	18.92	---	---

	Bar thickness (Top /Bottom) 7.0/5.0 Distance between centers of bearing bars 38 Open Area 68% Weight per square meter 19.5 kg/m²
Standard panel sizes: 1220x4000, 1220x3660, 1220x2440, 915x3050, 1524x3050, 1524x4000, 1000x4000 Both directions	

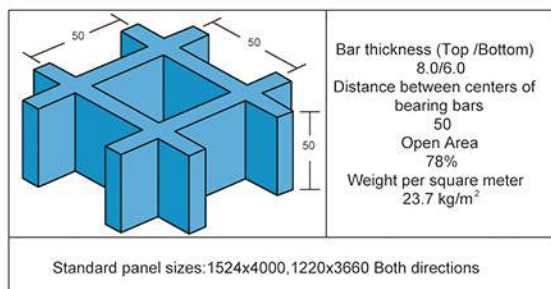
38x38x38

Deflection Span (mm)	Kg/m						Break Point
	150	300	450	600	750	1500	
300	0.356	0.483	0.61	0.762	0.889	1.06	17116
600	0.66	1.245	1.85	2.464	3.073	8.48	8718
900	1.803	3.683	5.563	7.417	9.296	13.79	5817
1200	4.749	9.677	14.63	19.583	21.19	---	3755

38x38x38

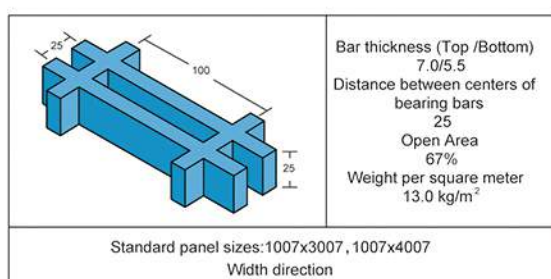
Deflection Span (mm)	Kg/m						
	240	480	980	1450	2450	3650	4880
300	0.09	0.19	0.38	0.49	0.78	1.05	---
600	0.432	0.813	1.549	2.311	3.8354	5.74	---
900	1.702	3.454	6.959	10.465	17.475	23.25	---
1200	5.969	12.167	24.511	32.58	38.65	---	---





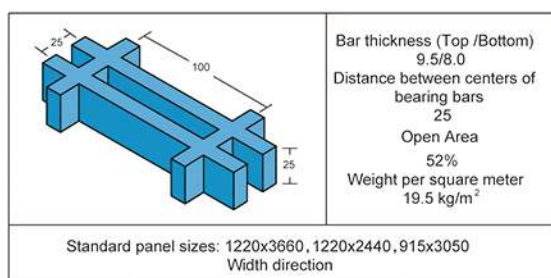
50×50×50

Deflection Span (mm)	Kg/m						Break Point
	150	300	450	600	750	1500	
300	0.305	0.406	0.483	0.635	1.041	1.45	21727
600	0.508	0.813	1.128	1.753	3.327	4.27	11713
900	1.118	2.235	3.2	5.156	6.58	13.46	7780
1200	1.33	2.61	5.98	9.95	11.92	---	5834



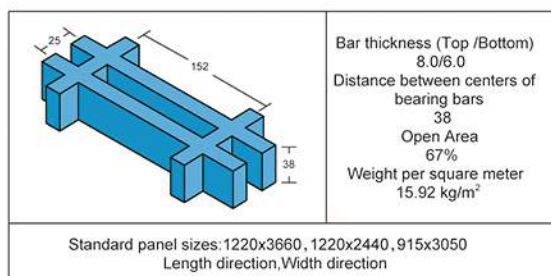
25×100×25

Deflection Span (mm)	Kg/m						Break Point
	75	150	300	450	600	750	
300	0.33	0.483	0.737	0.991	1.27	1.52	9442
600	0.864	1.727	3.454	5.182	6.909	8.636	4305
750	1.397	2.718	5.105	7.163	9.55	11.938	3589
900	2.413	4.724	8.814	12.369	16.51	20.625	3216



25×100×25

Deflection Span (mm)	Kg/m						Break Point
	75	150	300	450	750	1500	
300	<0.254	0.254	0.762	1.016	1.27	1.524	10057.5
450	0.508	0.762	1.778	2.54	3.302	4.318	7263.75
600	0.762	1.778	3.556	5.08	6.858	---	5773.75
750	1.524	3.048	6.096	9.144	11.938	---	4842.5
900	2.286	4.826	9.652	---	---	---	4172
1050	3.556	7.112	---	---	---	---	3687.75
1200	5.08	10.16	---	---	---	---	3501.50



38×152×38

Deflection Span (mm)	Kg/m						Break Point
	75	150	300	450	600	750	
300	<0.254	<0.254	0.254	0.508	0.508	0.762	12627.75
450	<0.254	0.254	0.762	1.016	1.524	1.778	9945.75
600	0.254	0.762	1.524	2.286	3.046	3.81	8232.85
750	0.762	1.27	2.794	4.064	5.334	6.604	7040.25
900	1.016	2.286	4.318	6.64	8.636	10.92	6146.25
1050	1.524	3.302	6.604	9.906	---	---	5438.5
1200	2.286	4.826	9.652	---	---	---	5140.5

50×50×50

Deflection Span (mm)	Kg/m						
	240	480	980	1450	2450	3650	4880
300	0.254	0.279	0.33	0.381	0.483	0.737	---
600	0.381	0.584	0.965	1.372	2.134	4.115	---
900	1.194	2.108	3.937	5.766	9.449	18.593	---
1200	2.413	4.928	9.957	14.961	16.810	21.575	---

25×100×25

Deflection Span (mm)	Kg/m						
	240	480	980	1450	2450	3650	4880
300	0.279	0.381	0.533	0.711	1.041	---	1.905
600	0.914	1.854	3.683	5.537	9.22	---	18.466
900	3.632	6.6	12.573	18.542	---	---	---
1050	8.007	14.884	---	---	---	---	---

25×100×25

Deflection Span (mm)	Kg/m						Break Point
	250	350	300	750	1000	1500	
300	<0.254	<0.254	<0.254	0.254	0.508	0.508	32940
450	0.508	0.508	0.762	1.27	1.524	2.286	18910
600	1.016	1.27	2.032	3.302	4.318	6.35	15860
750	2.286	3.048	4.572	7.112	9.398	---	12688
900	4.572	5.842	8.89	---	---	---	9110.96
1050	7.874	10.16	---	---	---	---	6900.32
1200	12.7	---	---	---	---	---	5734

38×152×38

Deflection Span (mm)	Kg/m						Break Point
	350	450	750	1000	1500	2500	
300	<0.254	<0.254	<0.254	0.254	0.254	0.508	41358
450	<0.254	0.254	0.508	0.762	1.016	1.778	26962
600	0.508	1.016	1.27	1.778	2.794	4.572	21716
750	1.027	2.032	3.048	4.064	6.35	---	18446.4
900	2.54	4.064	6.096	8.128	12.192	---	13420
1050	4.572	7.112	10.668	---	---	---	10179.68
1200	7.874	11.938	---	---	---	---	8418



Chemical resistance chart of molded grating

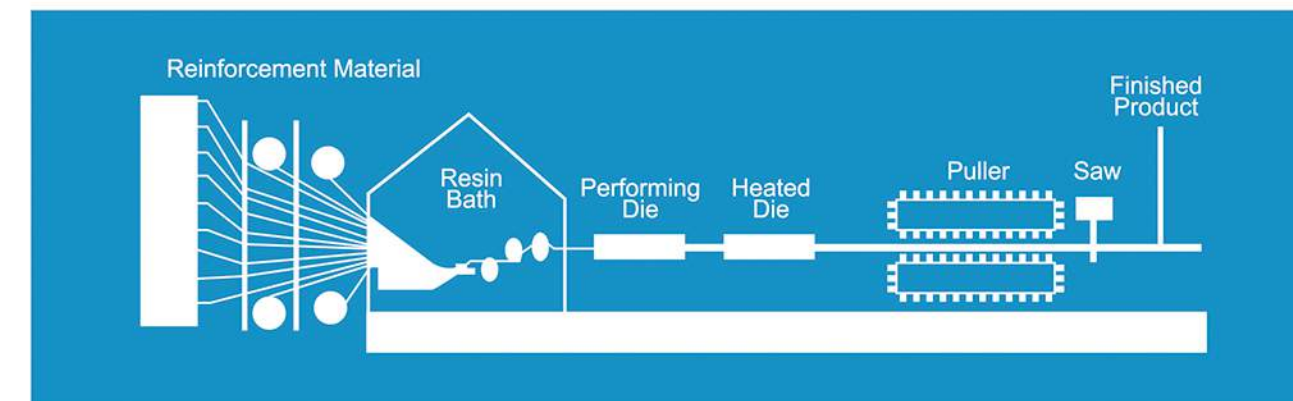
Chemical	Max. Oper. Temp			
	%Conc.	Type 'vinyl'	Type 'Iso'	Type 'Ortho'
Hydrochloric acid	30	82	65	N/R
Nitric acid	35	38	N/R	N/R
Sulphuric acid	25	82	65	N/R
Hydrofluoric acid	10	24	N/R	N/R
Lactic acid	100	82	65	60
Hypochlorous acid	SAT	60	N/R	N/R
Citric acid	ALL	49	N/R	N/R
Potassium hydroxide	10	49	N/R	N/R
Sodium hydroxide	10	82	N/R	N/R
Calcium hydroxide	25	82	65	N/R
Calcium hypochloride	25	82	65	N/R
Ferric chloride	100	82	65	60
Aluminium chloride	ALL	82	65	60
Mercuric chloride	100	82	65	60
Silver nitrate	100	82	65	60
Sodium salt	ALL	24	N/R	N/R
Zinc chloride	ALL	24	24	N/R
Acetone	100	124	N/R	N/R
Chloroform	100	N/R	N/R	N/R
Fuel	All	38	38	38
Nantokite	ALL	82	65	60
Phenols	10	24	N/R	N/R
Ozone	ALL	38	38	38
Bleaching liquid	ALL	82	N/R	N/R
Ammonium hydroxide	30	24	N/R	N/R
Ammonium salt	ALL	24	N/R	N/R
Black sewage	ALL	82	N/R	N/R
Cupric oxide	ALL	52	52	N/R
Glycol	100	82	65	60
Sulfur dioxide	SAT	82	65	60
Sodium phosphate	50	82	N/R	N/R
Water	100	82	65	60
Alum	ALL	82	65	60
Chlorine water	SAT	49	N/R	N/R

ALL-concentrations; SAT-saturated solution; N/R- not recommended; ...-no information available

Pultruded gratings

Aulland pultruded gratings

Aulland pultruded gratings are panels with open space, assembled, through specially designed process, with "I", "T" and "HL" shaped bearing bars and interlocked with solid rods or tubes, which are all pultruded



Aulland pultruded grating is light-weight, strong, anti-fire chemical and UV resistant, and reduces costly maintenance. Aulland pultruded grating is well suited for highly corrosive environments and offers extended life, eliminating periodic maintenance and extra cost, which is a good alternative compared to steel gratings.





Advantages of Phenolic grating:

- High anti-fire
- High anti-corrosion and anti-aging
- High anti-slippery
- Light but high loaded strength
- Long service life and maintenance free
- Non-conduction or magnetic
- Easy installation and rich colors
- Various sizes and colors available

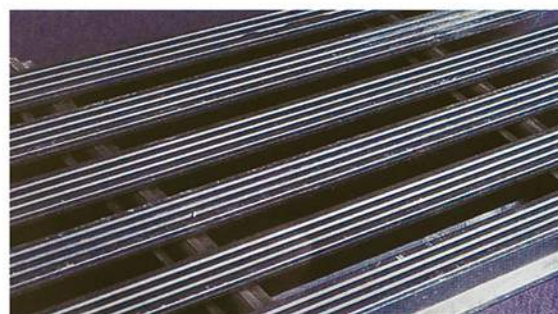


Safe-T-Span Pultruded Gratings



High Load Pultruded Grating

Surfaces



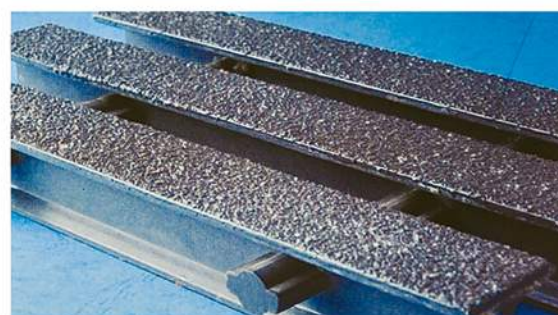
Corrugated Surface



Smooth Surface

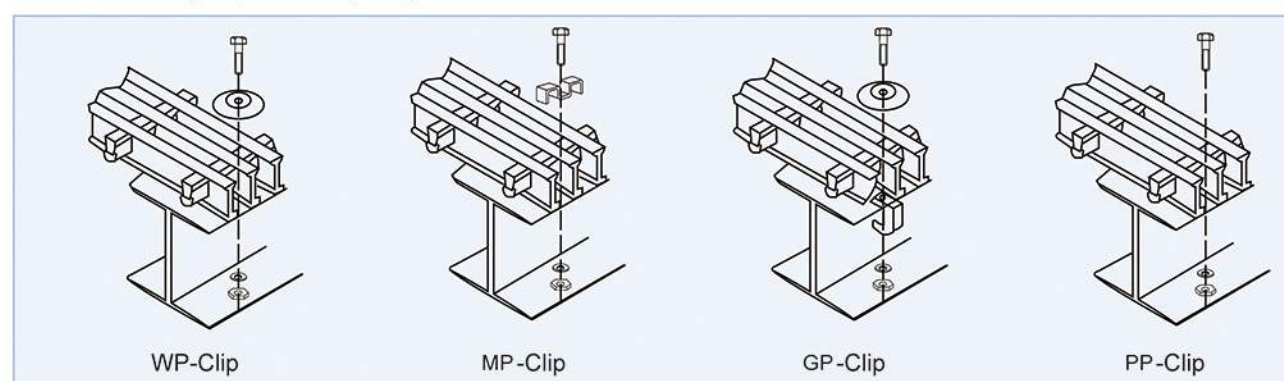


Gritted top cover

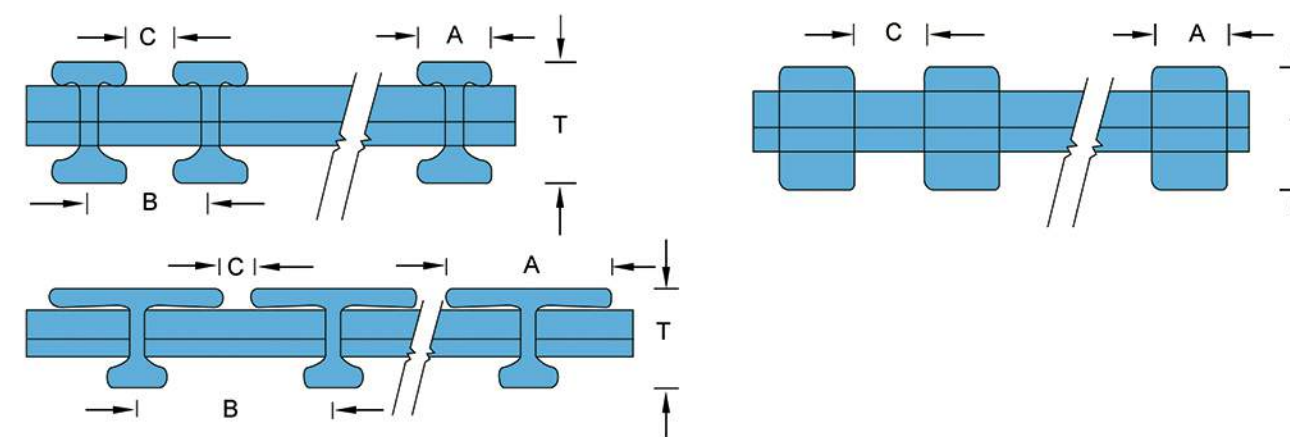


Gritted Surface

Installation Fixing for pultruded gratings

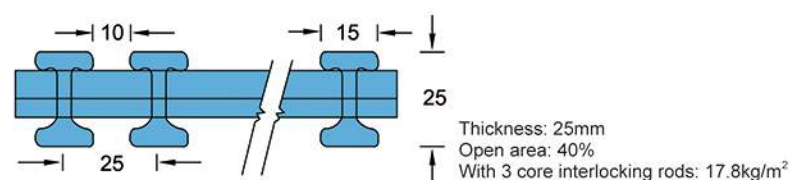


Aulland pultruded grating in details

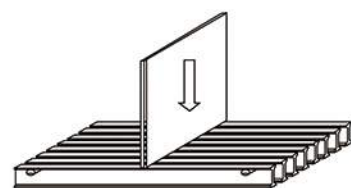


Type	Height Inch (mm)	Top edge width (mm)	Space between (mm)	Clearance width (mm)	Open area (%)	Estimated weight Kg/m ²
I-4010	25	15	25	10	40	17.8
I-5010	25	15	30	15	50	15.1
I-6010A	25	15	38	23	60	12.2
I-6010B	25	8	19.8	11.8	60	13.7
I-4015	38	15	25	10	40	22
I-5015	38	15	30	15	50	19.1
I-6015	38	15	38	23	60	16.2
I-4012	30	15	25	10	40	19.1
I-5012	30	15	30	15	50	16.1
I-6012	30	15	38	23	60	13.1
I-40125	32	15	25	10	40	19.8
I-50125	32	15	30	15	50	17.4
I-60125	32	15	38	23	60	13.5
I-4020	50	15	25	10	40	28.5
I-5020	50	15	30	15	50	24.2
I-6020	50	15	38	23	60	20.1
T-1210	25	38	43.4	5.4	12	15.6
T-1810	25	38	50.8	9.5	18	13.8
T-2510	25	38	50.8	12.7	25	13.6
T-3310	25	41.3	61	19.7	33	11.2
T-3810	25	38	61	23	38	11.8
T-1215	38	38	43.3	5.2	12	19.6
T-2515	38	38	50.8	12.7	25	16.7
T-3815	38	38	61	23	38	14.2
T-3320	50	25.4	38.1	12.7	33	21.7
T-5020	50	25.4	50.8	25.4	50	17.2
HL-4020	50	15	10	10	40	62.8
HL-5020	50	15	15	15	50	52.2
HL-6020	50	15	23	23	60	43.5

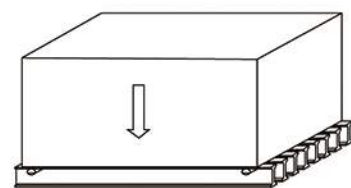
Aulland pultruded grating load deflection tables



I-4010



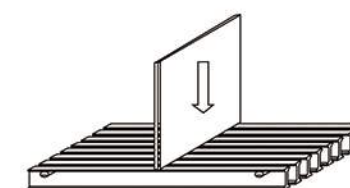
Concentrated line load-deflection in mm



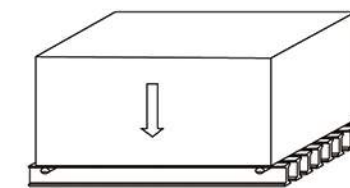
Uniform load-deflection in mm

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.38	0.58	1.02	2.03	4.06	7.62	16593
600	0.95	1.56	2.54	4.57	8.89	17.53	12959
900	3.09	4.64	7.73	15.46	30.9	---	8639
1200	5.84	8.89	14.73	29.46	59.2	---	6420

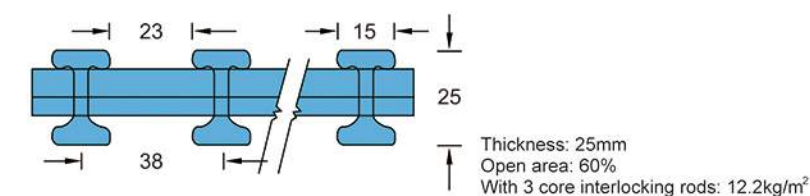
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.85	1.76	3.22	5.63	7.25	12.12	72325
600	1.91	3.71	7.56	12.9	16.5	---	42515
900	6.57	12.81	23.26	---	---	---	18863
1200	14.48	---	---	---	---	---	10507



Concentrated line load-deflection in mm



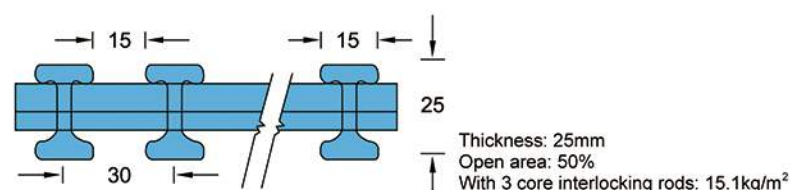
Uniform load-deflection in mm



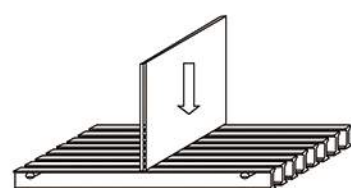
I-6010

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.59	0.89	1.52	2.94	5.83	10.95	11067
600	1.41	2.12	3.52	5.59	14.2	27.62	8639
900	4.75	7.13	11.85	23.7	---	---	5750
1200	11.2	16.9	28.2	---	---	---	4275

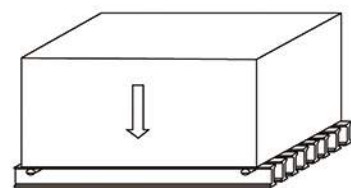
Span (mm)	Kg/m						Max load
	1000	1900	4000	7000	9500	19500	
450	1.23	2.36	4.95	8.67	11.85	22.15	48380
600	2.93	5.35	11.7	---	---	---	28344
900	9.91	19.52	---	---	---	---	12559
1200	23.5	---	---	---	---	---	6988



I-5010



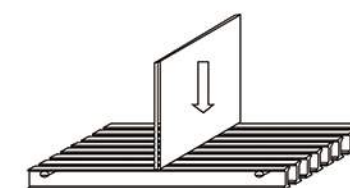
Concentrated line load-deflection in mm



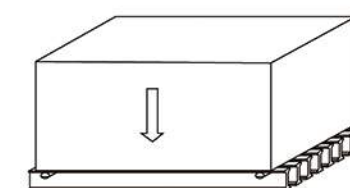
Uniform load-deflection in mm

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.46	0.71	1.17	2.33	4.66	8.52	13808
600	1.11	1.65	2.74	5.83	11.24	18.8	10799
900	3.54	5.06	8.86	16.46	34.92	59.15	7194
1200	8.37	12.9	22.2	39.58	---	---	5362

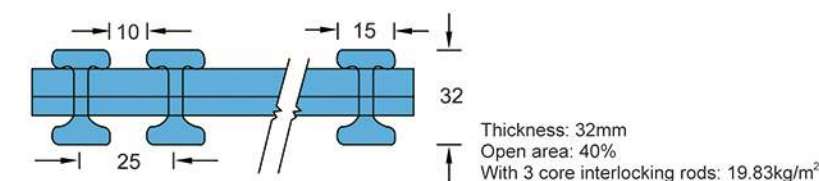
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.91	1.76	3.27	5.54	9.32	15.6	60499
600	2.15	4.29	9.06	15.08	17.95	26.54	35429
900	7.83	12.89	23.65	---	---	---	15638
1200	17.51	---	---	---	---	---	8796



Concentrated line load-deflection in mm



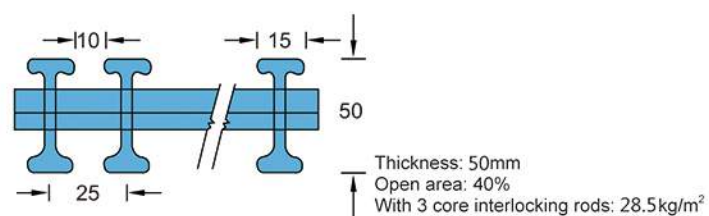
Uniform load-deflection in mm



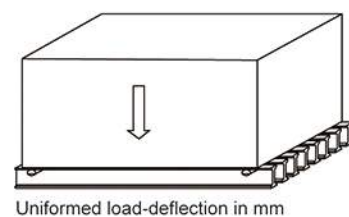
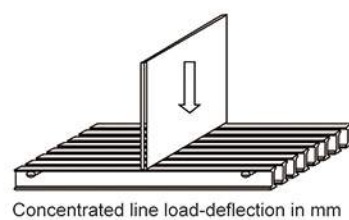
I-40125

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.24	0.39	1.02	2.03	4.06	7.62	13808
600	0.82	1.14	2.54	4.83	9.4	18.8	10799
900	2.54	4.06	6.86	13.46	27.2	54.1	7194
1200	7.37	10.9	18.92	36.58	73.2	146.05	5362

Span (mm)	Kg/m								
	300	500	1000	1500	2000	2500	5000	10000	15000
600	0.16	0.27	0.55	0.82	1.09	1.37	2.73	5.47	8.20
800	0.49	0.82	1.63	2.45	3.27	4.08	8.17	---	---
1000	1.16	1.93	3.86	5.79	7.72	9.64	---	---	---
1200	2.32	3.87	7.74	11.62	15.49	---	---	---	---

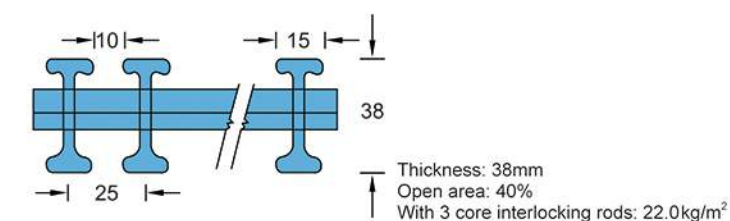


I-4020

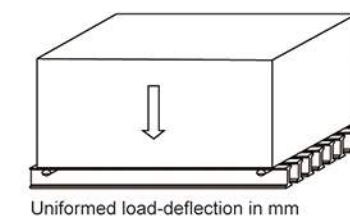
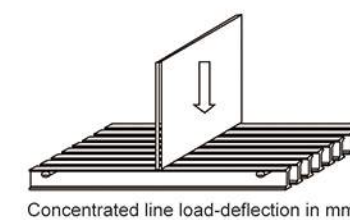


Span (mm)	Kg/m						Max load
	450	750	1000	1500	2000	2500	3000
450	0.09	0.15	0.20	0.30	0.40	0.50	0.60
600	0.21	0.35	0.47	0.71	0.94	1.18	1.42
900	0.72	1.20	1.65	2.45	3.22	4.02	4.83
1200	1.71	2.84	3.79	5.69	7.58	9.48	11.36

Span (mm)	Kg/m						Max load
	1000	2000	3000	4000	5000	6000	8000
450	0.12	0.25	0.37	0.55	0.62	0.75	1.09
600	0.29	0.59	0.88	1.18	1.48	1.77	2.37
900	1.05	2.02	3.03	4.05	5.02	6.00	8.15
1200	2.37	4.74	7.11	9.48	6.86	8.23	10.98
1500	4.63	9.26	13.82	18.56	11.85	14.22	---

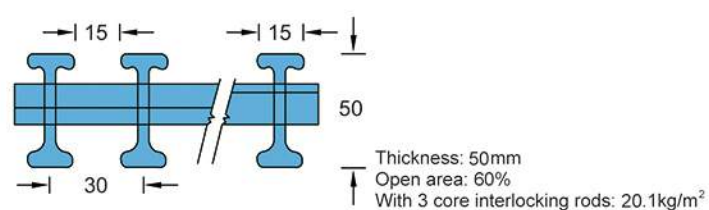


I-4015

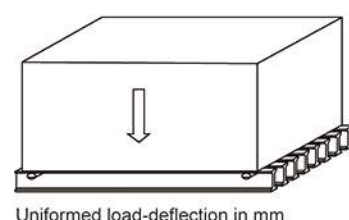
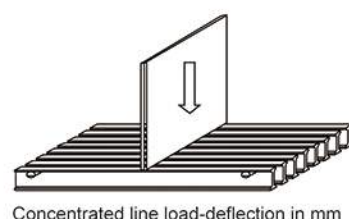


Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.12	0.25	0.51	0.76	1.52	2.79	26215
600	0.29	0.51	1.02	1.78	3.05	5.84	19661
900	1.02	1.27	2.29	5.32	9.38	17.76	12705
1200	2.95	3.59	5.57	9.4	19.1	38.85	9086

Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.25	0.45	0.76	1.67	2.42	4.83	114645
600	0.61	1.18	2.32	4.59	5.96	9.62	64506
900	1.92	3.79	6.33	11.2	15.46	---	27757
1200	4.96	9.64	---	---	---	---	14905

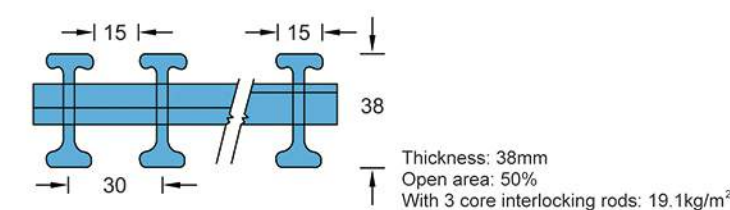


I-6020

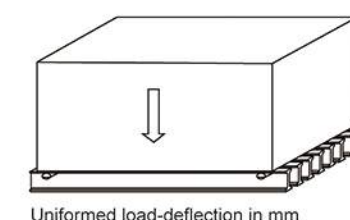
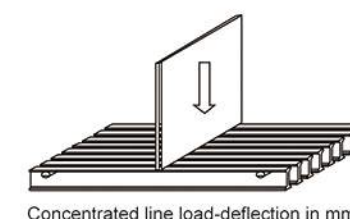


Span (mm)	Kg/m						Max load
	300	750	1000	1500	2000	2500	3000
450	0.09	0.23	0.30	0.46	0.61	0.76	0.92
600	0.21	0.54	0.72	1.09	1.45	1.82	2.18
900	0.73	1.84	2.46	3.69	4.92	6.15	7.38
1200	1.75	4.37	5.83	8.75	11.65	14.52	---

Span (mm)	Kg/m						Max load
	1000	2000	3000	4000	5000	7000	8000
450	0.19	0.38	0.57	0.76	0.96	1.34	1.53
600	0.45	0.91	1.36	1.82	2.27	3.19	3.64
900	1.53	3.07	4.61	6.15	7.69	10.70	12.35
1200	3.64	7.29	10.98	14.55	---	---	---

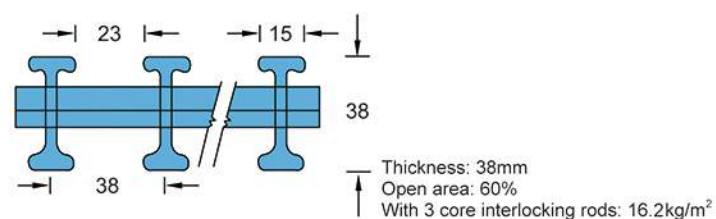


I-5015

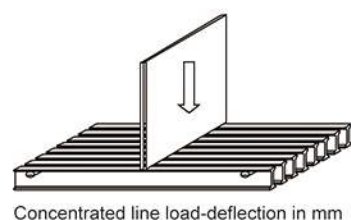


Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.15	0.25	0.51	1.02	1.78	3.3	21836
600	0.31	0.51	1.02	1.78	3.56	6.86	16385
900	1.02	1.52	2.54	6.08	11.91	20.87	10576
1200	2.89	4.56	7.84	14.94	28.4	---	7567

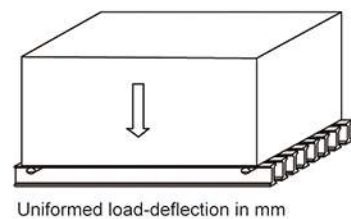
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.25	0.51	0.96	2.27	2.97	4.56	95537
600	0.81	1.52	2.61	4.95	6.96	12.93	53755
900	2.58	4.93	9.15	17.7	--	--	23164
1200	6.59	12.69	--	--	--	--	12422



I-6015



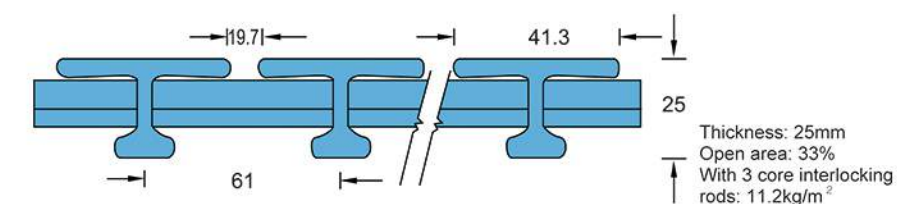
Concentrated line load-deflection in mm



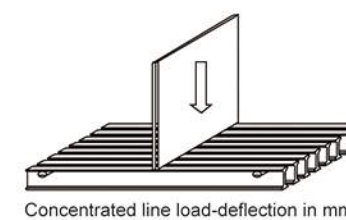
Uniformed load-deflection in mm

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.19	0.29	0.51	0.96	2.03	3.81	17472
600	0.51	0.76	1.02	2.29	4.32	8.38	13108
900	1.57	2.33	3.89	7.11	14.56	25.15	8460
1200	2.79	4.32	7.11	14.22	28.5	56.9	6047

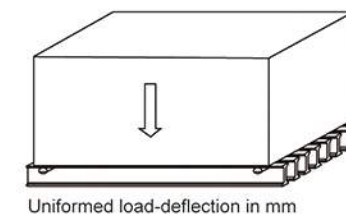
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.45	0.75	1.56	2.97	3.78	6.56	76430
600	0.91	1.82	3.78	6.83	8.57	14.89	43004
900	3.29	6.06	9.87	18.7	---	---	18570
1200	7.6	14.95	---	---	---	---	9920



T-3310



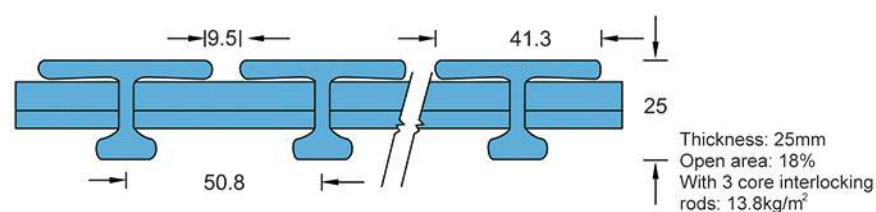
Concentrated line load-deflection in mm



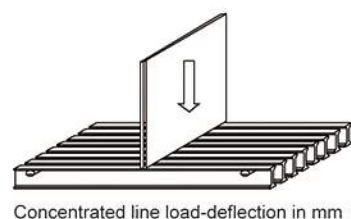
Uniformed load-deflection in mm

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.584	0.86	1.448	2.87	5.74	--	10309
600	1.27	1.93	3.226	6.452	--	--	7731
900	4.013	5.99	10.06	--	--	--	5024
1200	8.992	--	--	--	--	--	3620

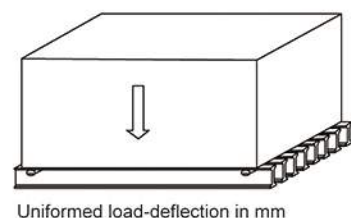
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.56	1.069	2.134	4.039	5.23	--	45076
600	1.63	3.226	6.542	12.12	--	--	25363
900	7.52	15.04	--	--	--	--	10971
1200	--	--	--	--	--	--	5938



T-1810



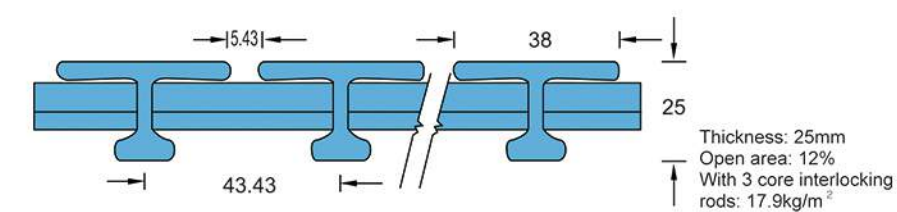
Concentrated line load-deflection in mm



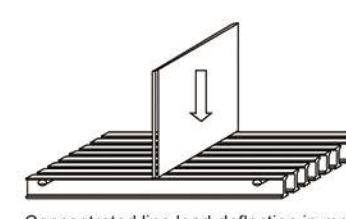
Uniformed load-deflection in mm

Span (mm)	Kg/m						Max load
	300	500	800	1500	2000	2500	
400	0.40	0.67	1.07	2.00	2.67	3.34	5900
600	1.24	2.06	3.30	8.25	--	--	2300
800	2.76	4.59	7.35	13.78	--	--	2300
1000	5.16	8.60	13.76	--	--	--	2200

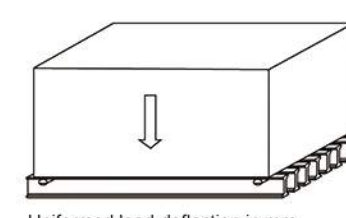
Span (mm)	Kg/m						Max load
	300	500	800	1500	2000	2500	
400	0.10	0.17	0.27	0.50	0.67	0.83	29600
600	0.46	0.77	1.24	2.32	3.10	3.87	12700
800	1.38	2.30	3.67	6.89	9.18	11.48	7300
1000	3.22	5.37	8.60	--	--	--	4600



T-1210



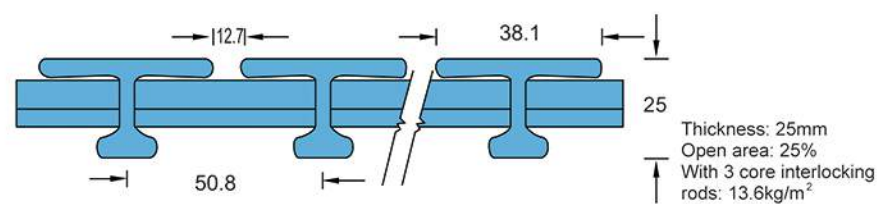
Concentrated line load-deflection in mm



Uniformed load-deflection in mm

Span (mm)	Kg/m						Max load
	150	300	450	750	1500	3000	
450	0.254	0.508	0.762	1.27	2.286	4.826	6481.5
600	0.508	1.016	1.524	2.286	4.826	9.652	4857.4
900	1.524	3.048	4.826	7.874	--	--	3233.3
1200	3.556	7.366	10.922	--	--	--	2428.7

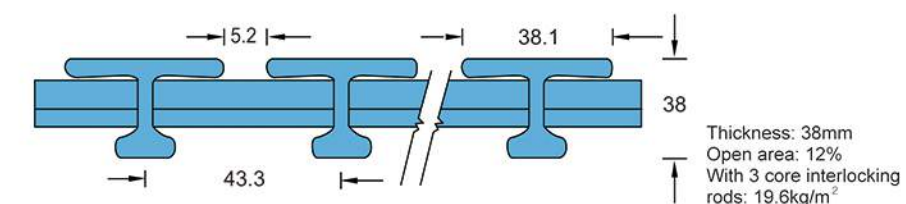
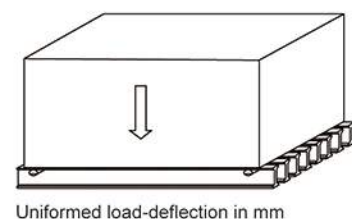
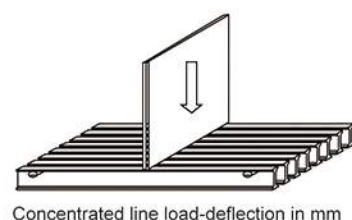
Span (mm)	Kg/m						Max load
	450	950	1450	2400	4850	9500	
450	<0.254	0.254	0.762	1.016	2.286	4.572	14932.8
600	0.508	1.27	1.778	3.048	6.096	12.92	11175.2
900	2.794	5.842	8.89	--	--	--	7076
1200	9.144	--	--	--	--	--	3562.4



T-2510

Span (mm)	Kg/m						Max load
	150	300	450	750	1500	3000	
450	0.254	0.508	0.762	1.27	2.794	5.588	4619
600	0.508	1.016	1.778	2.794	5.588	11.43	3471.7
900	1.778	3.556	5.588	9.144	--	--	2309.5
1200	2.032	4.318	8.382	12.7	--	--	1728.4

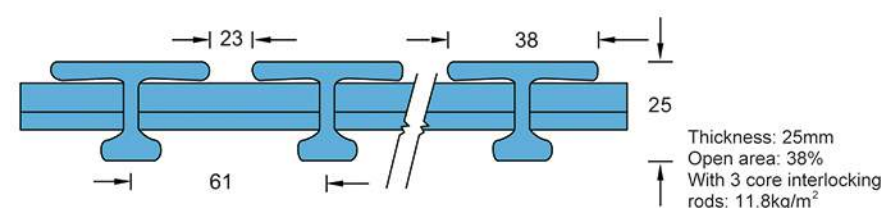
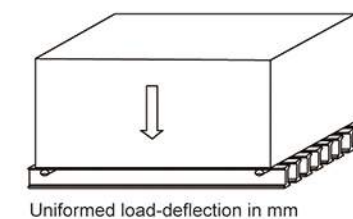
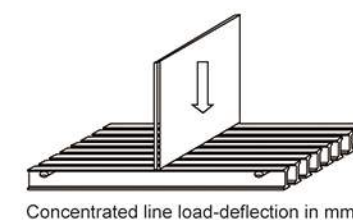
Span (mm)	Kg/m						Max load
	450	950	1450	2400	4850	9500	
450	0.254	0.508	0.762	1.27	2.54	5.08	10638.4
600	0.762	1.524	2.032	3.556	7.112	--	8003.2
900	3.556	6.858	10.414	--	--	--	5075.2
1200	10.668	--	--	--	--	--	2830.4



T-1215

Span (mm)	Kg/m						Max load
	150	300	450	750	1500	3000	
450	<0.254	0.254	0.254	0.508	1.016	1.778	8791
600	<0.254	0.254	0.508	0.762	1.778	3.556	7032.8
900	0.508	1.016	1.524	2.794	5.334	10.668	4678.6
1200	1.27	2.54	3.555	6.096	12.192	--	3516.4

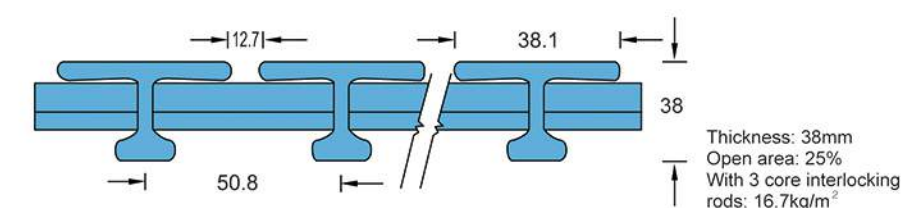
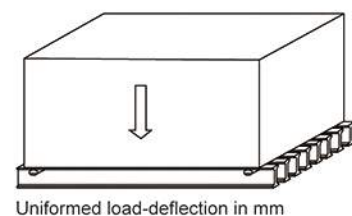
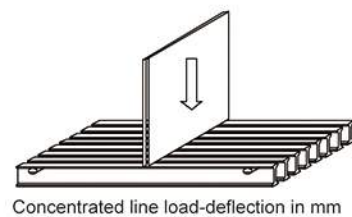
Span (mm)	Kg/m						Max load
	450	950	1450	2400	4850	9500	
450	<0.254	0.254	0.254	0.508	1.016	1.778	19227.2
600	0.254	0.508	0.762	1.016	2.286	4.318	14396
900	1.016	2.032	3.048	5.08	10.16	--	9613.6
1200	3.048	6.096	9.144	--	--	--	5758.4



T-3810

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
450	0.711	1.02	1.727	3.454	6.91	--	8600
600	1.549	2.34	3.886	7.747	--	--	6427
900	4.826	7.21	--	--	--	--	4180
1200	10.77	--	--	--	--	--	3018

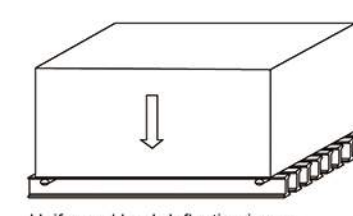
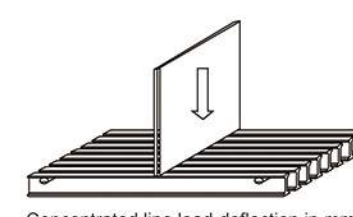
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
450	0.66	1.295	2.616	5.004	6.53	--	37624
600	1.96	3.886	7.772	--	--	--	21087
900	9.02	--	--	--	--	--	9158
1200	6.6	12.95	--	--	--	--	9920

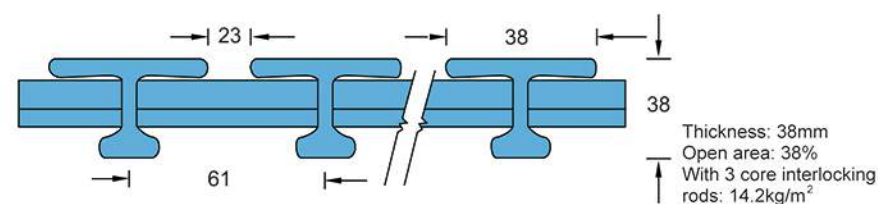


T-2515

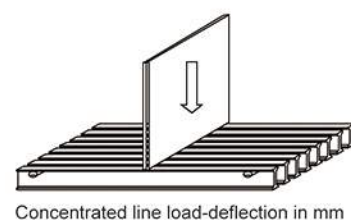
Span (mm)	Kg/m						Max load
	150	300	450	750	1500	3000	
450	<0.254	0.254	0.254	0.508	1.016	2.286	7539.4
600	0.254	0.508	0.508	1.016	2.032	4.064	6019.6
900	0.508	1.27	1.778	3.048	6.35	12.446	4023
1200	1.524	2.794	4.318	7.112	--	--	3009.8

Span (mm)	Kg/m						Max load
	450	950	1450	2400	4850	9500	
450	<0.254	0.254	0.254	0.508	1.016	2.032	16494.4
600	0.254	0.508	0.762	1.27	2.54	5.08	12346.4
900	1.27	2.286	3.556	5.842	11.684	--	8247.2
1200	3.556	7.112	10.668	--	--	--	4928.8

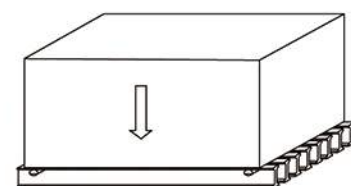




T-3815



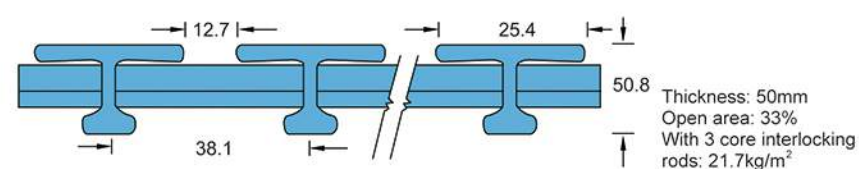
Concentrated line load-deflection in mm



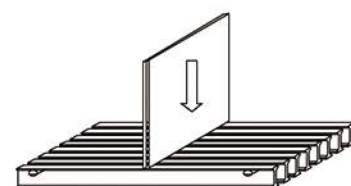
Uniform load-deflection in mm

Span (mm)	Kg/m						Max load
	150	300	450	750	1500	3000	
450	0.254	0.254	0.508	0.762	1.27	2.54	6287.8
600	0.254	0.508	0.762	1.27	2.286	4.826	5021.3
900	0.762	1.524	2.286	3.81	7.62	--	3352.5
1200	1.778	3.302	5.08	8.382	--	--	2503.2

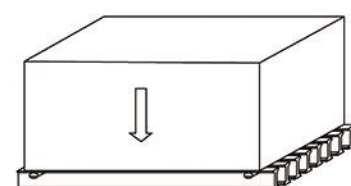
Span (mm)	Kg/m						Max load
	450	950	1450	2400	4850	9500	
450	<0.254	0.254	0.254	0.508	1.27	2.54	13712.8
600	0.254	0.508	1.01	1.524	3.048	6.096	10296.8
900	1.524	2.794	4.318	7.112	--	--	6880.8
1200	4.318	8.382	12.7	--	--	--	4099.2



T-3320



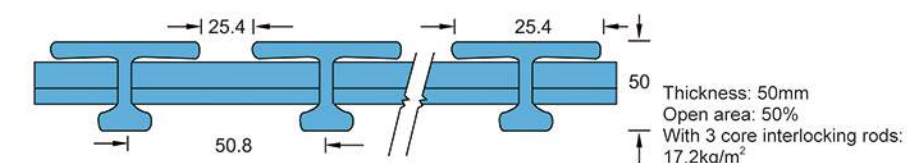
Concentrated line load-deflection in mm



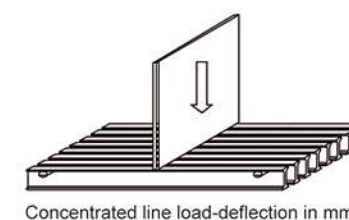
Uniform load-deflection in mm

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
600	--	0.25	0.51	1.02	1.78	3.3	16876
900	0.51	0.76	1.27	2.29	4.57	9.4	7492
1200	1.02	1.52	2.29	4.83	9.91	19.56	4215
1500	1.78	2.79	4.57	9.14	18.3	36.58	2696

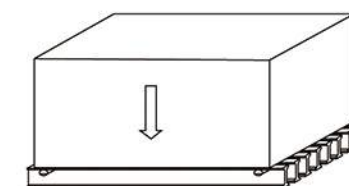
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
600	0.25	0.51	0.76	1.52	2.03	4.06	55368
900	0.76	1.52	3.05	5.59	7.73	14.99	36895
1200	2.29	4.57	9.4	--	--	--	27659
1500	5.0	9.91	--	--	--	--	22137



T-5020



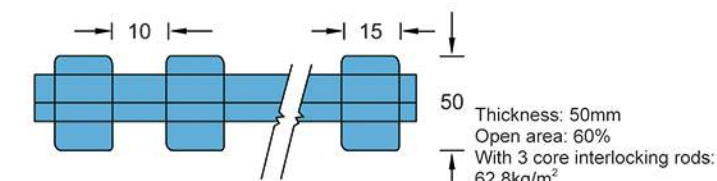
Concentrated line load-deflection in mm



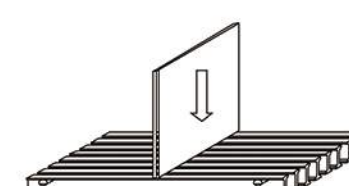
Uniform load-deflection in mm

Span (mm)	Kg/m						Max load
	300	450	750	1500	3000	5950	
600	0.25	0.51	0.76	1.27	2.29	4.57	--
900	0.76	1.27	1.78	3.3	6.1	12.19	--
1200	1.52	2.29	3.56	6.6	13.5	27.18	--
1500	2.54	3.81	6.35	12.45	24.6	49.53	--

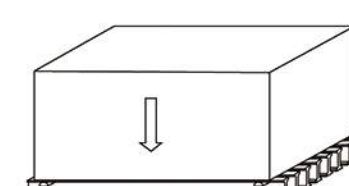
Span (mm)	Kg/m						Max load
	1000	1900	3900	7000	9500	19500	
600	0.51	0.76	1.27	2.29	3.05	6.35	--
900	1.02	2.03	3.81	6.86	9.4	--	--
1200	3.3	6.35	12.45	--	--	--	--
1500	6.86	13.46	--	--	--	--	--



HL-4020



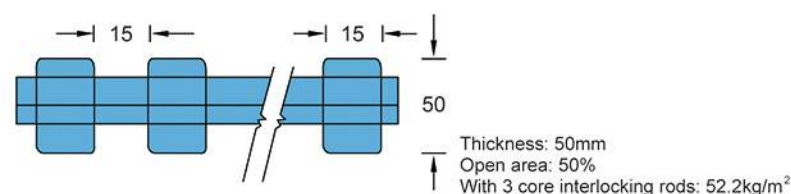
Concentrated line load-deflection in mm



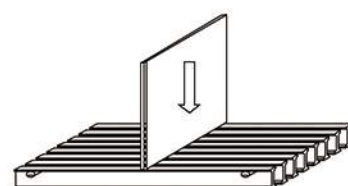
Uniform load-deflection in mm

Span (mm)	Kg/m								
	150	300	450	750	1500	3000	4500	6000	7500
600	0.03404	0.06807	0.0851	0.1532	0.3063	0.5956	0.90195	1.1914	1.4977
750	0.0511	0.1021	0.1702	0.2723	0.5446	1.0892	1.6337	2.1954	2.7399
900	0.0851	0.1872	0.2723	0.4595	0.91897	1.8379	2.7399	3.6589	4.5779
1200	0.2212	0.4255	0.7722	1.0721	2.1443	4.2885	6.4328	8.5772	10.7214

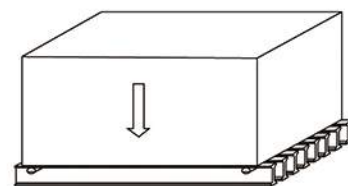
Span (mm)	Kg/m								
	450	950	1450	2450	4850	9800	14500	19500	24400
600	0.03404	0.0681	0.11913	0.1872	0.3744	0.7489	1.1232	1.4976	1.85496
750	0.0851	0.1702	0.2553	0.4255	0.8509	1.7019	2.5697	3.4206	4.2715
900	0.1702	0.3404	0.51054	0.8509	1.7188	3.4377	5.1394	6.8583	8.57707
1200	0.5446	1.07213	1.6167	2.6888	5.3607	10.7214	--	--	--



HL-5020



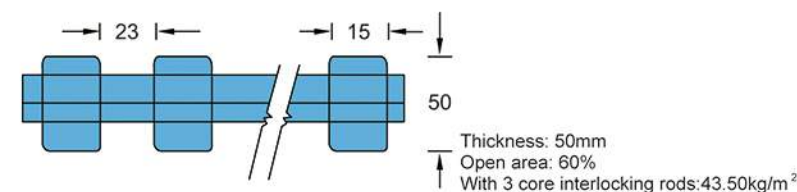
Concentrated line load-deflection in mm



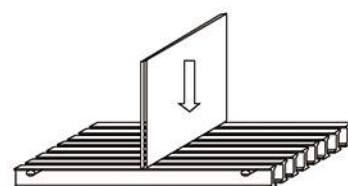
Uniform load-deflection in mm

Span (mm)	Kg/m								
	150	300	450	750	1500	3000	4500	6000	7500
600	0.0406	0.0813	0.1016	0.1829	0.3658	0.7112	1.077	1.4225	1.7883
750	0.06096	0.1219	0.2032	0.3251	0.6502	1.3005	1.9507	2.6214	3.2716
900	0.1016	0.2235	0.32512	0.5486	1.0973	2.1946	3.2715	4.3689	5.4662
1200	0.2642	0.508	0.77216	1.2802	2.5603	5.1206	7.68096	10.2414	12.8017

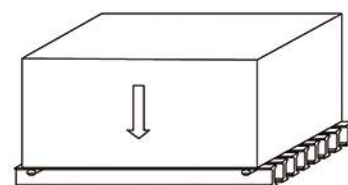
Span (mm)	Kg/m								
	450	950	1450	2450	4850	9800	14500	19500	24400
600	0.0406	0.0813	0.1422	0.2235	0.447	0.8942	1.3411	1.7881	2.2149
750	0.1016	0.2032	0.3048	0.508	1.016	2.033	3.0683	4.0843	5.1003
900	0.2032	0.4064	0.6096	1.016	2.0523	4.1047	6.1366	8.1889	10.2413
1200	0.6502	1.2802	1.9304	3.2106	6.4008	12.8017	--	--	--



HL-6020



Concentrated line load-deflection in mm



Uniform load-deflection in mm

Span (mm)	Kg/m								
	150	300	450	750	1500	3000	4500	6000	7500
600	0.0508	0.1016	0.127	0.2286	0.4572	0.889	1.3462	1.779	2.2353
750	0.0762	0.1524	0.254	0.4046	0.8128	1.6256	2.4384	3.2767	4.0895
900	0.127	0.2794	0.4064	0.6858	1.3716	2.7432	4.0894	5.462	6.8327
1200	0.3302	0.635	0.9652	1.6002	3.2004	6.4008	9.6012	12.8017	16.003

Span (mm)	Kg/m								
	450	950	1450	2450	4850	9800	14500	19500	24400
600	0.0508	0.1016	0.1778	0.2794	0.5588	1.1177	1.6764	2.2352	2.7686
750	0.127	0.254	0.381	0.635	1.27	2.55	3.8354	5.1054	6.3754
900	0.254	0.508	0.762	1.27	2.5654	5.1309	7.6708	10.2362	12.8016
1200	0.8128	1.6002	2.413	4.0132	8.001	16.003	--	--	--

Chemical resistance chart of Pultruded grating

Chemical	Type 'vinyl'		Type 'Iso'	
	%Conc.	Max. Oper. Temp	%Conc.	Max. Oper. Temp
Acetic acid	50	180/82	50	125/52
Benzonic acid	SAT	200/93	SAT	150/66
Chromate	10	120/49	5	70/21
Citric acid	ALL	200/93	ALL	170/77
Hydrobromic acid	50	120/49	50	120/49
Hydrochloric acid	37	100/38	37	75/24
Lactic acid	ALL	200/93	SAT	170/77
Nirate	20	100/38	20	70/21
Oxalic acid	ALL	120/96	ALL	75/24
Perchloric acid	30	80/27	N/R	N/R
Phosphate	100	200/93	100	120/49
Sulfuric acid	75	100/38	25	75/24
Tartaric acid	ALL	200/93	ALL	170/77
Vineger	100	200/93	100	170/77
Ammonium hydroxide	28	100/38	28	N/R
OH	100	170/77	100	160/71
borax	SAT	200/93	SAT	170/77
Ammonium oxidation	ALL	190/88	ALL	170/77
Ammonium bicarbonate	50	150/65	15	125/52
Ammonium sulfate	ALL	200/93	ALL	170/77
Calcium carbonate	ALL	180/82	SAT	170/77
Calcium nitrate	ALL	200/93	ALL	180/82
Copper chloride	ALL	200/93	ALL	170/77
Copper cyanide	ALL	200/93	ALL	170/77
Copper nitrate	ALL	200/93	ALL	170/77
Ferric chloride	ALL	200/93	ALL	170/77
Ferrous chloride	ALL	200/93	ALL	170/77
Lithium chloride	SAT	200/93	SAT	150/66
Magnesium chloride	ALL	200/93	ALL	170/77
Magnesium nitrate	ALL	180/82	ALL	150/66
Magnesium sulfate	ALL	190/88	ALL	170/77
Mercuric chloride	100	190/88	100	150/66
Calomel	ALL	180/82	ALL	140/60
Nickel chloride	ALL	200/93	ALL	170/77
Nickel sulfate	ALL	200/93	ALL	170/77
Potassium chloride	ALL	200/93	ALL	170/77
Potassium dichromate	ALL	200/93	ALL	170/77
Potassium nitrate	ALL	200/93	ALL	170/77
Potassium sulfate	ALL	200/93	ALL	170/77
Sodium acetate	ALL	200/93	ALL	160/71
Sodium bisulfate	ALL	200/93	ALL	170/77
Sodium bromide	ALL	200/93	ALL	170/77
Sodium chlorine	ALL	200/93	ALL	170/77
Sodium cyanide	25	150/66	N/R	N/R
Sodium nitrate	ALL	200/93	ALL	170/77
Sodium sulfate	ALL	200/93	ALL	170/77
Stannic chloride	ALL	200/93	ALL	170/77

Zinc nitrate	ALL	190/88	ALL	160/71
Phenoxin	100	200/93	N/R	170/77
Chlorine	...	75/24	...	N/R
Chlorine water	SAT	170/77	SAT	140/60
Ethanol	50	180/82	50	80/27
Diethylene glycol	100	90/32	100	75/24
formaldehyde	ALL	200/93	50	90/32
gasoline	100	100/38	100	75/24
glucose	100	150/65	100	80/27
Glycerol	100	200/93	100	170/77
Peroxide	30	200/93	5	150/66
Diethylpropanediol	ALL	100/38	ALL	100/38
Distilled water	100	200/93	100	170/77
Benzene	N/R	180/82	N/R	170/77

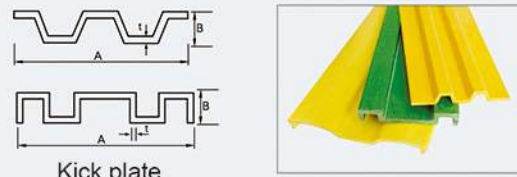
ALL-concentrations; SAT-saturated solution; N/R- not recommended; ...-no information available

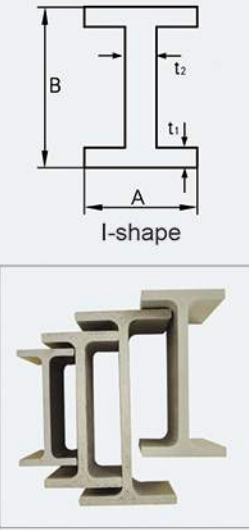
Pultruded profiles

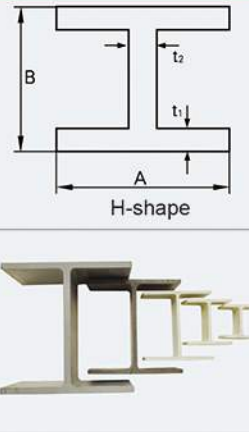


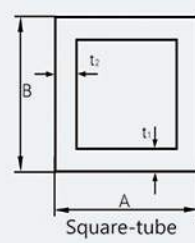
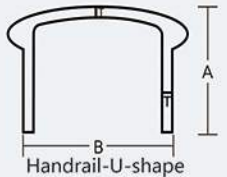
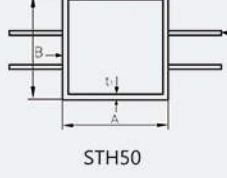
Fiberglass pultruded profiles (structural shapes) are manufactured with the pultrusion process. Glass mat and roving are draw through resin bath and pulled through a heated die to form the desired shape.

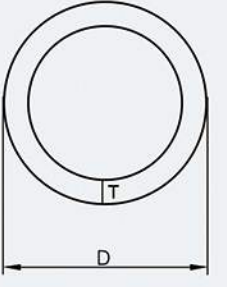
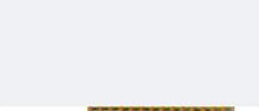
Aulland pultruded profiles are available in a wide variety of shapes, including I beam, equal angle, channel, square tube, round tube, and so on. They are dimensionally stable and easy to install.

View/instance	Type	Dimension (mm)	Weight (kg/m)
	Kick plate	A × B × T	
	M2	100×13×3.2 M-shape	1.10
	M3	100×16×5.0 M-shape	1.30
	M4	148×12×4 M-shape	1.27
	W1	100×19×5.0 W-shape	1.36
	W2	100×15×3.2 W-shape	1.10
	W3	150×15×3.2 W-shape	1.60

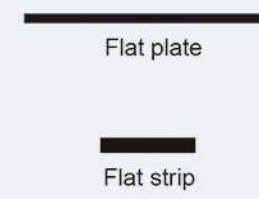
View/instance	Type	Dimension (mm)	Weight (kg/m)
	I-shape	A × B × T ₁ × T ₂	
	IB32	15×32×6.4×4.0	0.51
	IB38A	30×38×3.0×3.0	0.53
	IB45A	45×9.0×180×12.0	5.40
	IB50A	50×102×6.4×6.4	2.40
	IB50B	50×102×8.0×8.0	3.00
	IB76A	76×152×6.4×6.4	3.59
	IB76B	76×152×9.5×9.5	5.32
	IB102A	102×203×9.5×9.5	7.20
	IB102B	102×203×12.7×12.7	9.50
	IB120	120×240×12×12	10.50
	IB127A	127×254×9.5×9.5	9.00
	IB127B	127×254×12.7×12.7	11.90
	IB127C	127×152×9.5×9.5	7.10
	IB127D	127×152×12.7×12.7	9.20
	IB152A	152×305×9.5×9.5	10.74
	IB152B	152×305×12.7×12.7	14.30

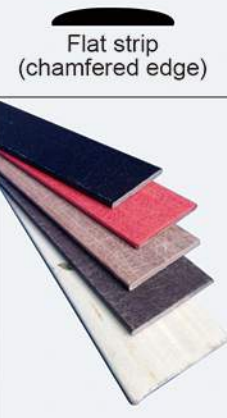
View/instance	Type	Dimension (mm)	Weight (kg/m)
	H-shape	A × B × T ₁ × T ₂	
	HB76	76×76×6.4×6.4	2.67
	HB102A	102×102×6.4×6.4	3.59
	HB102B	102×102×8.0×8.0	4.50
	HB152A	152×152×6.4×6.4	5.43
	HB152B	152×152×9.5×9.5	8.10
	HB203A	203×203×9.5×9.5	10.80
	HB203B	203×203×12.7×12.7	14.36
	HB203C	203×203×6.4×6.4	7.50
	HB254A	254×254×9.5×9.5	13.60
	HB254B	254×254×12.7×12.7	18.04
	HB305	305×305×12.7×12.7	21.50

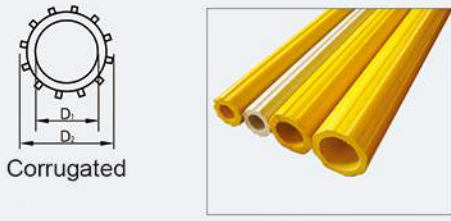
View/instance	Type	Dimension (mm)	Weight (kg/m)
 Square-tube	Square-tube	$A \times B \times T_1 \times T_2$	
	ST25A	25×25×3.2×3.2	0.53
	ST25B	25×25×6.4×6.4	0.90
	ST32A	32×32×3.2×3.2	0.70
	ST32B	32×32×6.4×6.4	1.24
	ST38A	38×38×3.2×3.2	0.85
	ST38B	38×38×5.0×5.0	1.25
	ST38C	38×38×6.4×6.4	1.54
	ST44A	44×44×3.2×3.2	1.01
	ST44B	44×44×6.4×6.4	1.83
	ST50A	50×50×3.2×3.2	1.14
	ST50B	50×50×3.5×3.5	1.24
	ST50C	50×50×4.0×4.0	1.42
	ST50D	50×50×5.0×5.0	1.74
	ST50E	50×50×6.4×6.4	2.12
	ST54A	54×54×3.2×3.2	1.24
	ST54B	54×54×4.8×4.8	1.78
	ST60A	60×60×5.0×5.0	2.10
	ST64A	64×64×3.2×3.2	1.48
	ST64B	64×64×4.4×4.4	1.97
 Handrail-U-shape	ST64C	64×64×6.4×6.4	2.80
	ST76A	76×76×3.2×3.2	1.77
	ST76B	76×76×5.0×5.0	2.70
	ST76C	76×76×6.4×6.4	3.39
	ST76D	76×76×9.5×9.5	4.89
	ST89A	89×89×6.4×6.4	3.95
	ST100A	100×100×10×10	6.80
	ST101A	101×101×3.2×3.2	2.38
	ST101B	101×101×5.0×5.0	3.61
	ST101C	101×101×6.4×6.4	4.61
 Handrail-U-shape	ST101D	101×101×8.0×8.0	5.72
	ST125A	125×125×6.4×6.4	5.90
	ST152A	152×152×6.4×6.4	7.10
	ST152B	152×152×9.5×9.5	10.4
	ST152C	152×152×12.7×12.7	13.5
	STR25	25×25×3.175×3.175	0.70
 Handrail-U-shape	STH50	$A \times B \times T$	
		62×59×4.5	1.50
		62×60×5.0	1.70
 Handrail-U-shape	STH50	$A \times B \times T_1 \times T_2$	
		50×50×6.4×5.0	3.0

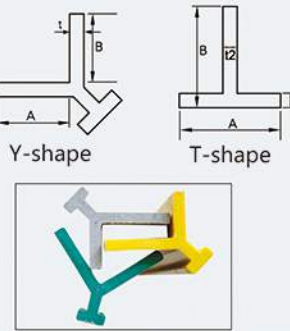
View/instance	Type	Dimension (mm)	Weight (kg/m)
 Round-tube	Round-tube	$D \times T$	
	RT25	25×3.2	0.44
	RT26A	26×3.0	0.42
	RT26B	26×4.8	0.63
	RT32A	32×3.2	0.55
	RT32B	32×5.0	0.81
	RT32C	32×6.0	0.96
	RT38A	38×3.2	0.65
	RT38B	38×4.0	0.81
	RT38C	38×5.0	1.00
	RT38D	38×6.4	1.18
	RT41	41×4.5	0.98
	RT42A	42×3.2	0.70
	RT42B	42×5.0	1.11
	RT42C	42×6.4	1.45
	RT48	48×6.4	1.58
	RT50A	50×3.2	0.84
	RT50B	50×4.0	1.10
	RT50C	50×5.0	1.34
	RT50D	50×6.4	1.67
 Round-tube	RT50E	50×3.5	0.96
	RT50.8A	50.8×6.4	1.70
	RT50.8B	50.8×3.2	0.86
	RT64A	64×3.5	1.26
	RT64B	64×6.4	2.38
	RT75	75×4.2	1.80
	RT76	76×6.4	2.64
	RT89A	89×3.2	1.54
	RT89B	89×5.0	2.51
	RT89C	89×6.4	3.13
	RT99	99×5.0	2.81
	RT101A	101×4.3	2.60
	RT101B	101×5.0	2.90
	RT101C	101×6.4	3.62
	RT114A	114×3.2	2.12
	RT114B	114×5.0	3.25
	RT114C	114×6.4	4.11
	RT114D	114×9.5	5.93
	RT139A	139×25.0	18.0
	RT140A	140×4.0	3.40
 Round-tube	RT150A	150×3.2	2.81
	RT150B	150×5.0	4.35
	RT150C	150×6.4	5.50
	RT150D	150×9.5	8.00

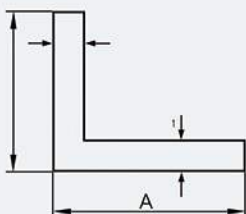
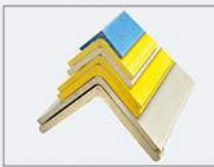


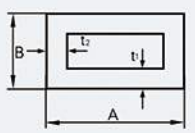
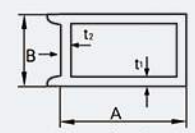
View/instance	Type	Dimension (mm)	Weight (kg/m)
	Flat plate	Thickness×width	
	FP32A	3.2×1000	6.18
	FP32B	3.2×1220	7.42
	FP40A	4.0×800	6.2
	FP40B	4.0×1200	9.19
	FP48A	4.8×1000	9.3
	FP50A	5.0×440	4.25
	FP50B	5.0×1220	11.8
	FP64A	6.4×1220	14.84
	FP95A	9.5×1220	22.02
	FP127A	12.7×1220	29.44
	FP160A	16×1220	37.2
	FP190A	19×1220	44.1
	FP254A	25.4×1220	59.0
	Flat strip	Thickness×width	
	FS19A	19×6.4	0.25
	FS19B	19×22	0.85
	FS24A	24.6×3.4	0.15
	FS25A	25.4×8.0	0.40
	FS30A	30×3.0	0.18
	FS30B	30×6.4	0.37
	FS35A	35×8.0	0.54
	FS38A	38×5.0	0.37
	FS38B	38×8.0	0.60
	FS38C	38×15.0	1.12
	FS40A	40×8.0	0.62
	FS40B	40×10.0	0.79
	FS46A	46×6.4	0.58
	FS50A	50×2.0	0.25
	FS50B	50×4.0	0.38
	FS50C	50×6.0	0.59
	FS50D	50×8.0	0.76
	FS50E	50×15.0	1.43
	FS50F	50×25.0	2.5
	FS60A	60×2.0	0.24
	FS60B	60×4.0	0.48
	FS64A	64×4.8	0.60
	FS64B	64×15	1.81
	FS70A	70×4.0	0.55
	FS76A	76×9.5	1.42
	FS76B	76×14	2.05
	FS100A	100×10.0	1.95
	FS100B	100×25.0	4.85
	FS102A	102×3.2	0.63
	FS102B	102×5.0	0.97
	FS102C	102×6.4	1.30
	FS120A	120×10.0	2.4
	FS127A	127×6.4	1.54
	FS152A	152×10.0	2.92
	FS152B	152×20.0	5.90
	FS190A	190×15.0	5.42
	FS250A	250×12.0	5.7

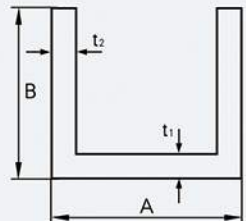
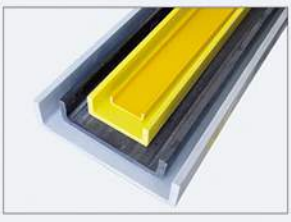
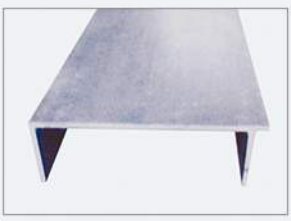
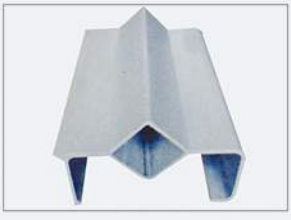
View/instance	Type	Dimension (mm)	Weight (kg/m)
	Flat strip	Thickness×width	
	FS250A	250×12.0	5.7
	FS280A	280×10.0	5.32
	FS300A	300×24.0	14.4
	FS355A	355×5.0	3.5
	FS555A	555×5.0	5.40
	FS751A	751×5.0	7.20
	FS762A	762×9.5	13.8
	FS50A(chamfered edge)	50×3.2	0.29
	FS60A(chamfered edge)	60×3.2	0.36
	FS70(chamfered edge)	70×4.0	0.54
	FS90A(chamfered edge)	90×3.2	0.54
	FS100(chamfered edge)	100×3.2	0.60
	FS120(chamfered edge)	120×3.0	0.70

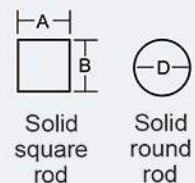
View/instance	Type	Dimension (mm)	Weight (kg/m)
	Corrugated Round Tube	$D_1 \times D_2 \times T$	
	CT32A	19×32×6.4	1.11
	CT32B	25×32×3.5	0.66
	CT32C	22×32×5.0	0.99
	CT34A	19×34×7.5	1.30
	CT42	29×42×6.4	1.35
	CT45A	28×45×8.5	1.86
	CT45B	32×45×6.4	1.10
	CT51	51×36×7.0	1.75
	CT90A	71×90×9.5	5.70

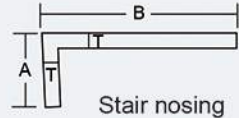
View/instance	Type	Dimension (mm)	Weight (kg/m)
	Y-shape	$A \times B \times T$	
		25×38×6.4	1.40
		38×38×6.4	1.60
		50×38×6.4	1.70
	T-shape	$A \times T1 \times B \times T2$	
		54×6.0×31×6.0	0.89
		54×5.0×45×6.0	1.03
		54×6.0×45×6.0	1.1
		60×6.0×46×6.0	1.30
		78×6.4×44.5×6.0	1.38

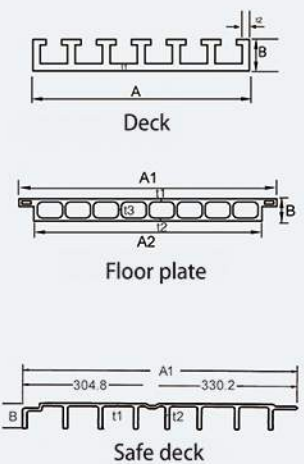
View/instance	Type	Dimension (mm)	Weight (kg/m)
 Equal angle	Equal angle	$A \times B \times T_1 \times T_2$	
	EL25A	25×25×3.2×3.2	0.33
	EL25B	25×25×6.4×6.4	0.56
	EL30A	30×30×4.0 (75°)	0.46
 L-angle	EL30B	30×30×5.0×5.0	0.57
	EL32	32×32×4.0×4.0	0.42
	EL38A	38×38×5.0×5.0	0.68
	EL38B	38×38×6.4×6.4	0.85
 L70 (Special)	EL45	45×45×4.8×4.8	0.75
	EL50A	50×50×3.2×3.2	0.62
	EL50B	50×50×6.4×6.4	1.14
	EL60	60×60×9.0×9.0	1.90
	EL76A	76×76×4.8×4.8	1.38
	EL76B	76×76×6.4×6.4	1.77
	EL76C	76×76×9.5×9.5	2.57
	EL76D	76×76×12.7×12.7	3.40
	EL101A	101×101×6.4×6.4	2.50
	EL101B	101×101×8×8	2.95
	EL101C	101×101×9.5×9.5	3.48
	EL101D	101×101×12.7×12.7	4.57
	EL152A	152×152×6.4×6.4	3.62
	EL152B	152×152×9.5×9.5	5.42
	EL152C	152×152×12.7×12.7	7.01
	L40	40×22×4.0×4.0	0.45
	L76	76×15×6.0×6.0	0.98
	L100	100×50×6.4×6.4	1.80
	L145	145×76×10×10	3.85
	L170	170×76×9.5×9.5	4.40
	L180	180×80×8.0×8.0	3.89
	L254	254×40×6.4×6.4	3.61
	L70(Special)	70×70×24×6.0	3.75

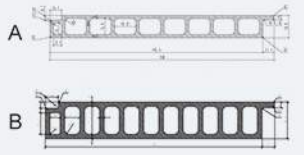
View/instance	Type	Dimension (mm)	Weight (kg/m)
 Flat tube	Flat tube	$A \times B \times T_1 \times T_2$	
	FT44	44×25×3.2×3.2	0.80
	FT50A	51×25×3.0×3.0	0.79
	FT50B	51×25×6.4×6.4	1.54
 Flat tube(stair)	FT51A (stair)	51×25×4.0×4.0	1.01
	FT51B (stair)	51×38×4.0×4.0	1.22
	FT52 (stair)	52×32×5.0×5.0	1.41
	FT76	76×35×3.0×6.0	1.55
	FT80	80×60×5.0×5.0	2.5
	FT91A	91×38×4.0×4.0	1.78
	FT112A	112×91×6.4×6.4	4.46
	FT120	120×45×3.0×3.0	2.0
	FT175	175×50×9.0×9.0	7.0

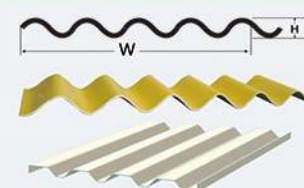
View/instance	Type	Dimension (mm)	Weight (kg/m)
 C-Channel	C-Channel	$A \times B \times T_1 \times T_2$	
	C25	25×14×3.0×3.0	0.28
	C26	26×18×3.2×3.2	0.30
	C31	31×23×4.0×4.0	0.65
	C32	32×13×3.0×3.0	0.25
	C33	33×29×4.0×4.0	0.65
	C36	36×30×4.0×4.0	0.68
	C40	40×24×3.2×3.2	0.50
	C45	45×28×6.4×6.4	1.07
	C50	50×14×3.2×3.2	0.44
	C52	52×50×6.0×6.0	1.63
	C70	70×30×4.5×4.5	0.95
	C75	75×35×5.0×5.0	1.37
	C76A	76×22×6.4×6.4	1.31
	C76B	76×38×6.4×6.4	1.70
	C80	80×40×10.0×10.0	2.70
	C90A	90×35×5.0×5.0	1.49
	C90B	90×35×8.0×8.0	2.10
	C102A	102×27×3.2×3.2	0.91
	C102B	102×29×4.8×4.8	1.45
	C102C	102×30×4.0×4.0	1.20
	C102E	102×44×4.8×4.8	1.65
	C102F	102×44×6.4×6.4	2.10
	C117	117×85×5.0×5.0	2.70
	C120A	120×25×5.0×5.0	1.52
	C120B	120×30×5.0×5.0	1.62
	C120C	120×40×5.0×5.0	1.81
	C145	145×25×5.0×5.0	1.80
	C150A	150×100×6.4×6.4	4.10
	C150B	150×80×10.0×10.0	5.50
	C152A	152×42×4.8×4.8	2.03
	C152B	152×42×6.4×6.4	2.72
	C152C	152×42×8.0×8.0	3.50
	C152D	152×42×9.5×9.5	3.95
	C152E	152×51×9.5×9.5	4.35
	C160	160×48×8.0×8.0	3.70
	C203A	203×56×6.4×6.4	3.68
	C203B	203×56×9.5×9.5	5.34
	C203C	203×102×12.7×12.7	9.20
	C210A	210×55×5.0×5.0	2.95
	C210B	210×80×5.0×5.0	3.42
	C210C	210×85×5.0×5.0	3.52
	C240A	240×72×8.0×8.0	5.70
	C240B	240×115×5.0×5.0	4.40
	C254	254×70×12.7×12.7	8.90
	C292	292×70×12.7×12.7	9.80
	C300	300×55×5.0×5.0	3.85
	C310A	310×115×5.0×5.0	5.10
	C381	381×90×10.0×10.0	10.5
	C436	436×90×10.0×10.0	11.7
	C491	491×90×12.0×10.0	14.3
	C610	610×76×6.4×6.4	9.20
	C902	902×100×10.0×10.0	20.6
	C970	970×40×10.0×10.0	19.9

View/instance	Type	Dimension (mm)	Weight (kg/m)
 Solid square rod Solid round rod	Solid square rod	A×B	
	SSR25	25×25	1.23
	SSR32	32×32	2.00
	SSR38	38×38	2.80
	Solid round rod	D	
	SRR60	6.0	0.08
	SRR95	9.5	0.14
	SRR127	12.7	0.26
	SRR254	25.4	1.00
	SRR328	31.8	1.51
	SRR380	38.0	2.15
	SRR42	4.2	0.03
	SRR80	8.0	0.10
	SRR16	16	0.41
	SRR19	19	0.55
	SRR20	20	0.62
	SRR22	22	0.72

View/instance	Type	Dimension (mm)	Weight (kg/m)
 Stair nosing	Stair nosing	A×B×T	
		9×70×3.2 (tilted egde)	0.48
		25×60×3.0	0.5
		25×50×3.0 (75°)	0.45
		30×70×4.0 (90°) (tilted egde)	0.75
		30×70×3.2 (90°) (tilted egde)	0.7
		30×90×3.0 (87°)	0.72
		38×230×3.2 (87°)	1.65
	Round angle	38×230×3.2 (90°)	1.65
		40×254×6.4 (87°)	3.55
		50×90×3.2 (90°)	0.85
		50×140×3.2 (90°)	1.19
		55×152×3.6 (87°)	1.55
		55×230×3.6 (87°)	2.14
		55×205×3.2 (90°)	1.62
		55×55×3.2 (87°)	0.8
		55×70×3.2 (87°)	0.9
		30×76×3.0	0.6
		30×76×4.0	0.8
		25×50×3.2 (87°)	0.45
		25×50×4.0 (87°)	0.51
		25×100×3.2 (87°)	0.75
	Round angle	30×75×3.5 (90°)	0.69
	Round angle	30×100×3.2 (90°)	0.8
	Square angle	30×100×3.2 (87°)	0.85
		30×152×3.2 (87°)	1.2
	Round angle	30×230×3.2 (90°)	1.6
	Square angle	30×230×3.2 (87°)	1.7
		55×300×4.0 (90°)	2.8
		55×345×4.0 (87°)	3.25
		30×381×3.2 (87°)	2.7
		55×400×3.2	2.8

View/instance	Type	Dimension (mm)	Weight (kg/m)
 Deck Floor plate Safe deck	Deck	A×T1×B×T2	
		305×6.4×47.5×6.4	8.5
		500×5.0×48.5×6.4	12.0
		500×5.0×40×5.0	9.8
	Floor plate	A1×T1×A2×T2×B×T3	
		500×6.0×450×6.0×48.5×6.0	16.4
		500×6.0×450×6.0×48.5×9.0	18.5
		650×13.0×550×13.0×98.5×12.0	52.5
		725×4.5×675×4.5×45×4.5	17.9
		A×T1×B×T2	
		605×3.2×28.7×5.0	5.8

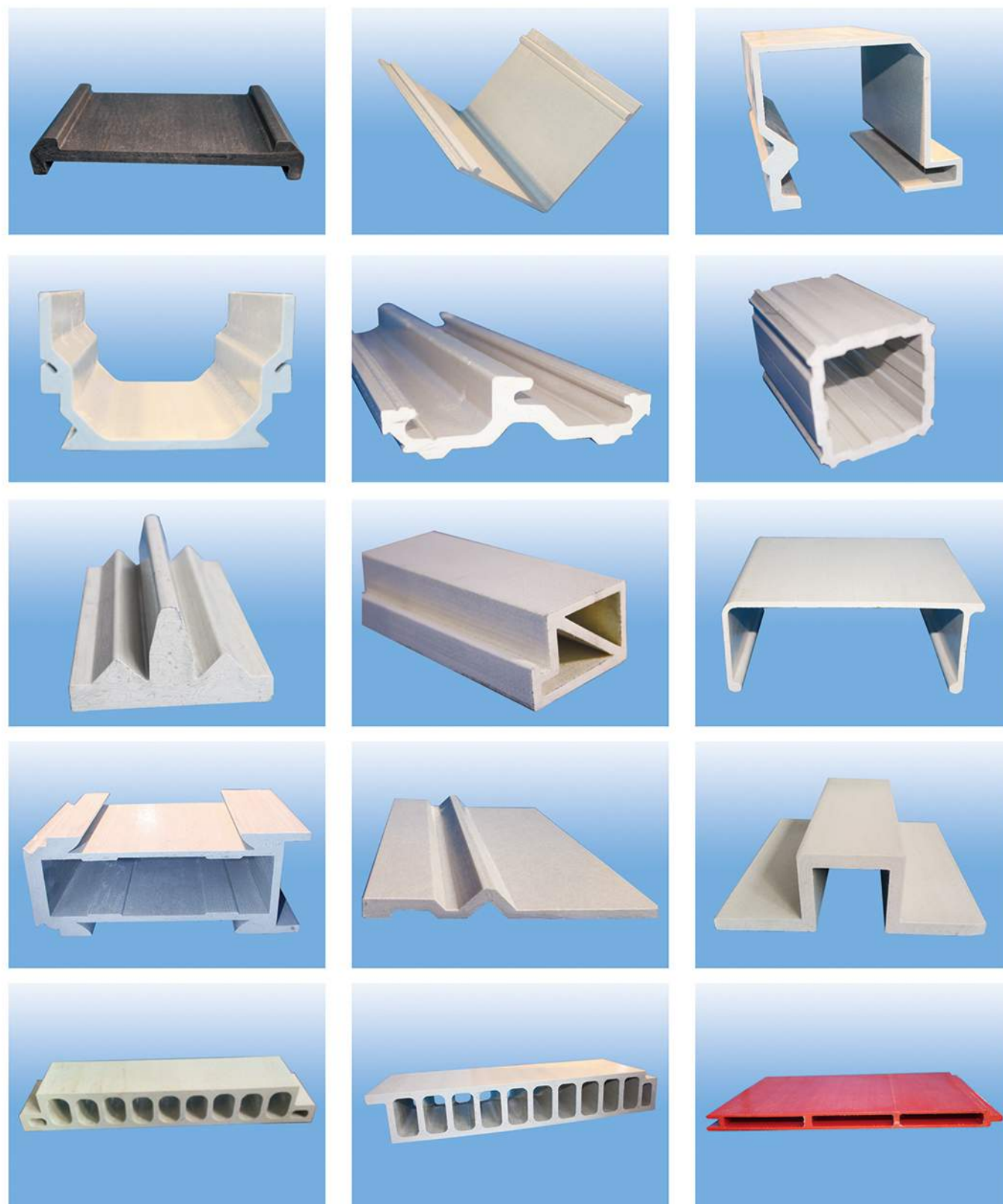
View/instance	Type	Dimension (mm)	Weight (kg/m)
 A B	FL-A	508×7.0×50.8×8.0	19.7
	FL-B	635×12.0×101.6×13.0	54.6
	FL-C	498×4.0×50×4.0	9.4
	FL-D	500×4.0×50×5.0	9.8
		50×20×4.0×4.0	0.7
		55×31×3.0×3.0	0.6

View/instance	Type	Dimension (mm)	Weight (kg/m)
 W	Roof Plate-A	1000×50.8×4	9.1
	Roof Plate-B	750×38×2.8	5.0

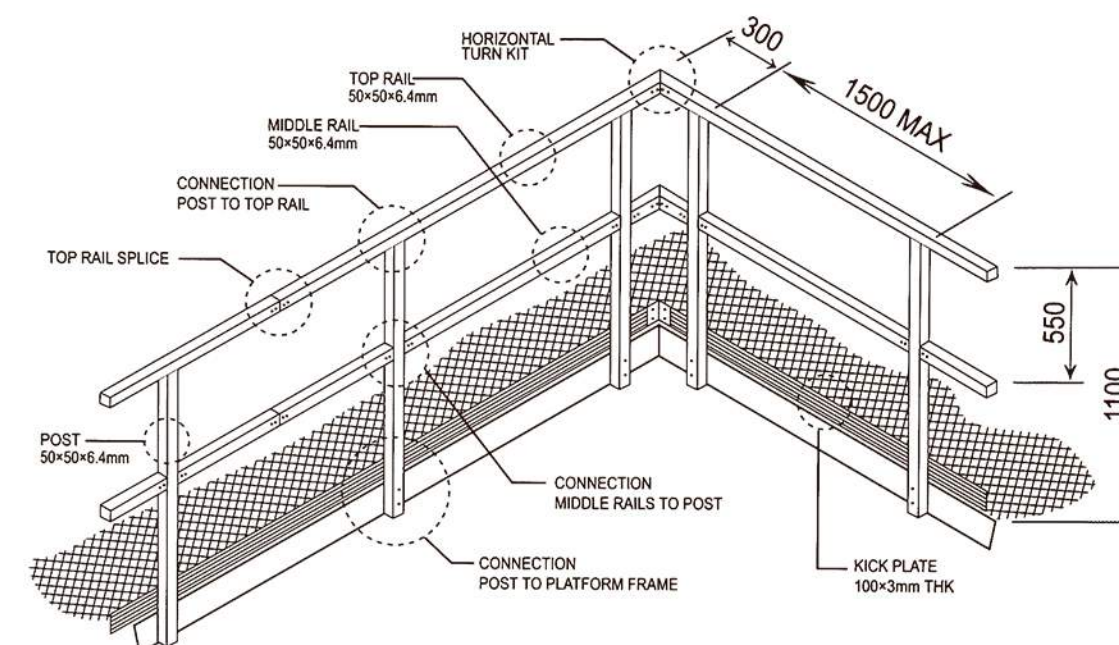
View/instance	Type	Dimension (mm)	Weight (kg/m)
	Wall Panel-A	450×4.5×150×6.0	18.2
	Wall Panel-B	1000×140×5.0	31.6

View/instance	Type	Dimension (mm)	Weight (kg/m)
	7 Holes Decking	600×8.5×56×8.0	25.4

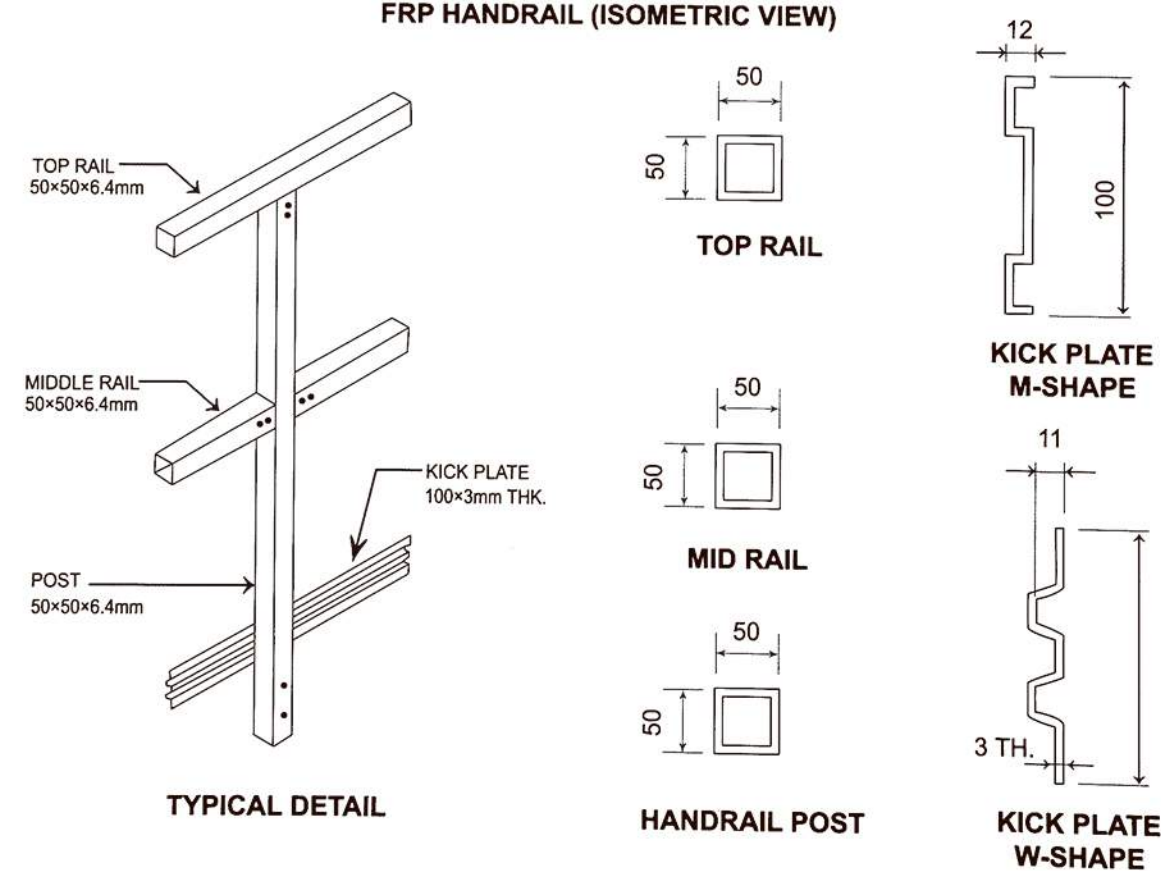
Other pultruded shapes



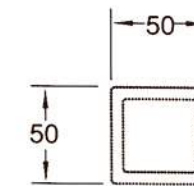
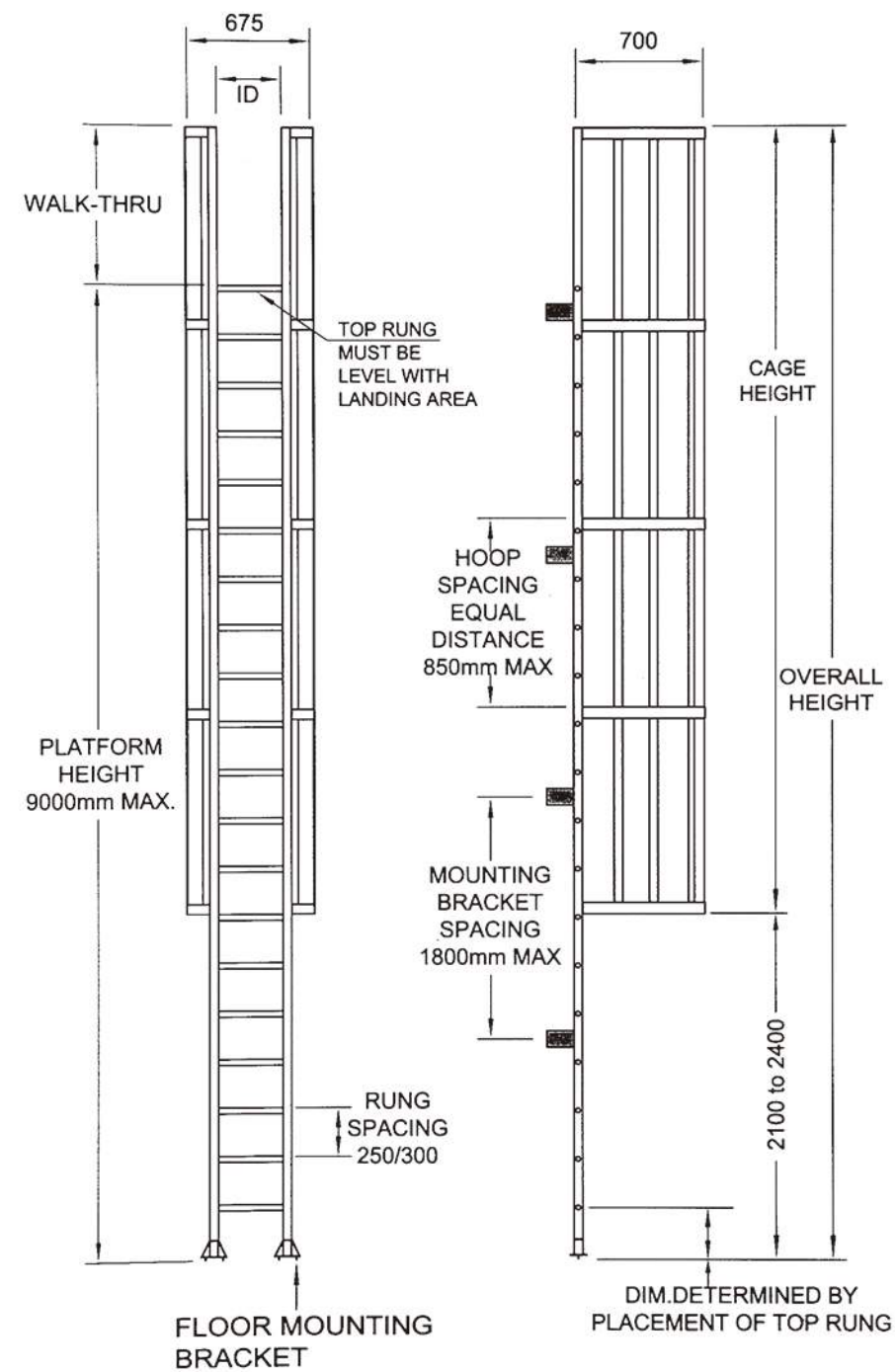
FIBERGLASS SQUARE HANDRAIL SYSTEM



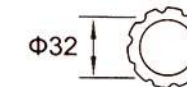
FRP HANDRAIL (ISOMETRIC VIEW)



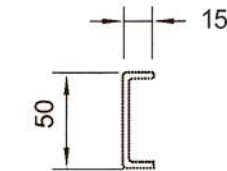
FRP SAFETY LADDER



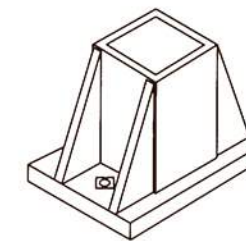
Side Rail



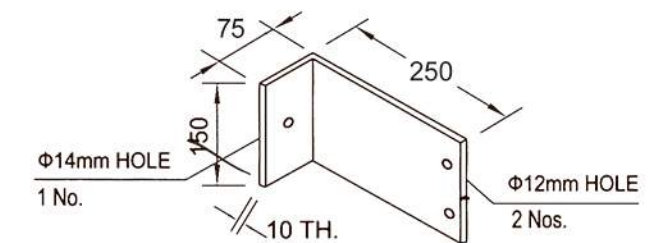
Fluted Tube (Rung)



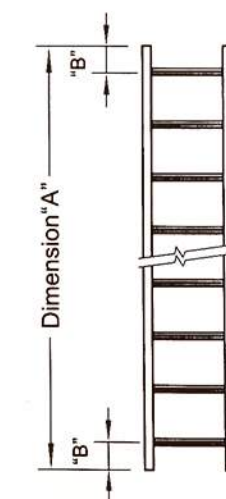
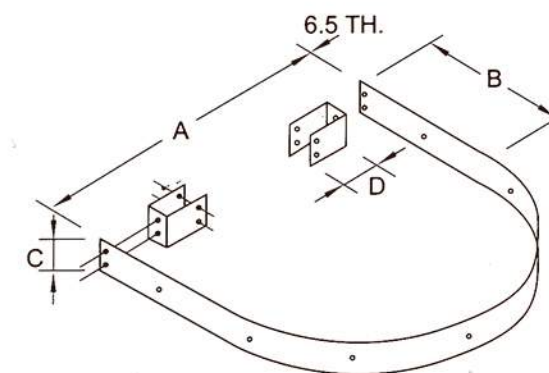
C-Channel (vertical Bar)



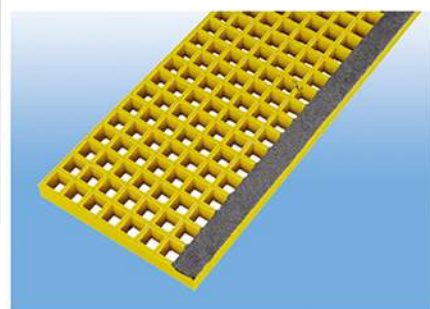
Floor Mounting Bracket



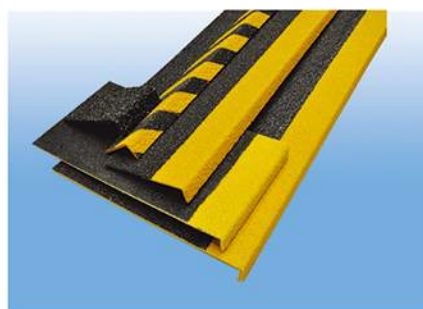
Wall Mounting Bracket



Other Products



Stair Tread



Stair Nosing



Fittings of Grating



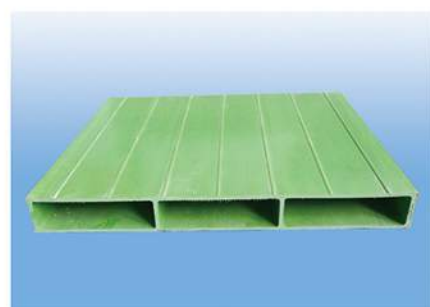
Handrail Connectors(internal)



Handrail Connectors(external)



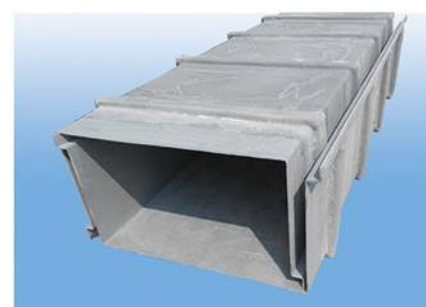
Handrail Mounting Bracket



FRP Cover



FRP trench Cover



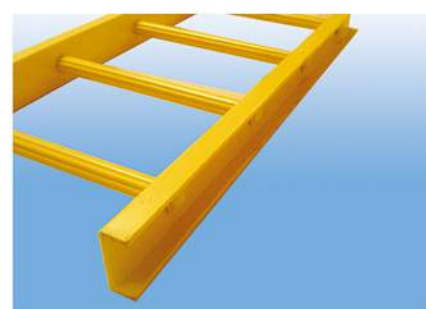
FRP Trench cover



FRP Handrail



FRP Safe Ladder



FRP Ladder

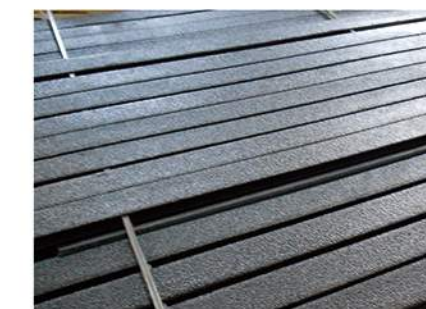
Other Products



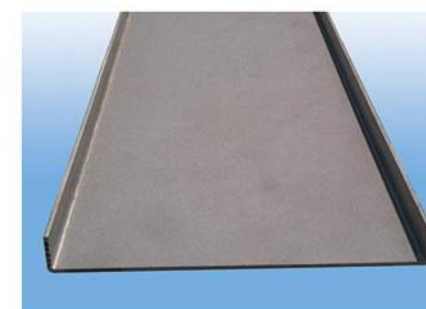
FRP Floor Plate



FRP Flat Sheet



FRP Flat Strips



Wide Channel



FRP Deck



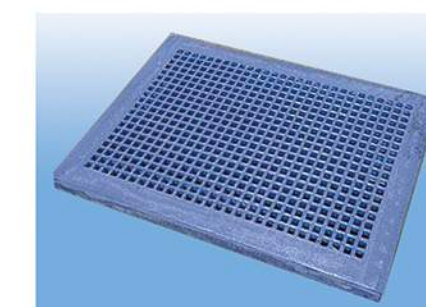
Blind Cover



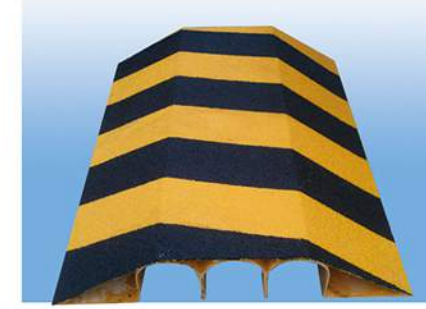
Core Tray



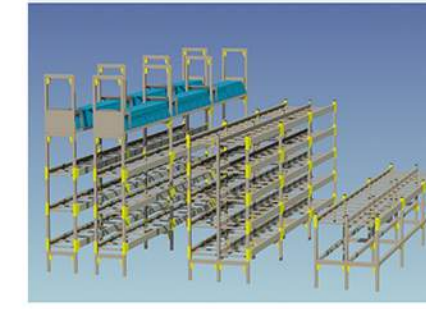
Floor Plate



Manhole Cover



Cable Cover

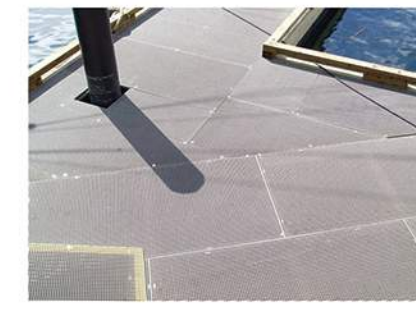


FRP Battery Rack



Fire Sand Box

Project Pictures



Test Report

No. AJHG1411003425FB

Date: DEC.10, 2014

Page 1 of 2

NANTONG AULLAND COMPOSITES CO., LTD.

FEIQIAO INDUSTRIAL ZONE, QINZAO TOWN, NANTONG CITY, JIANGSU PROVINCE, CHINA
226011

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description: FRP GRATING

Manufacturer: NANTONG AULLAND COMPOSITES CO., LTD.

Country of Origin: CHINA

Test Requested:

ASTM G154-12a Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for
Exposure of Nonmetallic Materials

Test Results: -- See attached sheet --

Test Period:

Sample Receiving Date : NOV.19, 2014

Test Performing Date : NOV.19, 2014 TO DEC.09, 2014

Signed for and on behalf of
SGS-CSTC Co., Ltd. Anji Branch



Allen Zou
Technical Manager



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.ssgroup.com.cn
中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

Test Report

No. AJHG1411003425FB

Date: DEC.10, 2014

Page 2 of 2

I. Test conducted

Test in accordance with "ASTM G154-12a Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials".

Determination changes in colour in accordance with "ISO 105-A02:1993 Cor2:2005 Textiles—Tests for colour fastness—Part A02: Grey scale for assessing change in colour"

II. Conditions

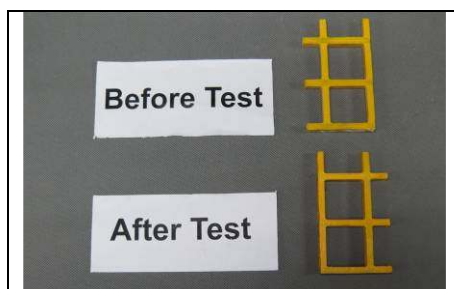
- 1) The lamp type: UVA-340
- 2) Description of exposure cycle used: Cycle 1: a. 8 hours UV at 60°C black panel temperature
b. 4 hours condensation at 50°C black panel temperature
- 3) Actual value
---Irradiance: 0.89W/ (m².nm)
---Approximate Wavelength: 340nm
- 4) Exposure period: 400 hours

III. Test Results

Specimen No.	1	2	3	4	Result
Gray scale grade	4	4	4	4	4

Note: According to ISO 105 A02, the grey scale was determined under the D65 standard light, scale 5 is the best and scale 1 is the worst.

Photo Appendix:



SGS authenticate the photo on original report only

End of Report



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

SGS-CTC Standards Technical Service Co., Ltd.
Anji Branch

No. 301, Sunlight Road, 2 Block, Sunlight Industry Zone, Anji County, Zhejiang Province, China 313300 t (86-572) 5018825 f (86-572) 5018829 www.sgs.com.cn
中国·浙江·安吉县阳光工业园二区阳光大道301号 邮编: 313300 t (86-572) 5018825 f (86-572) 5018829 e sgs.china@sgs.com

TYPE APPROVAL CERTIFICATE

This is to certify:**That the FRP Grating**

with type designation(s)
FRP Grating Model SM-38, 50 and I-6015,

Issued to

Jiangsu Aulland New Material Technology Co.,Ltd.
Nantong, JIANGSU, China

is found to comply with
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations
DNV GL offshore standards
DNV GL rules for classification – Ships

Application :

For use in locations according to enclosed Structural Fire Integrity Matrix.

Application is to be considered and accepted for each case/project.

Product approved by this certificate is accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2019-03-15**

This Certificate is valid until **2024-03-14**.

DNV GL local station: **Nantong**

Approval Engineer: **Timo Linn**



for **DNV GL**

Digitally Signed By: Kallies,
Joerg
Location: DNV GL Hamburg, Germany
Signing Date: 21.03.2019

Jörg Kallies
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Product description

"FRP Grating Model SM-38, 50 and I-6015"

Technical dimensions

Model SM-38

FRP molded grating ,IFR(ISOPHTHALIC RESIN), 1½" THICK x 1 ½" x 1 ½" SQUARE MESH

FRP molded grating, VEFR (VINYLESTER RESIN),1½" THICK x 1 ½" x 1 ½" SQUARE MESH

Model SM-50

FRP molded grating, IFR(ISOPHTHALIC RESIN), 2"THICK X 2"X 2" SQUARE MESH

FRP molded grating, VEFR (VINYLESTER RESIN), 2" THICK x 2" x 2" SQUARE MESH

Model I-6015

FRP pultruded grating, IFR(ISOPHTHALIC RESIN), I6015, 1 ½" THICK, 60% OPENING

FRP pultruded grating, VEFR(VINYL ESTER RESIN), I6015, 1 ½" THICK, 60% OPENING

Product	Structural Fire Integrity Level (ASTM F3059)	Flame Spread Index (ASTM E84)	Smoke Developed Index (ASTM E84)
Model SM-38, FRP molded grating ,IFR(ISOPHTHALIC RESIN), 1½" THICK x 1 ½" x 1 ½" SQUARE MESH	L0	15	300
Model SM-38, FRP molded grating, VEFR (VINYLESTER RESIN),1½" THICK x 1 ½" x 1 ½" SQUARE MESH	L0	5	50
Model SM-50, FRP molded grating, IFR(ISOPHTHALIC RESIN), 2"THICK X 2"X 2" SQUARE MESH	L0	15	300
Model SM-50, FRP molded grating, VEFR (VINYLESTER RESIN), 2" THICK x 2" x 2" SQUARE MESH	L0	0	35
Model I-6015, FRP pultruded grating, IFR(ISOPHTHALIC RESIN), I6015, 1 ½" THICK, 60% OPENING	L0	15	250
Model I-6015, FRP pultruded grating, VEFR(VINYL ESTER RESIN), I6015, 1 ½" THICK, 60% OPENING	L0	20	250

Application/Limitation

The FRP grating is only evaluated in accordance with fire technical requirements. Other requirements such as strength etc. has to be evaluated in each case.

For use in locations according to the below Structural Fire Integrity Matrix.

Structural Fire Integrity Matrix (ASTM F3059-15)

Location	Service	Fire Integrity
Machinery Spaces	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	L1 ₁
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	L3
Cargo Pump Rooms	All personnel walkways, catwalks, ladders, platforms or access areas	L1
Cargo Holds	Walkways or areas which may be used for escape, or access for fire fighting, emergency operation or rescue	L1
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	L0
Cargo Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	L0 ₂
Fuel Oil Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	L0
Ballast Water Tanks	All personnel walkways, catwalks, ladders, platforms or access areas	L0
Cofferdams, void spaces, double bottoms, pipe tunnels, etc.	All personnel walkways, catwalks, ladders, platforms or access areas	L0 ₅
Accommodation, service, and control spaces	All personnel walkways, catwalks, ladders, platforms or access areas	Not permitted
Lifeboat embarkation or temporary safe refuge stations in open deck areas	All personnel walkways, catwalks, ladders, platforms or access areas	L2
Open Decks or semi-enclosed areas	Operational areas and access routes for deck foam firefighting systems on tank vessels	L2
	Walkways and areas that may be used for escape, or access for firefighting systems and AFFF hose reels, emergency operation, or rescue on MODUs and production platforms including safe access to tanker bows	L2 ₄
	Walkways or areas that may be used for escape or access for fire fighting, emergency operation or rescue other than those used above	L3
	Personnel walkways, catwalks, ladders, platforms or access areas other than those described above	L3
	Gangway for safe access to bow on tankers according to IMO MSC.62(67)	L2 ₃

Footnote:

- 1) If machinery space does not contain any internal combustion machinery, other oil burning, oil heating or oil pumping units, fuel oil filling stations, or other potential hydrocarbon fire sources and has not more than 2.5 kg/m² of combustible storage, gratings of L3 integrity may be used in lieu of L1.
- 2) Gratings that are electrically conductive shall be required. Acceptance criteria for resistance per unit length and to earth is: < 0.1 M Ω to earth. Test standard ASTM D257-91, ref. DNV GL-CP-0070 "Fibre reinforced thermosetting plastic piping systems - Non-metallic materials"
- 3) Also required to be tested according to IMO 2010 FTP Code Part 5 and 2 for floor covering (IMO MSC.1/Circ.1504).
- 4) Tested with furnace temperature curve according to ASTM E119 (i.e. not tested for Hydrocarbon or Jet fire exposure).
- 5) For passenger ships required to meet the safe return to port regulations, MSC.1/Circ.1369 Interpretation No. 8 to be specially considered to determine if it is a space in which the risk of a fire originating is negligible or not.

"This Certificate does not cover testing of the FRP grating subjected to Hydrocarbon or Jet fire exposure. DNV GL recommend that for any area where FRP grating is arranged and with possible exposure to

Hydrocarbon or Jet fire, Risk Assessment is conducted to ensure that the use of FRP does not have any negative effect with respect to Escape, Safe Evacuation, Firefighting and Escalation of the original fire incident."

Each product is to be supplied with its manual for installation and maintenance.

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, September 2018.

Test reports:

- No. 181026006SHF-BP-2-R1 dated 31 January 2019,
- No. 181026006SHF-BP-1-R1 dated 31 January 2019,
- No. 181228002SHF-002 dated 22 January 2019,
- No. 181228002SHF-001 dated 22 January 2019,
- No. 181026006SHF-BP-6-R1 dated 31 January 2019,
- No. 181026006SHF-BP-5-R1 dated 31 January 2019,
- No. 181228002SHF-003 dated 22 January 2019,
- No. 181228002SHF-004 dated 22 January 2019,
- No. 181228002SHF-006 dated 22 January 2019,
- No. 181228002SHF-005 dated 22 January 2019,
- No. 181228002SHF-008 dated 22 January 2019,
- No. 181228002SHF-007 dated 22 January 2019,

all from Intertek testing Services Ltd., Shanghai, China.

Tests carried out

Tested according to ASTM E-84-16.



Job Id: **262.1-029989-1**
Certificate No: **TAF000015X**

Marking of product

Each FRP grating shall be marked as a minimum with the brand and the appropriate fire rating (L1, L2, L3 or L0). The label shall be molded into the grating or included on a permanently attached label.

Periodical assessment

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNVGL-CP-0338, Section 4.



英格尔认证

INGEER CERTIFICATION ASSESSMENT SERVICES

质量管理体系认证证书

认证编号: 117 24 QU 0097-11 R0M

兹证明: 江苏澳兰德新材料科技有限公司

统一社会信用代码: 91320691MA1MBJ8T9K

注册地址: 江苏省南通市开发区江韵路289号

经营地址: 中国江苏省南通市经济技术开发区江韵路289号

建立的管理体系符合: GB/T 19001-2016 /ISO 9001:2015 质量管理体系 要求

认证范围: 玻璃钢制品的生产、销售

核 准:



初次发证: 2024 年 11 月 12 日

有效期至: 2027 年 11 月 11 日

上海英格尔认证有限公司

国家认监委批准号: CNCA-R-2003-117

电话: 400-633-9001 / +86 021-51114700

网址: www.icasiso.com

地址: 上海市徐汇区中山西路2368号

华鼎大厦801室 200235



关注英格尔微信平台



--	--	--

第一次监督

第二次监督

第三次监督

本证书的所有权属上海英格尔认证有限公司, 证书信息及有效性可在国家认监委官方网站 (www.cnca.gov.cn) 上查询, 也可通过登录英格尔官方网站或致电英格尔客户服务部进行查询。本证书在国家规定的各行政、资质许可范围及有效期内使用有效。获证组织必须定期接受年度监督审核并经审核合格此证书方继续有效; 如获证组织未能有效维持以上管理体系, 英格尔有权收回其获证资格。



英格尔认证
INGEER CERTIFICATION ASSESSMENT SERVICES

QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certification No: 117 24 QU 0097-11 ROM

This is to certify that:
**JIANGSU AULLAND NEW MATERIAL
TECHNOLOGY CO., LTD.**

Unified social credit code: 91320691MA1MBJ8T9K

Registered Address: **No. 289, Jiangyun Road, Economic Technology
Development Zone, Nantong City, Jiangsu Province, China**

Business Address: **No. 289, Jiangyun Road, Economic Technology
Development Zone, Nantong City, Jiangsu Province, China**

The established MS conforms to: GB/T19001-2016/ISO9001:2015

Scope of approval: **Production and sales of FRP products**

Signed by: _____



First Certification: 12 Nov. 2024

Expiry Date: 11 Nov. 2027

Shanghai Ingeer Certification Assessment Co., Ltd.

Certification and Accreditation Administration of PRC: CNCA-R-2003-117

Tel: 400-633-9001 / +86 021-51114700

Web: www.icasiso.com

Add. Room 801, HuaDing Mansion, 2368# West Zhongshan Rd.,
Xuhui District, Shanghai, China, 200235



Focus on icas WeChat platform



--	--	--

First Surveillance Audit

Second Surveillance Audit

Third Surveillance Audit

The ownership of the certificate belongs to Shanghai Ingeer Certification Assessment Co., Ltd. The information & validation of this certificate can be checked on the CNCA website: WWW.CNCA.GOV.CN and ICAS website, or by calling ICAS's clients services Dept. The certificate is only valid when used together with related permits when appropriate. If the organization can't effectively maintain the above management system, ICAS has the right to withdraw the qualification certificate.



Jiangsu Aulland New Material Technology Co.,Ltd.

Product Name: FRP products

Chemical Name:Fiberglass Reinforced Plastic Products

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Description: FRP products Chemical Family: Monomer

Manufacturer' s Name: Jiangsu Aulland New Material Technology Co.,Ltd

Emergency Telephone No.: 0086-513-85671568

Address: Jiangyun Road, Development Zone, Nantong City, Jiangsu 226017, China

Person Responsible for Preparation:Jim Chan Date Prepared: 18/10/2018

24 Hour Emergency Telephone Numbers:0086-513-85671930

SECTION 2 HAZARDS IDENTIFICATION

GHS CLASSIFICATIONS

HEALTH:

SKIN IRRITATION, CATEGORY 1

SIGNAL WORD: CAUTION

HAZARD STATEMENT: I. A MANUFACTURED ITEM, WHICH IS FORMED TO A SPECIFIC SHAPE OR DESIGN DURING ITS MANUFACTURE. II. WHICH HAS END FUNCTION(S) DEPENDENT IN WHOLE OR PART UPON ITS SHAPE OR DESIGN DURING END USE AND III. WHICH DOES NOT RELEASE OR OTHERWISE RESULT IN EXPOSURE TO A HAZARDOUS CHEMICAL UNDER NORMAL CONDITIONS OF USE. IT IS THEREFORE NOT CONSIDERED A HAZARDOUS MATERIAL.

CAUTION: DUST WILL BE GENERATED IF THIS PRODUCT IS DRILLED, SANDED OR GROUND.

PRECAUTIONARY STATEMENTS

RESPONSE:

AVOID BREATHING DUST/FUME/GAS/MIST/VAPORS/SPRAY
AVOID RELEASE TO THE ENVIRONMENT
WEAR PROTECTIVE GLOVES/PROTECTIVE CLOTHING/ EYE PROTECTION/FACE PROTECTION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: SOLID MATERIAL

IMMEDIATE CONCERNS: PRODUCT AND ITS GENERATED DUST MAY

CAUSE SKIN AND EYE IRRITATION

POTENTIAL HEALTH EFFECTS

EYES: CONTACT MAY CAUSE EYE IRRITATION

SKIN: CONTACT MAY CAUSE SKIN IRRITATION

INHALATION: DUST MAY BE IRRITATING TO RESPIRATORY TRACT

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: NONE

TERATOGENIC EFFECTS: NONE

CARCINOGENICITY: NONE

MUTAGENICITY: NONE

MEDICAL CONDITIONS AGGRAVATED: BREATHING PROBLEMS

(ASSOCIATED WITH DUST) AND SKIN PROBLEMS

ROUTES OF ENTRY: INHALATION, EYES, SKIN (ASSOCIATED WITH DUST)

TARGET ORGAN STATEMENT: N/A

CANCER STATEMENT: NO DATA AVAILABLE.

SENSITIZATION: N/A

PHYSICAL HAZARDS:

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL NAME	WT. %
----------------------	--------------

STYRENE	12 - 15
---------	---------

Boiling Point: NA Specific Gravity (H₂O=1): 1.6-2.0 Vapor Pressure(mm Hg): NA Vapor Density (Air=1): NA Solubility in Water: NA Reactivity in Water: NA Appearance & Odor: NA Melting Point: NA

SECTION 4 - FIRST AID MEASURES

EYES: DO NOT RUB EYES. FLUSH WITH LUKEWARM, GENTLE FLOWING WATER FOR 5 MINUTES OR UNTIL THE PARTICLE/DUST IS REMOVED, WHILE HOLDING THE EYELID(S) OPEN. OBTAIN MEDICAL ATTENTION IF NEEDED.

SKIN: WASH WITH SOAP AND WATER

INGESTION: N/A INHALATION: IF EXPOSED TO EXCESSIVE LEVELS OF DUST, REMOVE TO FRESH AIR AND GET MEDICAL ATTENTION IF COUGH OR OTHER SYMPTOMS DEVELOP.

SIGNS OF OVEREXPOSURE

EYES: REDNESS, BURNING SENSATION, TEARING (WATERING) OF EYES.

SKIN: IRRITATION, RASH.

SKIN ABSORPTION: N/A

INGESTION: N/A

INHALATION: COUGH AND IRRITATION TO NOSE, THROAT AND LUNGS.

ACUTE TOXICITY: N/A

SECTION 5 – FIRE FIGHTING MEASURES

FLAMMABLE CLASS: IA

FLAME PROPAGATION OR BURNING RATE OF SOLIDS: SLOW. SOLID

FORM IS NOT TOXIC BY TCLP GUIDELINES.

EXTINGUISHING MEDIA: DRY CHEMICAL, CARBON DIOXIDE, OR FOAM. EXPLOSION

HAZARD: EXCESSIVE DUST BUILDUP (FROM CUTTING, GRINDING OR SANDING) HAS THE POTENTIAL TO COMBUST.

FIRE FIGHTING PROCEDURES: AS IN ANY FIRE, WEAR SCBAA (NIOSH

APPROVED OR EQUIVALENT) AND FULL PROTECTIVE GEAR.

FIRE FIGHTING EQUIPMENT: ABC FIRE EXTINGUISHER

SECTION 6 – ACCIDENTAL RELEASE MEASURES

SMALL SPILL: N/A

LARGE SPILL: N/A

ENVIRONMENTAL PRECAUTIONS: PREVENT DUST (FROM CUTTING,

GRINDING, OR SANDING) FROM ENTERING WATER SYSTEMS OR DOWN DRAINS.

SPECIAL PROTECTIVE EQUIPMENT: WEAR SAFETY GLASSES, LONG SLEEVE

SHIRT, LONG PANTS.

SECTION 7 – HANDLING AND STORAGE

GENERAL PROCEDURES: AVOID CONTACT WITH EYES, SKIN, AND CLOTHING. WEAR LEATHER GLOVES WHEN HANDLING PRODUCT.

HANDLING: AVOID CONTACT WITH EYES. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WASH THOROROUGHLY AFTER HANDLING. KEEP AWAY FROM FOOD AND DRINK.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory Protection (Specific Type): NIOSH approved dust mask

Ventilation: NA Local Exhaust: NA Mechanical (general): NA Special: NA

Protective Gloves: NA Eye Protection: Full eye protection, safety glasses or goggles

Other Protective Clothing or Equipment: Leather Gloves should be used when handling product.

Work/Hygienic Practices: Wash Hands

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: Mild, Characteristic Odor

Appearance: Solid form

Color: Various

Flash Point: N/A

Auto ignition Temperature: >420 degrees C

Vapor Pressure: N/A

Vapor Density: N/A

Boiling Point: N/A

Freezing Point: N/A

Melting Point: N/A

Thermal Decomposition: N/A

Solubility in Water: Insoluble

SECTION 10 – STABILITY AND REACTIVITY

Stable: Yes

Hazardous Polymerization: No

Polymerization: No

Conditions to Avoid: Flames

Possibility of Hazardous Reactions: N/A

Hazardous Decomposition Products: N/A

Incompatible Materials: None

SECTION 11 – TOXICOLOGICAL INFORMATION
--

Chronic: None

Sub-Chronic: None

Carcinogenicity: None

IARC: N/A

NPT: N/A

OSHA: N/A

Repeated Dose Effects: N/A

Irritation: Irritation can occur

Corrosivity: N/A

Neurotoxicity: None

Genetic Effects: None

Reproductive Effects: None

Target Organs: N/A

Teratogenic Effects: None

Mutagenicity: None

Synergistic Materials: None

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.

SOLID FRP WASTE CAN BE LANDFILLED.

ECOTOXICOLOGICAL INFORMATION: N/A

BIOACCUMULATION ACCUMULATION: N/A

DISTRIBUTION: N/A

AQUATIC TOXICITY (ACUTE): NO DATA AVAILABLE

CHEMICAL FATE INFORMATION: N/A

SECTION 13 - DISPOSAL CONSIDERATIONS

DISPOSAL METHOD

THIS PRODUCT IS A SOLID AND CAN BE DISCARDED IN A LANDFILL. THIS PRODUCT, IF DISCARDED AS A SOLID, IS NOT A FEDERAL RCRA HAZARDOUS WASTE. PROCESSING, USE OR CONTAMINATION OF THIS PRODUCT MAY CHANGE THE WASTE MANAGEMENT OPTIONS. STATE AND LOCAL DISPOSAL REGULATIONS MAY DIFFER FROM FEDERAL DISPOSAL REGULATIONS.

SECTION 14 - OTHER INFORMATION

IF ANY QUESTION OR DOUBT, PLS CONTACT US: JAY@FRPCOMPOSITES.CN



הצהרת אחריות יצרן על מוצרי אייל ציפויים בע"מ

לכבוד

חברת החשמל לישראל בע"מ

פרטי האחריות למוצרים המסופקים לחברת החשמל במסגרת שיתוף הפעולה בינינו:

מערכת רגליות EC

חומר ייצור: פוליפרופילן.
תקופת אחריות יצרן: 5 שנים.

סבכות פיברגלס

מאפיינים טכניים:
מותאמת לסביבה ימית.
אינה מוליכה חשמל.
עמידה בכימיקלים, וקרינת UV.
תקופת אחריות יצרן: 3 שנים.

נשמח לעמוד לרשותכם בכל שאלה או הבהרה נוספת.

בברכה,
טל יקוטי
מנהל מחלקת תשתיות
אייל ציפויים בע"מ

הדרך לגמר עוברת באייל ציפויים

רח' המשביר 20 חולון 58857 טלפון: 03-550-7511 פקס: 03-550-7501
20 HAMASHBIR ST. HOLON 58857 ISRAEL TEL: +972-3-550-7511 FAX: +972-3-550-7501

WWW.EYAL-ZIPUIM.CO.IL | INFO@EYAL-ZIPUIM.CO.IL