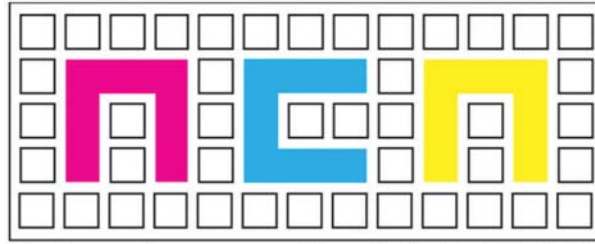


# آرین کامپوزیت آتیه (آکا)

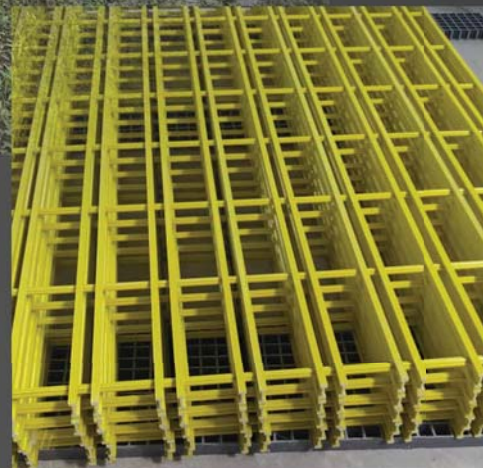


**Arian Composite Atieh (ACA)**

تولید کننده انواع قطعات کامپوزیتی

GRP/FRP

پروفیل، گریتینگ، سینی و نردبان کابل



## WHO WE ARE

ARIAN COMPOSITE ATIEH (ACACO.) is a manufacturing company specializing in composites equipment including, Fiberglass Molded Grating, Fiberglass pultruded Grating, fiberglass checker plate Grating, fiberglass cable tray and ladder and accessories. Since 2016 our goal has been to provide the best, customer-focused service in the composites industry to all customers, whether your requirement is large or small.

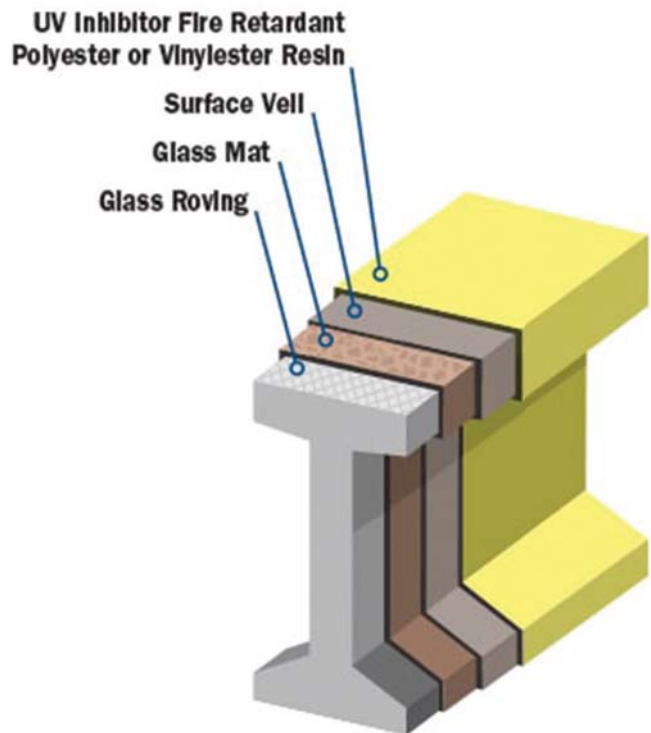
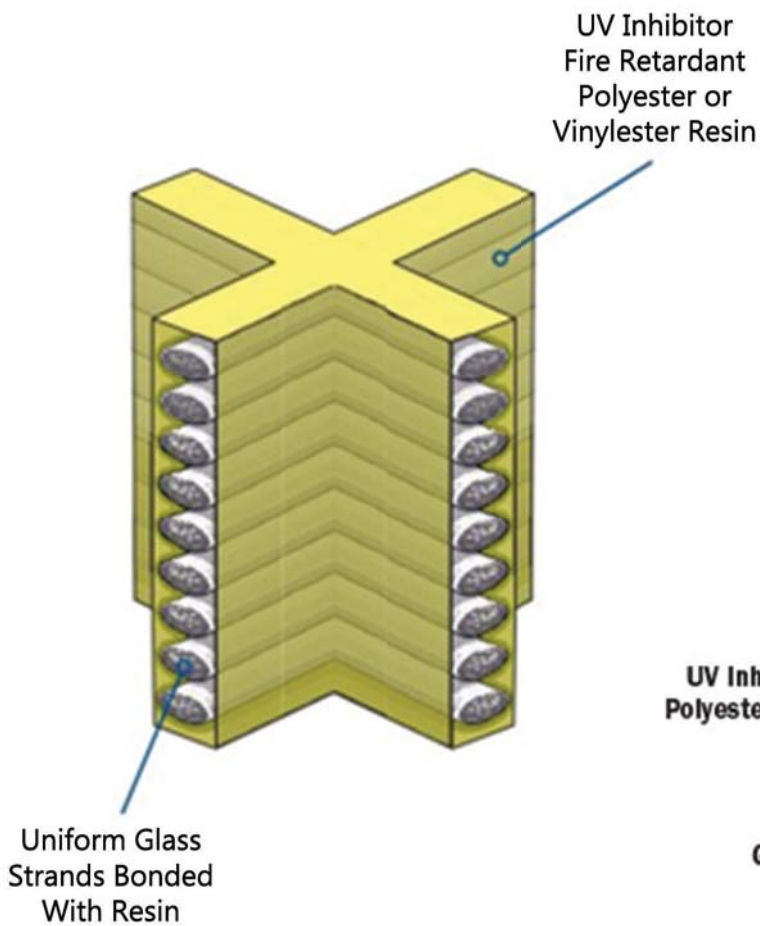
ACACO. Has three production line of molded grating and 4 production lines for pultrusion profile where located in two regions: Nogreh Deh Industrial Town Located in Gilan Province and Salafchegan Free Zone.

## MOLDED GRATING PROCESS

Molded grating is manufactured in an open, heated mold that resembles a large waffle iron. Continuous reinforcements are placed in the mold in alternating layers and thoroughly wetted out with resin. This continuous process produces an integral, one-piece construction, which offers excellent corrosion resistance as well as bi-directional strength. When the weaving process is completed, the mold is heated to cure the panel. If the grating is to have embedded grit, the mold will receive the grit at this time before the part is cured. After curing, the part is extracted from the mold. The standard part would have a meniscus (concave) top surface for slip resistance. Should a standard grit surface be specified, the grit would be bonded to the top of the completed grating panel as a secondary operation.

## MOLDED GRATING

Liquid resin and continuous fiberglass roving are systematically laid in the mold, layer after layer manually, to produce the desired thickness and panel dimensions. The finished molds are set aside for a predetermined time to allow the panel to cure. The panel is then ejected from the mold. The molds are cleaned and prepared for the process to begin again. The one piece interwoven square mesh construction of molded grating produces two primary benefits: maximum corrosion resistance and high strength.



Because the grating is "cast" in one piece, there is no mechanical joint between bearing bars. The high percentage of resin in molded grating offers superior corrosion resistance. The molded grating with a square mesh pattern offers increased load capacity and panel utilization due to this bi-directional trait. Cutting access holes in the molded grating does not weaken the panel and does not require additional or costly supports.

## APPLICATIONS OF MOLDED GRATING

- Flooring
- Platform
- Walkway
- Assembly Lines
- Trench Covers
- Stairs
- Catwalks
- Ramps
- Greenhouse Shelving
- Pool Drainage
- Portable Building floors



## MARKETS

- Chemical Industries
- Electronics
- Marine
- Oil & Gas Industries
- Petroleum Processing
- Plating
- Pulp and Paper
- Water/Wastewater
- Zoos/Aquariums
- Recreational Facilities



## DESCRIPTION



Non-slip

**Non-slip:** Composite Grating's integral grit top surface provides outstanding anti-slip protection for personnel in wet and oily environments. The grit is embedded in the top surface of each panel prior to curing. This combination of integral construction, plus depth of the embedded grit, creates a long-lasting maximum anti-slip top surface.



**corrosion resistance:** The ability of Composite grating is to guard against deterioration from industrial chemicals and environmental factors makes it a logical and cost-effective alternative to carbon steel, aluminum, wood or other conventional materials. Whether the grating is exposed to continuous submersion, splash, spills, fumes or gases, you can be assured that Composite grating will outperform other mediums.



**Fire resistance:** Composite Grating is available in various resin systems, two of which meet the Class 1 flame spread rating of 25 or less, in accordance with ASTM E-84 Tunnel Test Method. If a flame spread of 10 or less is required, it will be available in request.



**Non-Magnetic:** The non-magnetic properties allow the Composite grating to be used in sensitive installations where the inherent magnetic properties of metallic grating would prove unsuitable.



**Impact resistance:** The impact resistance of Composite Grating allows repeated deflection without permanent deformation. A certain amount of deflection can occur with loading. However, once the load is removed, the grating will return to its original shape, unlike metallic grating, which will remain deformed and require costly repairs or replacement.



**Non-sparking:** The non-sparking qualities of Composite Grating systems are ideally suited for those installations where hydrogen or other combustible gases may be found and which may explode or cause a fire from sparks produced from accidental dropping of tools onto the grating .



**Maintenance- Free:** The use of Composite Grating virtually eliminates maintenance costs since painting is not required, and UV inhibitors protect against degradation from the sun .



**Light-weight:** Composite Grating weighs about one-quarter as much as steel grating. Two men can easily handle full panels, without the need for hoists, pulleys or dollies. If the Composite Grating needs to be moved for cleaning, maintenance or utility access, there is less chance of back injuries. The lightweight design of the grating reduces installation and fabrication costs, weighing only 12 kilos per sq mtr for 25 mm and 18 kilos per sq mtr for 38 mm.



**Raised-Floor:** Many plant operations have a need for slightly elevated Floor Grating. Fixed or adjustable pedestals can be used for 600mm. Plastic insert mouldings, which applications up to a height of 7mm off the floor, are ideal for raise the Composite Grating panels allowing liquid drainage below the Grating .



**Cost-savings:** In a review of costs, Composite grating showed significant savings over the use of stainless steel grating, and when consideration is given to 'life cycle costs', combining anti-slip benefits, the saving over the use of metal grating alternatives is quite considerable.



**Low Installation cost:** Composite Grating weights considerably less than conventional metal gratings, and is easier and less expensive to transport, install and remove. Only simple hand tools are required for installation and removal, eliminating the need for costly equipment and labour costs associated with heavy lifting, cutting and welding.



**High- performance:** Composite structural Composite grating materials have demonstrated a proven ability to withstand the harsh side effects of corrosive conditions better than galvanized steel. For many years, composites have been reliably used in traditionally corrosive industries such as chemical processing, plating and marine construction. While the cost of material is an important criterion in the design of a project, it does not reflect the total cost of the project. Beyond material purchase price, the engineer also should consider the related costs of installation, maintenance over time and replacement of debilitated materials.

**Standard-bearing surface:** On most installations, a minimum of 38mm bearing support should be provided under the edges of Composite Grating panels.

**Design:** The design procedures associated with Composite Grating are entirely different from those associated with other materials. The prime consideration in designing with this reinforcement is allowable 'deflection' as opposed to ultimate 'loading' used with steel and aluminum. The reason for this is the inherent elasticity of reinforced plastic, permitting far greater deflection than steel, without the danger of structural failure. Load and deflection tables are available on request.

**Non-conductive:**The non-conductive properties make Composite Grating ideally suited for work platforms and flooring situated in electrically hazardous locations .

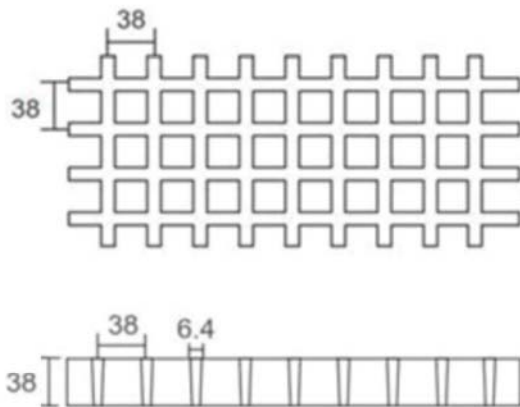
**HIGH STRENGTH-TO-WEIGHT RATIO:** Molded grating manufactured as a composite of continuous strands and high quality resin is integrally constructed for strength, it is less than one-half the weight of steel grating allowing easy removal for access below floor level and installation with no heavy equipment and less manpower. Properly installed, molded grating meet specified load requirements for steel and are more impact resistance than metal.

**Conductive-Gratings:** Composite Conductive Grating provides a specially formulated carbon, black surface, which will eliminate hazardous static electricity when properly grounded. This anti-static property is most advantageous in high-tech electronic industries where sophisticated equipment may be damaged due to static electricity. It also provides a safe environment in combustible areas by not allowing static sparks. Conductive Grating can be used in Railway Fuel Stations, Circuit Board Manufacture, Oil Refineries, Underground Mining Operations, Ammunition Factories etc .

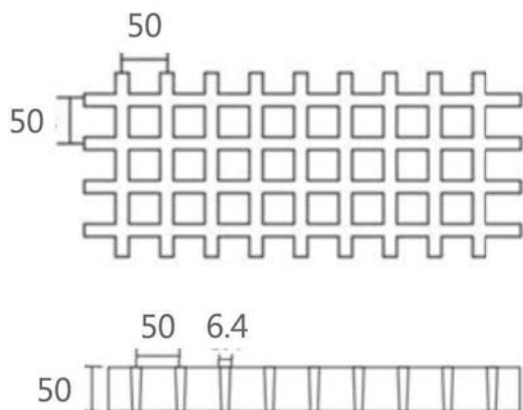


Type	Panel size (cm)	Thickness (mm)	Mesh size (mm)	Appro wt (kg/m <sup>2</sup> )
ACAMG-25	122 x 366	25	38 x 38	13
ACAMG-30	122 x 366	30	38 x 38	15
ACAMG-38	122 x 366	38	38 x 38	18
ACAMG-40	122 x 366	40	50x50	20
ACAMG-50	122 x 366	50	50 x 50	25

## ACAMG-38



## ACAMG-50



## MOLDED GRATING CHEMICAL RESISTANCE GUIDE

CHEMICAL ENVIRONMENT	VINYL ESTER		ISOPHTHALIC POLYESTER		ORTHOPTHALIC	
	% CONCENTRATION	MAX. OPEN. TEMP. F/C	% CONCENTRATION	MAX. OPEN. TEMP. F/C	% CONCENTRATION	MAX. OPEN. TEMP. F/C
Acetic Acid	50	180/82	50	125/52	25	N/R
Aluminum Hydroxide	100	170/77	100	160/71	ALL	-
Ammonium Chloride	ALL	190/88	ALL	170/77	ALL	-
Ammonium Hydroxide	28	100/38	28	N/R	ALL	-
Ammonium Bicarbonate	50	150/65	15	125/52	ALL	N/R
Ammonium Sulfate	ALL	200/93	ALL	170/77	ALL	-
Benzene	N/R	N/R	N/R	N/R	ALL	N/R
Benzoic Acid	SAT	200/93	SAT	150/65	ALL	77/25
Borax	SAT	200/93	SAT	170/77	ALL	-
Calcium Carbonate	ALL	180/82	SAT	170/77	ALL	-
Calcium Nitrate	ALL	200/93	ALL	180/82	ALL	-
Carbon Tetrachloride	100	75/24	N/R	N/R	100	N/R
Chlorine, Dry Gas	--	170/77	--	140/60	-	N/R
Chlorine Water	SAT	180/82	SAT	80/27	SAT	N/R
Chromic Acid	10	120/49	5	70/21	5	N/R
Citric Acid	ALL	200/93	ALL	170/77	ALL	77/25
Copper Chloride	ALL	200/93	ALL	170/77	ALL	104/40
Copper Cyanide	ALL	200/93	ALL	170/77	ALL	77/25
Copper Nitrate	ALL	200/93	ALL	170/77	ALL	-
Ethanol	50	90/32	50	75/24	10	77/25
Ethylene Glycol	100	200/93	100	90/32	100	104/40
Ferric Chloride	ALL	200/93	ALL	170/77	ALL	104/40
Ferrous Chloride	ALL	200/93	ALL	170/77	-	-
Formaldehyde	ALL	100/38	50	75/24	25	-
Gasoline	100	150/65	100	80/27	100	77/25
Glucose	100	200/93	100	170/77	ALL	-
Glycerin	100	200/93	100	150/65	100	-
Hydro bromic Acid	50	120/49	50	120/49	18	-
Hydrochloric Acid	37	100/38	37	75/24	10	86/30
Hydrogen Peroxide	30	100/38	5	100/38	5	N/R

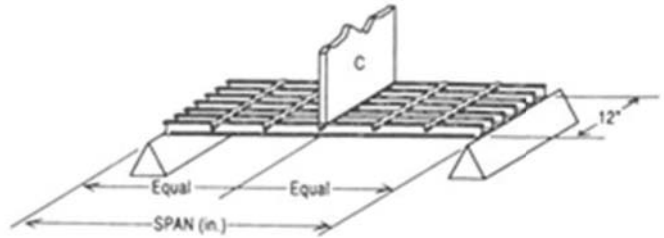
## MOLDED GRATING CHEMICAL RESISTANCE GUIDE

CHEMICAL ENVIRONMENT	VINYL ESTER		ISOPHTHALIC POLYESTER		ORTHOPTHALIC	
	% CONCENTRATION	MAX. OPEN. TEMP. F/C	% CONCENTRATION	MAX. OPEN. TEMP. F/C	% CONCENTRATION	MAX. OPEN. TEMP. F/C
Lactic Acid	ALL	200/93	ALL	170/77	ALL	77/25
Lithium Chloride	SAT	200/93	SAT	150/65	ALL	-
Magnesium Chloride	ALL	200/93	ALL	170/77	ALL	104/40
Magnesium Nitrate	ALL	180/82	ALL	140/60	ALL	86/30
Magnesium Sulfate	ALL	190/88	ALL	170/77	ALL	104/40
Mercuric Chloride	100	190/88	100	150/65	100	104/40
Mercurous Chloride	ALL	180/82	ALL	140/60	ALL	104/40
Nickel Chloride	ALL	200/93	ALL	170/77	ALL	104/40
Nickel Sulfate	ALL	200/93	ALL	170/77	ALL	104/40
Nitric Acid	20	100/38	20	70/21	2	N/R
Oxalic Acid	ALL	120/49	ALL	75/24	ALL	N/R
Per chloric Acid	30	80/27	N/R	N/R	10	N/R
Phosphoric Acid	100	200/93	100	120/49	80	N/R
Potassium Chloride	ALL	200/93	ALL	170/77	ALL	104/40
Potassium Dichromate	ALL	200/93	ALL	170/77	ALL	77/25
Potassium Nitrate	ALL	200/93	ALL	170/77	ALL	104/40
Potassium Sulfate	ALL	200/93	ALL	170/77	ALL	104/40
Propylene Glycol	ALL	200/93	ALL	170/77	ALL	104/40
Sodium Acetate	ALL	200/93	ALL	160/71	ALL	104/40
Sodium Bisulfate	ALL	200/93	ALL	170/77	ALL	-
Sodium Bromide	ALL	200/93	ALL	170/77	5	-
Sodium Cyanide	ALL	200/93	ALL	170/77	5	N/R
Sodium Hydroxide	25	150/65	N/R	N/R	1	N/R
Sodium Nitrate	ALL	200/93	ALL	170/77	ALL	104/40
Sodium Sulfate	ALL	200/93	ALL	170/77	ALL	104/40
Stannic Chloride	ALL	190/88	ALL	160/71	ALL	104/40
Sulfuric Acid	75	100/38	25	75/24	10	-
Tartaric Acid	ALL	200/93	ALL	170/77	ALL	-
Vinegar	100	200/93	100	170/77	ALL	-
Water, Distilled	100	180/82	100	170/77	ALL	86/30
Zinc Nitrate	ALL	200/93	ALL	170/77	ALL	104/40
Zinc Sulfate	ALL	200/93	ALL	170/77	ALL	104/40

## Physical Properties of Molded Grating

Property	Test Method	Units	Value
Tensile Strength	ASTM D-638	PSI	100,000
Tensile Modulus	ASTM D-638	PSI	$5.6 \times 10^6$
Flexural Strength	ASTM D-790	PSI	100,000
Flexural Modulus	ASTM D-790	PSI	$5.6 \times 10^6$
Compressive Strength	ASTM D-695	PSI	60,000
Izod Impact Notch	ASTM D-256	Ft.-Lbs./In.	40
Barcol Hardness			50 (Min.)
Specific Gravity	ASTM D-792		2
Water Absorption	ASTM D-570	Max. %	0.03
Flame Retardant	ASTM E-84		Less than 25
Flame Retardant	ASTM D-635		Self-Extinguishing

**LOAD DESCRIPTION**



**Molded GRATING (METRIC UNITS) CONCENTRATED LOAD TABLES-  
DEFLECTION IN mm**

SPAN IN (mm)	STYLE	LOAD IN KN/M OF WIDTH (CONCENTRATED)														MAXIMUM (RECOMMENDED)
		3	5	8	10	13	15	20	25	39	50	60	70	80	90	
400	38X38X25	1.2	2.0	3.2	4.1	5.3	6.1	8.1	10.1	15.8						9
	38X38X30	1.6	2.6	4.2	5.3	6.8	7.9	10.5	13.1						9	
	38X38X38	0.6	0.9	1.5	1.9	2.4	2.8	3.7	4.7	7.3	9.3	11.2	13.1	14.9	19	
	50X50X50	0.3	0.6	0.9	1.1	1.5	1.7	2.3	2.8	4.4	5.7	6.8	7.9	9.1	10.2	30
600	38X38X25	3.7	6.1	9.8	12.3	16.0									6	
	38X38X30	4.8	8.0	12.8	16.0										6	
	38X38X38	1.6	2.6	4.2	5.3	6.8	7.9	10.5	13.2						13	
	50X50X50	0.9	1.5	2.4	3.0	3.9	4.5	6.1	7.6	11.8	15.1				21	
800	38X38X25	8.5	14.2												4	
	38X38X30	11.3													3	
	38X38X38	3.5	5.9	9.5	11.8	15.4									10	
	50X50X50	1.9	3.2	5.2	6.4	8.4	9.7	12.9							12	
1000	38X38X38	6.9	11.4												7	
	50X50X50	3.7	6.1	9.8	12.2	15.9									10	
1200	38X38X38	11.8													5	
	50X50X50	6.2	10.4												8	
1400	50X50X50	9.8													5	

## NOTES:

1.The designer should not exceed MAXIMUM RECOMMENDED load at any time.

### MAXIMUM

LOAD represents a 2:1 factor of safety on ULTIMATE CAPACITY.

2.ULTIMATE CAPACITY represents a complete and total failure of the grating.

3.Walking loads, typically 2.4 KN/M<sup>2</sup> is recommended for pedestrian traffic. Deflections for worker comfort are typically limited to or SPAN divided by 120 under full live load.

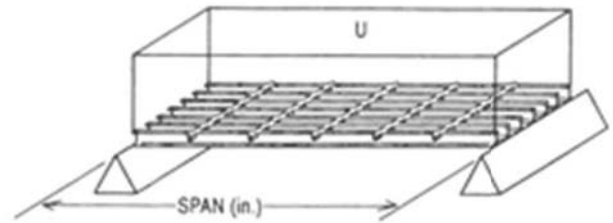
For a firmer feel under full live load or a 3.6 KN/M load, limit deflection to 6mm or SPAN divided by 200.

4.The allowable loads are for STATIC LOAD CONDITIONS at ambient temperatures. Allowable loads for impact or dynamic loads should be a maximum of ONE-HALF the value shown.

Long term loads will result in added deflection due to creep in the material and will also require higher safety factors to ensure acceptable performance.

5.For applications at elevated temperatures, consult your manufacture .

LOAD DESCRIPTION



MOLDED GRATING (METRIC UNITS)  
UNIFORM LOAD TABLES-DEFLECTION IN mm

SPAN IN (mm)	STYLE	LOAD IS $KN/M^2$ WIDTH (UNIFORM)														MAXIMUM (RECOMMENDED)
		3	5	8	10	13	15	20	25	39	50	60	70	80	90	
400	38X38X25	0.3	0.5	0.8	1.0	1.3	1.5	2.0	2.5	4.0	5.1	6.1	7.1	8.1	9.1	48
	38X38X30	0.4	0.7	1.1	1.3	1.7	2.0	2.6	3.3	5.1	6.6	7.9	9.2	10.5	11.8	48
	38X38X38	0.1	0.2	0.4	0.5	0.6	0.7	0.9	1.2	1.8	2.3	2.8	3.3	3.7	4.2	100
	50X50X50	0.1	0.1	0.2	0.3	0.4	0.4	0.6	0.7	1.1	1.4	1.7	2.0	2.3	2.6	154
600	38X38X25	1.4	2.3	3.7	4.6	6.0	6.9	9.2	11.5							20
	38X38X30	1.8	3.2	4.8	6.0	7.8	9.0	12.0	15.0							20
	38X38X38	0.6	1.0	1.6	2.0	2.6	3.2	3.9	4.9	7.7	9.9	11.8	13.8	15.8		45
	50X50X50	0.3	0.6	0.9	1.1	1.5	1.7	2.3	2.8	4.4	5.7	6.8	8.0	9.1	10.2	73
800	38X38X25	4.3	7.1	11.3	14.2											10
	38X38X30	5.7	9.5	15.1												9
	38X38X38	1.8	3.0	4.7	5.9	7.7	8.9	11.8	14.8							26
	50X50X50	0.1	0.2	0.3	0.3	0.4	0.5	0.7	0.8	1.3	1.6	2.0	2.3	2.6	2.9	35
1000	38X38X25	10.4														6
	38X38X30	13.9														5
	38X38X38	4.3	7.1	11.4	14.3											14
	50X50X50	2.3	3.8	6.1	7.7	9.9	11.5	15.3								21
1200	38X38X38	8.9	14.8													9
	50X50X50	4.7	7.8	12.5	15.6											14
1400	50X50X50	8.5	14.2													8

## NOTES:

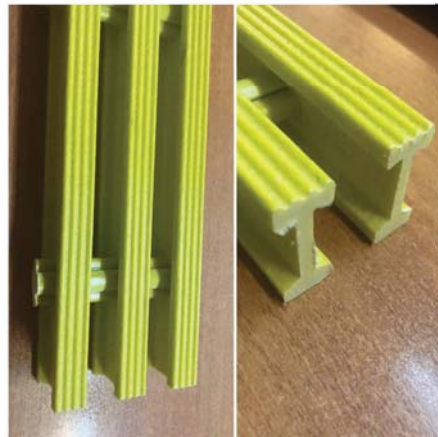
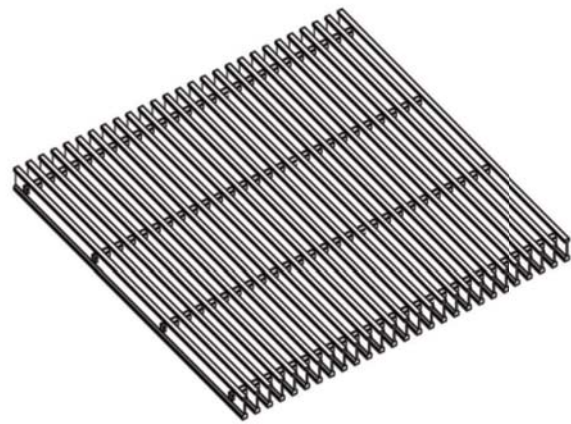
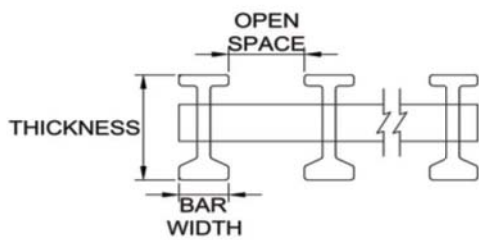
- 1.The designer should not exceed MAXIMUM RECOMMENDED load at any time. MAXIMUM LOAD represents a 2:1 factor of safety on ULTIMATE CAPACITY.
- 2.ULTIMATE CAPACITY represents a complete and total failure of the grating.
- 3.Walking loads, typically 2.4 KN/M<sup>2</sup> is recommended for pedestrian traffic. Deflections for worker comfort are typically limited to 9mm or SPAN divided by 120 under full live load For a firmer feel under full live load or a 3.6 KN/M load, limit 6mm or SPAN divided by 200 deflection to.
- 4.The allowable loads are for STATIC LOAD CONDITIONS at ambient temperatures. Allowable loads for impact or dynamic loads should be a maximum of ONE-HALF the value shown. Long term loads will result in added deflection due to creep in the material and will also require higher safety factors to ensure acceptable performance.
- 5.For applications at elevated temperatures, consult your manufacture.

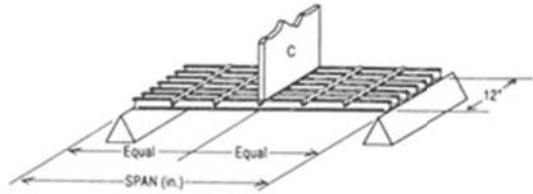


# FIBERGLASS PULTRUDED GRATING

## PULTRUDED GRATING SELECTION

TYPE	THICKNESS (mm)	BAR WIDTH (mm)	OPEN SPACE (mm)	OPEN AREA (%)	APPRO. WT. (kg/m <sup>2</sup> )
ACAPG38 I-6000	38	15	23	60	18
ACAPG38 I-5000	38	15	15	50	20
ACAPG38 I-4000	38	15	10	40	24

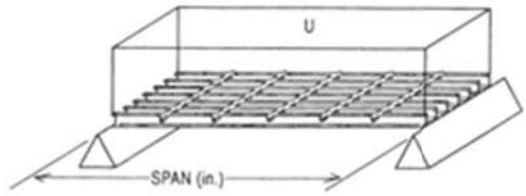




**PULTRUDED GRATING (METRIC UNITS)**

**CONCENTRATED LOAD TABLES – DEFLECTION IN mm**

SPAN IN (mm)	STYLE	LOAD IN KN/m OF WIDTH (CONCENTRATED)														MAXIMUM RECOMMENDED
		3	5	8	10	13	15	20	25	39	50	100	150	200	250	
400	1" I-60	0.4	0.6	1.0	1.3	1.7	1.9	2.6	3.2	5	6.4	12.8				56
	1" I-40	0.3	0.4	0.7	0.9	1.1	1.3	1.7	2.1	3.3	4.3	8.5	12.8			83
	1 1/2" I-60	0.2	0.3	0.5	0.6	0.7	0.8	1.1	1.4	2.2	2.8	5.6	8.4	11.3	14.1	76
	1 1/2" I-40	0.1	0.2	0.3	0.4	0.5	0.6	0.8	0.9	1.5	1.9	3.8	5.6	7.5	9.4	114
	2" T-50	0.1	0.2	0.3	0.4	0.5	0.6	0.8	1.0	1.6	2.1	4.1	6.2	8.3	10.3	79
	2" T-33	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.8	1.2	1.5	3.1	4.7	6.2	7.6	138
600	1" I-60	1.0	1.7	2.8	3.5	4.5	5.2	7.0	8.7	13.6						41
	1" I-40	0.7	1.2	1.9	2.3	3.0	3.5	4.7	5.8	9.1	11.7					62
	1 1/2" I-60	0.4	0.7	1.1	1.4	1.8	2.1	2.8	3.5	5.4	7.0	13.9				51
	1 1/2" I-40	0.3	0.5	0.7	0.9	1.2	1.4	1.9	2.3	3.6	4.6	9.3	13.9			78
	2" T-50	0.3	0.5	0.7	0.9	1.2	1.4	1.8	2.3	3.6	4.6	9.2	13.8			79
	2" T-33	0.2	0.3	0.6	0.7	0.9	1.0	1.4	1.7	2.7	3.4	6.9	10.3	13.8		105
800	1" I-60	2.3	3.9	6.2	7.7	10.0	11.6	15.4								33
	1" I-40	1.5	2.6	4.1	5.2	6.7	7.7	10.3	12.9							50
	1 1/2" I-60	0.9	1.5	2.4	2.9	3.6	4.4	5.9	7.4	11.5	14.7					41
	1 1/2" I-40	0.6	1.0	1.6	2.0	2.6	2.9	3.9	4.9	7.7	9.8					61
	2" T-50	0.5	0.9	1.4	1.8	2.4	2.7	3.6	4.5	7.1	9.0					63
	2" T-33	0.4	0.7	1.1	1.4	1.8	2.0	2.7	3.4	5.3	6.8	13.6				85
1000	1" I-60	4.4	7.3	11.7	14.7											25
	1" I-40	2.9	4.9	7.8	9.8	12.7	14.7									38
	1 1/2" I-60	1.6	2.7	4.4	5.5	7.1	8.2	10.9	13.7							33
	1 1/2" I-40	1.1	1.8	2.9	3.7	4.7	5.5	7.3	9.1	14.2						50
	2" T-50	1.0	1.7	2.7	3.3	4.3	5.0	6.6	8.3	13.0						50
	2" T-33	0.7	1.2	2.0	2.5	3.2	3.7	5.0	6.2	9.7	12.5					67
1200	1" I-60	7.5	12.4													21
	1" I-40	5.0	8.3	13.3												31
	1 1/2" I-60	2.8	4.7	7.5	9.3	12.1	14.0									26
	1 1/2" I-40	1.9	3.1	5.0	6.2	8.1	9.3	12.5	15.6							39
	2" T-50	1.7	2.8	4.4	5.5	7.2	8.3	11.0	13.8							33
	2" T-33	1.2	2.1	3.3	4.1	5.4	6.2	8.3	10.4							44
1400	1 1/2" I-60	4.4	7.4	11.8	14.8											19
	1 1/2" I-40	3.0	4.9	7.9	9.9	12.8	14.8									29
	2" T-50	2.6	4.3	6.8	8.5	11.1	12.8									31
	2" T-33	1.9	3.2	5.1	6.4	8.3	9.6	12.8	16.0							42
1600	1 1/2" I-60	6.6	11.0													15
	1 1/2" I-40	4.4	7.3	11.7	14.7											24
	2" T-50	3.8	6.3	10.1	12.6											26
	2" T-33	2.8	4.7	7.6	9.5	12.3	14.2									35



**PULTRUDED GRATING (METRIC UNITS)**  
**UNIFORM LOAD TABLES – DEFLECTION IN mm**

SPAN IN (mm)	STYLE	LOAD IN KN/SQ m (UNIFORM)														MAXIMUM RECOMMENDED
		3	5	8	10	13	15	20	25	39	50	100	150	200	250	
400	1" I-60	0.1	0.2	0.3	0.3	0.4	0.5	0.6	0.8	1.2	1.6	3.2	4.8	6.4	8.0	279
	1" I-40	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.5	0.8	1.1	2.1	3.2	4.3	5.3	419
	1 1/2" I-60	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	0.7	1.4	2.1	2.8	3.5	383
	1 1/2" I-40	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.5	0.9	1.4	1.9	2.3	574
	2" T-50	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.5	1.0	1.5	2.1	2.6	520
	2" T-33	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.8	1.2	1.6	1.9	694
600	1" I-60	0.4	0.7	1.0	1.3	1.7	2.0	2.6	3.3	5.1	6.6	13.1				138
	1" I-40	0.3	0.4	0.7	0.9	1.1	1.3	1.8	2.2	3.4	4.4	8.8	13.1			207
	1 1/2" I-60	0.2	0.3	0.4	0.5	0.7	0.8	1.0	1.3	2.0	2.6	5.2	7.8	10.4	13.0	173
	1 1/2" I-40	0.1	0.2	0.3	0.3	0.5	0.5	0.7	0.9	1.4	1.7	3.5	5.2	7.0	8.7	259
	2" T-50	0.1	0.2	0.3	0.3	0.4	0.5	0.7	0.9	1.3	1.7	3.4	5.2	6.9	8.6	264
	2" T-33	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.6	1.0	1.3	2.6	3.9	5.2	6.4	353
800	1" I-60	1.2	1.9	3.1	3.9	5.0	5.8	7.7	9.6	15.1						85
	1" I-40	0.8	1.3	2.1	2.6	3.4	3.9	5.2	6.4	10.1	12.9					126
	1 1/2" I-60	0.4	0.7	1.2	1.5	1.9	2.2	2.9	3.7	5.7	7.4	14.7				103
	1 1/2" I-40	0.3	0.5	0.8	1.0	1.3	1.5	2.0	2.5	3.8	4.9	9.8	14.7			155
	2" T-50	0.3	0.5	0.7	0.9	1.2	1.4	1.8	2.3	3.5	4.5	9.0	13.6			160
	2" T-33	0.0	0.3	0.5	0.7	0.9	1.0	1.4	1.7	2.7	3.4	6.8	10.2	13.6		214
1000	1" I-60	2.8	4.6	7.3	9.2	11.9	13.8									51
	1" I-40	1.8	3.1	4.9	6.1	8.0	9.2	12.3	15.3							77
	1 1/2" I-60	1.0	1.7	2.7	3.4	4.4	5.1	6.8	8.6	13.3						67
	1 1/2" I-40	0.7	1.1	1.8	2.3	3.0	3.4	4.6	5.7	8.9	11.4					100
	2" T-50	0.6	1.0	1.7	2.1	2.7	3.1	4.2	5.2	8.1	10.4					101
	2" T-33	0.5	0.8	1.2	1.6	2.0	2.3	3.1	3.9	6.1	7.8	15.6				135
1200	1" I-60	5.6	9.3	14.9												35
	1" I-40	3.7	6.2	9.9	12.4											52
	1 1/2" I-60	2.1	3.5	5.6	7.0	9.1	10.5	14.0								43
	1 1/2" I-40	1.4	2.3	3.7	4.7	6.1	7.0	9.3	11.7							66
	2" T-50	1.2	2.1	3.3	4.1	5.4	6.2	8.3	10.3							55
	2" T-33	0.9	1.6	2.5	3.1	4.0	4.7	6.2	7.8	12.1	15.5					75
1400	1 1/2" I-60	3.9	6.5	10.4	12.9											28
	1 1/2" I-40	2.6	4.3	6.9	8.6	11.2	13.0									42
	2" T-50	2.2	3.7	6.0	7.4	9.7	11.2	14.9								45
	2" T-33	1.7	2.8	4.5	5.6	7.3	8.4	11.2	14.0							60
1600	1 1/2" I-60	6.6	11.0													19
	1 1/2" I-40	4.4	7.3	11.7	14.7											29
	2" T-50	3.8	6.3	10.1	12.6											33
	2" T-33	2.8	4.7	7.6	9.5	12.3	14.2									45

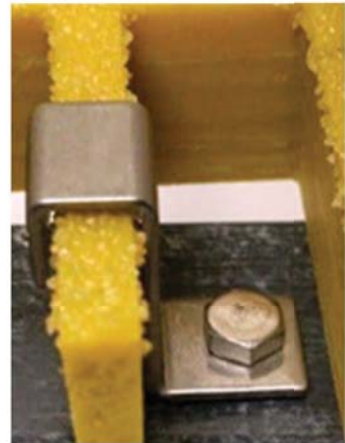
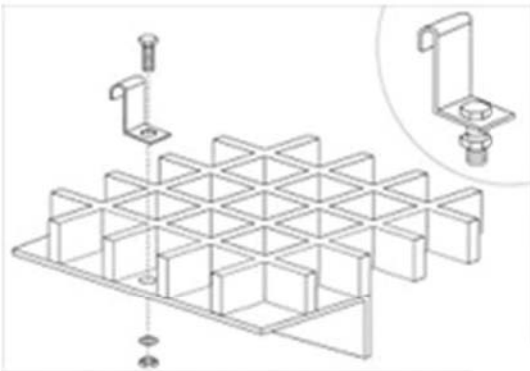
## PULTRUDED and MOLDED GRATING FASTENERS

Type "M" stainless steel hold down clips used to secure panels to a support.

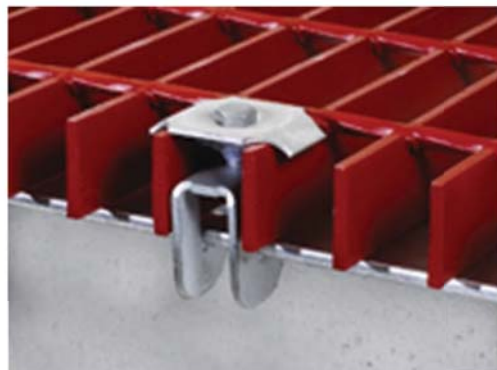
using two adjacent grating bars for a secure fit.



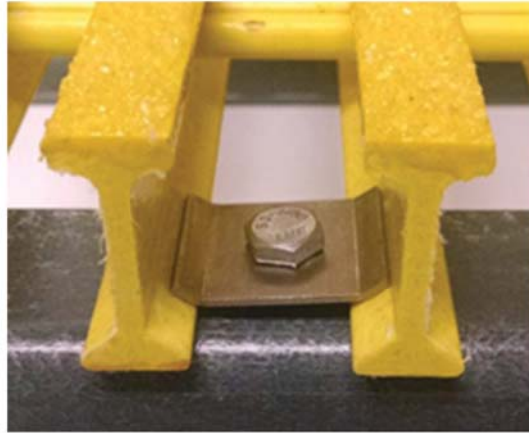
Type "L" Clip-For use in securing grating to support frames.



Type "G" stainless steel hold clips designed to attach grating to any structural member flange 3/4 or smaller in thickness, with no drilling required.



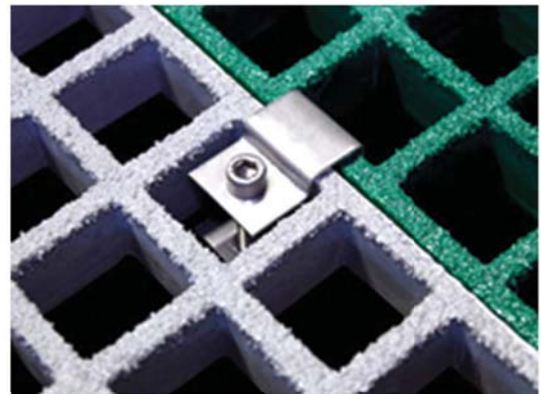
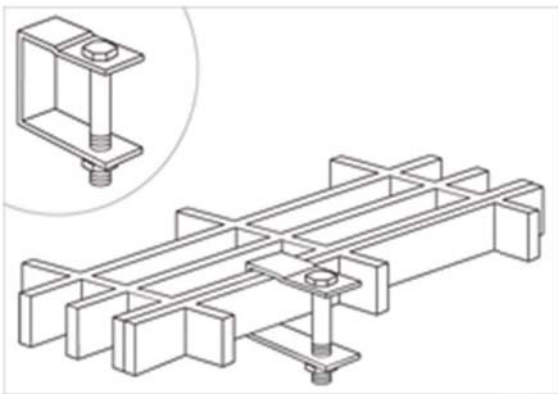
Type "FB" stainless steel flange blocks fit inside close mesh products allowing for installation of cap screws from the top surface of the grating.



Type "RK" stainless steel fasteners offer effective and more secure means for installing pultruded grating.



Type "C" clips are used to join two pultruded gratings laid beside.



## STANDARDS OF FRP COMPOSITES

The Following Standards are used in composite productions:

STANDARDS REFERENCES	APPLIED FOR
ASTM C-177-85	Heat Flux
ASTM D-149-87	Dielectric Strength
ASTM D-229-86	Testing Rigid Sheet for Electrical Insulation (Ladder)
ASTM D-256-87	Impact Resistance
ASTM D-495-84	Electrical Resistance
ASTM D-570-81	Water Absorption
ASTM D-635-81	Flammability
ASTM D-638-87b	Tensile Strength
ASTM D-695-85	Compressive Strength
ASTM D-696-79	Thermal Expansion
ASTM D-709-87	Specifications for Laminated Thermosetting Materials
ASTM D-732-85	Shear Strength by Punch
ASTM D-790-86	Flexural Strength
ASTM D-792-86	Specific Gravity
ASTM D-953-87	Bearing Strength
ASTM D-1499-84	Weathering
ASTM D-1505-85	Density
ASTM D-2344-89	Interlinear Short Beam Shear Strength
ASTM D-2583-87	Hardness
ASTM D-2584-85	Ignition Loss
ASTM D-3647-84	Classifying Pultruded Shapes
ASTM D-3846-85	In-plane Shear Strength
ASTM D-3914-84	In Plane Shear
ASTM D-3916-84	Tensile
ASTM D-3917-88	Dimensional Tolerances
ASTM D-3918-80	Pultrusion Terms
ASTM D-4385-88	Visual Defects
ASTM D-4475-85	Short Beam Shear Strength
ASTM D-4476-90	Flexural Properties
ASTM E-84-87	Tunnel Beam Test
ASTM E-662-83	Smoke Chamber
ASTM E-831-86	Linear Thermal Expansion (CTE)
ASTM F-1092-94	Handrails
ASTM G-23-81 & ASTM G-53-84	Weathering



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