



NABAK COMPOSITE CO.

FRP / GRP ENGINEERING SOLUTIONS

TECHNICAL PRODUCT CATALOG

MOLDED FRP / GRP GRATING SYSTEMS

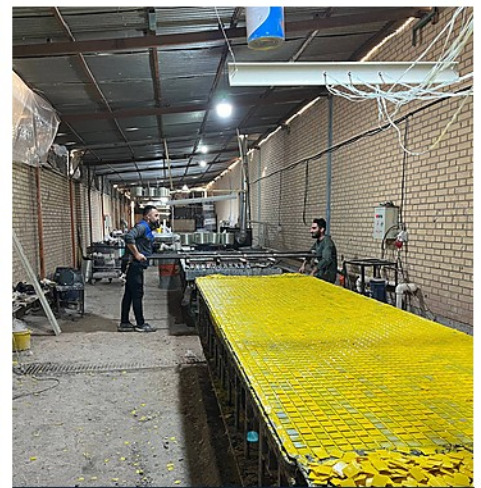
Engineering Datasheet • Selection • Installation

● BI-DIRECTIONAL LOAD

● CORROSION RESISTANT

● ANTI-SLIP

● NON-CONDUCTIVE



NABAK PRODUCTION LINE



01. Contents and Document Control

Professional engineering reference for molded FRP/GRP grating selection and procurement.

PAGE	TECHNICAL SECTION
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All numerical values are TYPICAL for this product family. Final design values, allowable loads and compliance claims must be confirmed for the exact ordered panel, resin formulation and project conditions.

02. Product Identification & Design Rationale

One-piece molded grid with continuous E-glass reinforcement in two principal directions.



Finished molded grating inventory

Molded FRP/GRP grating is manufactured by placing continuous glass roving in a precision mold and fully impregnating it with a thermoset resin system. Unlike assembled pultruded grids, the complete panel is formed in one molding cycle, producing balanced load distribution in both directions.

- Trade name: NABAK Molded FRP/GRP Grating
- Product code: NA-GR-01-001
- Primary use: platforms, walkways, access flooring, trenches and channel covers
- Target sectors: rail and metro, water and wastewater, oil and gas, petrochemical, marine, power, mining and food processing

Bi-directional construction improves tolerance to loads approaching from different directions and reduces installation sensitivity to panel orientation.



03. Material Composition & Surface Finishes

Select the resin, reinforcement and walking surface to match the project environment.



Controlled molding process

- Matrix: thermoset resin - isophthalic polyester, vinyl ester or phenolic
- Reinforcement: continuous E-glass roving, bi-axial; typical fiber content 35-45% by weight
- Fire-retardant grades may include alumina trihydrate (ATH) for smoke suppression
- Resin-rich surface layer protects glass reinforcement against moisture, UV and chemicals

SURFACE	RECOMMENDED USE
Concave	General dry access routes
Grit-top	Wet, oily or high-risk walkways
Covered	Small-object retention and heel/wheel access

Exact fiber fraction, fillers, pigments and additives are order-specific and recorded in the manufacturing process documentation.



04. Mechanical Properties

Typical values for polyester or vinyl-ester molded grating with 35-45% glass reinforcement.

PROPERTY	TYPICAL VALUE	TEST
Tensile strength	103-172 MPa	ASTM D638
Tensile modulus	8.3-11.0 GPa	ASTM D638
Flexural strength	117-207 MPa	ASTM D790
Flexural modulus	6.9-9.7 GPa	ASTM D790
Compressive strength	138-207 MPa	ASTM D695
Interlaminar shear	21-34 MPa	ASTM D2344
Barcol hardness	45-55	ASTM D2583
Density	1750-1950 kg/m ³	ASTM D792

Structural capacity depends on panel depth, mesh, clear span, support conditions, load type and design factor. Use the project-specific load table for final design.



05. Physical, Thermal & Electrical

Low thermal conductivity and high electrical resistance support demanding industrial applications.

PROPERTY	TYPICAL VALUE	REFERENCE
Thermal expansion	$20-30 \times 10^{-6} / ^\circ\text{C}$	ASTM E831
Thermal conductivity	0.2-0.4 W/m.K	ASTM C177
Heat deflection temp.	100-140 °C	ASTM D648
Polyester service temp.	Up to 80 °C	Resin-specific
Vinyl ester service temp.	93-104 °C	Resin-specific
Volume resistivity	$>10^{12}$ ohm.cm	ASTM D257
Dielectric strength	10-20 kV/mm	ASTM D149
CTI	400-600 V	IEC 60112

Non-conductive behavior does not replace application-specific electrical certification. Hazardous-area and third-rail installations require project electrical engineering review.



06. Fire Performance

Fire behavior is controlled primarily by the selected resin formulation and panel thickness.

- ASTM D635: horizontal burning behavior
- ASTM D3801 / UL 94: self-extinguishing classification by grade
- EN 45545-2: European rail applications, subject to valid test report
- NFPA 130: transit applications, subject to valid test report

RESIN SYSTEM	FLAME / LOI	TYPICAL USE
Standard polyester	Non-FR / 20-22%	Areas without fire requirement
FR polyester / vinyl ester	Class I ≤ 25 / $\geq 28\%$	General industrial fire grade
Phenolic	Class I ≤ 25 / $\geq 35\%$	Rail, metro and enclosed areas

Any claim to EN 45545-2, NFPA 130 or a specific fire rating is valid only with an accredited report for the exact formulation and thickness supplied.



07. Chemical Resistance

The resin system must be selected from the actual chemical, concentration, temperature and exposure time.

ENVIRONMENT	ISO-POLYESTER	VINYL ESTER
Water / seawater	Very good	Very good
Dilute acids <10%	Good	Very good
Alkaline / caustic	Limited	Good
Chloride / brine	Good	Very good
Wastewater	Good	Very good
Dilute oxidizers	Limited	Good
Hydrocarbons / fuels	Good	Good
Strong organic solvents	Not recommended	Special review

This table is a preliminary selection guide and does not replace the resin manufacturer chemical-resistance chart or project-specific technical approval.



08. Durability & Service Conditions

A corrosion-free material platform for humid, saline and chemically aggressive facilities.



Protected handling and stacking

- No electrochemical corrosion and no rust staining
- UV-stabilized surface option for long-term outdoor exposure
- Resin-rich veil protects reinforcement at the panel surface
- No routine galvanizing or corrosion-paint renewal
- Low maintenance when supports, clips and cut edges are correctly detailed
- Expected performance depends on resin selection, temperature, loading, UV exposure and installation quality

Specify actual chemicals, operating temperature, design loads, support span, indoor/outdoor exposure and required design life when requesting a technical proposal.



09. Dimensions, Mesh, Weight & Color

Standard configurations and custom fabrication for project-specific openings and supports.



Safety-yellow molded grating panels

ITEM	TYPICAL OPTIONS
Panel depth	25, 30, 38, 40 and 50 mm
Mesh	38×38 mm; mini-mesh options
Standard colors	Safety yellow, grey, green
Surface	Concave, grit-top, covered
Resin	Polyester, vinyl ester, phenolic
Fabrication	Cut panels, penetrations and edge sealing

Dimensions, tolerance, mass and open-area percentage shall be confirmed on the approved shop drawing and order-specific datasheet.



10. Design Data & Load Guidance

Final span selection must use the load table for the exact panel geometry and support condition.

- Define clear span, support width and panel bearing length
- State uniformly distributed load and concentrated load separately
- Check both strength and serviceability deflection limits
- Apply the project-required design factor; typical industry practice is 4:1 to 5:1 against ultimate failure
- Account for cut-outs, openings, impact, dynamic loads and edge conditions
- Provide intermediate supports where calculated deflection exceeds the project limit

DESIGN INPUT	PROJECT REQUIREMENT
Support span	State clear distance
Load case	UDL / concentrated / impact
Deflection limit	As specified by designer
Environment	Chemical + temperature
Safety factor	Project / code requirement

Never select a panel solely by thickness. Mesh geometry, resin system, span, support and load position all affect structural response.



11. Installation, Cutting & Fasteners

Simple field fabrication with controlled cutting, sealed edges and corrosion-resistant clips.



Precision panel cutting



Prepared panels and secure strapping

- Use diamond or carbide tooling with local dust extraction and appropriate PPE
- Seal all field-cut edges with compatible resin
- Provide continuous, level support and adequate bearing at panel edges
- Use stainless-steel 316 or FRP clips suitable for the environment
- Typical guide torques: M8 8-10 N.m; M10 15-18 N.m; M12 25-30 N.m
- Do not over-tighten fasteners or locally crush the resin-rich surface

Final fastener spacing, torque and edge clearance must follow the selected clip supplier and the approved installation drawing.



12. Packaging, Handling, QA/QC & Standards

Controlled production, protected delivery and documented inspection.



Shipment preparation



Controlled loading

- Store panels horizontally on a flat, level support without point loads
- Lift with at least two support points and protect edges from impact
- Standard packing: timber pallet, secure straps and protective wrapping
- Incoming inspection: resin, glass roving, fillers and additives
- In-process inspection: impregnation, molding, cure and surface finish
- Final inspection: dimensions, thickness, color, visual condition and Barcol hardness

Reference methods include ASTM D638, D790, D695, D792, D570, D2583, E84, D635, D3801, UL 94, EN 45545-2 and NFPA 130 as applicable.

13. Applications & Product Advantages

Engineered access flooring for corrosive and electrically sensitive environments.



NABAK molded-grating production

- Metro and railway platforms, inspection routes and service areas
- Water and wastewater treatment plants
- Oil, gas, petrochemical and chemical facilities
- Marine structures, cooling towers and power installations
- Mining, food processing, stairs, ramps, trenches and channel covers
- High corrosion resistance, low weight and high strength-to-weight ratio
- Anti-slip surface options, rapid installation and no welding
- Long service life with low maintenance demand

NABAK engineering can support resin selection, panel layout, cutting plan, clip selection, load review and order-specific compliance documentation.



14. Maintenance & Ordering

Simple periodic inspection preserves safe access and long-term performance.

- Inspect panels visually every 6-12 months or per the asset-maintenance plan
- Clean oil, grease and deposits to preserve anti-slip performance
- Check clips for looseness or corrosion; sample torque annually where required
- Assess deep cracking or local breakage before continued service
- No periodic anti-corrosion painting is required

ORDER SEGMENT	MEANING
NA	NABAK Composite
GR	Grating
01	Molded FRP/GRP series
001	Base product model

Order example: NA-GR-01-001 / T-38 mm / Mesh 38×38 / Vinyl Ester / Grit-Top / RAL 1023. Also state panel size, quantity and fire requirement.



15. Contact & Technical Disclaimer

Engineering support for specification, quotation and project documentation.



Order-specific packing



Manufacturing capability

- Company: NABAK COMPOSITE CO.
- Website: nabakcomposite.com
- Sales email: sales@nabakcomposite.com
- Technical email: nabakcomposite@gmail.com
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Values in this catalog are typical and may vary with resin formulation, environment, loading and installation. Final selection remains the project designer responsibility. Confirm final properties and load tables against the exact order, approved drawings and valid test reports.