



# MOLDED FRP PRODUCTS & LOAD TABLES

Geometry | Uniform Load | Point Load | Line Load | RFQ

Customer-facing selection guide combining QY quotation routes with anonymized external benchmark data. No external brand, product name or domain appears in this edition.

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# 1.0 HOW TO USE THIS GUIDE

## 1.1 Purpose

Use this guide to screen molded FRP grating depth, mesh, span and load case before quotation. It is not a structural approval, test certificate or substitute for the current project code.

| Class              | Meaning                                                                             | Permitted customer use                     |
|--------------------|-------------------------------------------------------------------------------------|--------------------------------------------|
| QY route           | Published QY option or quotation path without a released performance value          | Product selection and RFQ preparation      |
| Benchmark A        | External public product value with source retained in QY internal evidence register | Screening comparison only                  |
| Equivalent series  | Supplier confirms matched construction, geometry and controls                       | Preliminary submittal with signed record   |
| Verified QY series | Exact product and revision supported by report or approved calculation              | Released value subject to project approval |

## 1.2 Responsibility

- Buyer/engineer defines loads, combinations, deflection limit, environment, code and acceptance evidence.
- QY matches product family, dimensions, fabrication scope, benchmark class and requested documents.
- Installer verifies supports, field dimensions, handling, fastening, sealing and inspection.
- Final design approval remains with the responsible engineer unless separately agreed in writing.

External names and customer-facing source links are intentionally omitted; internal provenance remains controlled.



## 2.0 MOLDED GRATING SELECTION MATRIX

Nominal labels do not prove interchangeability. Confirm actual depth, mesh, bar shape, panel size, resin, surface, support and evidence class.

| RFQ family                   | Typical geometry                 | Typical use                                     | Release control                               |
|------------------------------|----------------------------------|-------------------------------------------------|-----------------------------------------------|
| Standard square mesh         | 25-51 mm depth; square mesh      | Walkways, platforms and covers                  | Load table matched to exact series            |
| Directional rectangular mesh | Load bars in one direction       | Longer-span or directional support layouts      | Bearing direction marked on drawings          |
| Compact top mesh             | Smaller walking-surface openings | Access floors and small-object control          | Top/base mesh and cut plan confirmed          |
| Screening panel              | Light, high-open-area geometry   | Screens and non-load-carrying infill            | Not a walking surface unless fully supported  |
| High-load route              | 38/51 mm rectangular mesh        | Special equipment or vehicle-related projects   | Product/system-specific engineering required  |
| Covered grating              | Plate bonded to molded panel     | Solid walking surface and contamination control | Covered-product table or released calculation |
| Stair tread route            | Molded tread with nosing         | Industrial access stairs                        | Tread series, span, load and nosing confirmed |

### SUPPLY GATE

Availability, finished size, color and cutting list are confirmed by RFQ; nominal benchmark sizes are not inventory promises.



## 2.1 COMMON GEOMETRY BENCHMARKS

| Class          | Nominal geometry                       | Open    | Weight      | A / I / S per ft width          |
|----------------|----------------------------------------|---------|-------------|---------------------------------|
| QY route       | 25/30/38/50 mm; common 38 x 38 mm mesh | Confirm | Confirm     | Product-specific                |
| Benchmark A    | 25 mm; 38 x 38 mm square               | 70%     | 12.21 kg/m2 | 1.71 in2 / 0.14 in4 / 0.29 in3  |
| Benchmark A    | 38 mm; 38 x 38 mm square               | 70%     | 18.55 kg/m2 | 2.85 in2 / 0.51 in4 / 0.65 in3  |
| Benchmark A    | 51 mm; 51 x 51 mm square               | 72%     | 19.53 kg/m2 | 2.88 in2 / 0.96 in4 / 0.94 in3  |
| Benchmark A-HL | 38 mm; 25 x 51 mm rectangular          | 48%     | 30.27 kg/m2 | 7.45 in2 / 1.39 in4 / 1.80 in3  |
| Benchmark A-HL | 51 mm; 25 x 51 mm rectangular          | 48%     | 41.01 kg/m2 | 10.26 in2 / 3.40 in4 / 3.27 in3 |

### Geometry controls to place on drawings

- Finished panel size and cut size; tolerance and edge condition.
- Actual depth, top/base mesh, bar taper and bearing direction.
- Clear span, support width, edge bearing, joints, clips and cutouts.
- Resin, reinforcement, color, surface, UV/fire/chemical evidence and identification marks.

#### NO DIRECT SUBSTITUTION

The same nominal depth and mesh can have different section properties, weight and safety-factor basis.



### 3.0 RESIN, SURFACE AND EVIDENCE SELECTION

| Resin route             | Typical screening use                              | Required release evidence                           |
|-------------------------|----------------------------------------------------|-----------------------------------------------------|
| Orthophthalic polyester | General-purpose/economical environment             | Exact resin, temperature and chemical review        |
| Isophthalic polyester   | Industrial water/wastewater and moderate corrosion | Supplier statement and exposure basis               |
| Vinyl ester             | Higher-corrosion-resistance route                  | Exact formulation and chemical-resistance evidence  |
| Phenolic / special      | Fire/smoke or special environment                  | Product-specific fire, smoke and mechanical reports |

| Surface route        | Selection question                           | Evidence / drawing control                     |
|----------------------|----------------------------------------------|------------------------------------------------|
| Meniscus             | Dry, wet or oily service?                    | Product-specific slip evidence if required     |
| Integral grit        | Grit grade, sealing and cleaning?            | Surface description and project wet/dry method |
| Smooth               | Non-walking or special cleaning use?         | Walking-surface approval required              |
| Covered top          | Solid surface, carts, odor or contamination? | Plate thickness, bond, cutout and load basis   |
| Conductive / special | Grounding and resistivity requirement?       | Exact report, grounding layout and inspection  |

A test method is universal; a result belongs only to the exact tested product and revision.



# 4.0 READING AND RELEASING LOAD DATA

## 4.1 Required inputs

| Input          | Record before table selection                                                                 |
|----------------|-----------------------------------------------------------------------------------------------|
| Product        | Molded series, depth, mesh, bar geometry, resin, surface and evidence class                   |
| Support        | Clear span, bearing direction, support width, edge condition and single/multiple span         |
| Load           | Uniform, point, line/wheel; magnitude, footprint, position, duration, impact and combinations |
| Serviceability | Deflection, vibration/comfort, removability and code/project limit                            |
| Environment    | Temperature, UV, wet/oily service, chemicals, fire/smoke and electrical requirements          |

## 4.2 Screening sequence

- Match the complete product row; do not combine values from different benchmark series.
- Use clear span, not overall panel length. Confirm bearing direction and support width.
- Check strength and project deflection limits separately; the lower governing result controls.
- Add impact, creep, temperature, cutout, covered-top and chemical reductions where required.
- Blank cells remain blank. Do not extrapolate to a larger span or higher load.
- Vehicle, forklift, wheel and repeated dynamic loads require product/system-specific engineering.

### BENCHMARK BASIS

Pages 7-12 reproduce selected external screening values. They are not QY certificates and do not establish QY product ratings.



# 4.1 NOMINAL 25 MM SQUARE-MESH UNIFORM LOAD

Deflection is shown at 50 psf (2.39 kPa). The external benchmark states a 5:1 safety factor on ultimate capacity.

| Clear span      | Defl. at 2.39 kPa | Max rec. load | Ultimate benchmark | Class       |
|-----------------|-------------------|---------------|--------------------|-------------|
| 305 mm / 12 in  | <0.25 mm          | 67.99 kPa     | 340.91 kPa         | Benchmark A |
| 457 mm / 18 in  | 0.51 mm           | 30.16 kPa     | 151.78 kPa         | Benchmark A |
| 610 mm / 24 in  | 1.52 mm           | 16.76 kPa     | 85.23 kPa          | Benchmark A |
| 762 mm / 30 in  | 3.56 mm           | 10.53 kPa     | 54.58 kPa          | Benchmark A |
| 914 mm / 36 in  | 7.87 mm           | 7.18 kPa      | 37.83 kPa          | Benchmark A |
| 1067 mm / 42 in | 12.45 mm          | 5.27 kPa      | 27.77 kPa          | Benchmark A |

## SCREENING ONLY

Values remain external benchmark data until the exact QY-supplied series is identified and supported by signed equivalence or product-specific evidence.

Source identity and page reference are retained in QY's internal evidence register.



## 4.2 NOMINAL 38 MM SQUARE-MESH UNIFORM LOAD

Deflection is shown at 50 psf (2.39 kPa). Compare against the project deflection criterion as well as the stated capacity.

| Clear span      | Defl. at 2.39 kPa | Max rec. load | Ultimate benchmark | Class       |
|-----------------|-------------------|---------------|--------------------|-------------|
| 305 mm / 12 in  | <0.25 mm          | 153.22 kPa    | 766.08 kPa         | Benchmark A |
| 457 mm / 18 in  | <0.25 mm          | 67.99 kPa     | 339.95 kPa         | Benchmark A |
| 610 mm / 24 in  | 0.51 mm           | 38.30 kPa     | 191.52 kPa         | Benchmark A |
| 762 mm / 30 in  | 1.27 mm           | 24.42 kPa     | 122.57 kPa         | Benchmark A |
| 914 mm / 36 in  | 2.54 mm           | 16.76 kPa     | 84.75 kPa          | Benchmark A |
| 1067 mm / 42 in | 4.32 mm           | 12.45 kPa     | 62.24 kPa          | Benchmark A |
| 1219 mm / 48 in | 7.11 mm           | 9.58 kPa      | 47.88 kPa          | Benchmark A |
| 1372 mm / 54 in | 10.67 mm          | 7.18 kPa      | 37.83 kPa          | Benchmark A |

**SCREENING ONLY**

Values remain external benchmark data until the exact QY-supplied series is identified and supported by signed equivalence or product-specific evidence.

Do not transfer these values to a QY series without exact construction and evidence matching.



### 4.3 NOMINAL 51 MM SQUARE-MESH UNIFORM LOAD

Nominal 2 in (50.8 mm) external benchmark values are shown. A QY 50 mm label is not automatically equivalent.

| Clear span      | Defl. at 2.39 kPa | Max rec. load | Ultimate benchmark | Class       |
|-----------------|-------------------|---------------|--------------------|-------------|
| 305 mm / 12 in  | <0.25 mm          | 183.86 kPa    | 921.92 kPa         | Benchmark A |
| 457 mm / 18 in  | <0.25 mm          | 88.58 kPa     | 444.33 kPa         | Benchmark A |
| 610 mm / 24 in  | 0.25 mm           | 49.80 kPa     | 249.94 kPa         | Benchmark A |
| 762 mm / 30 in  | 0.51 mm           | 31.60 kPa     | 159.92 kPa         | Benchmark A |
| 914 mm / 36 in  | 1.02 mm           | 22.03 kPa     | 111.08 kPa         | Benchmark A |
| 1067 mm / 42 in | 2.03 mm           | 16.28 kPa     | 81.40 kPa          | Benchmark A |
| 1219 mm / 48 in | 3.56 mm           | 12.45 kPa     | 62.24 kPa          | Benchmark A |
| 1372 mm / 54 in | 5.33 mm           | 9.58 kPa      | 49.32 kPa          | Benchmark A |
| 1524 mm / 60 in | 9.40 mm           | 7.66 kPa      | 39.74 kPa          | Benchmark A |

**SCREENING ONLY**

Values remain external benchmark data until the exact QY-supplied series is identified and supported by signed equivalence or product-specific evidence.

Conversions are rounded; the internal source document remains controlling.



# 4.4 NOMINAL 38 MM CONCENTRATED LOAD SCREENING

| Clear span      | Point defl. at 1.33 kN | Line defl. at 4.38 kN/m | Max rec. line load |
|-----------------|------------------------|-------------------------|--------------------|
| 457 mm / 18 in  | 0.51 mm                | 1.27 mm                 | 15.47 kN/m         |
| 610 mm / 24 in  | 0.76 mm                | 2.54 mm                 | 11.68 kN/m         |
| 762 mm / 30 in  | 1.52 mm                | 4.57 mm                 | 9.34 kN/m          |
| 914 mm / 36 in  | 2.29 mm                | 8.13 mm                 | 7.73 kN/m          |
| 1067 mm / 42 in | 3.30 mm                | 11.94 mm                | 6.57 kN/m          |
| 1219 mm / 48 in | 4.57 mm                | Not published           | 5.84 kN/m          |
| 1372 mm / 54 in | 5.59 mm                | Not published           | 5.11 kN/m          |

**LOAD CASE CONTROL**

Point, line and uniform loads are separate. Confirm footprint, position, panel orientation, support width, impact and repetition.

**NO VEHICLE RATING**

This table does not approve carts, wheels, forklifts, vehicles, dropped loads or dynamic service.



# 5.0 RECTANGULAR HIGH-LOAD BENCHMARK

External rectangular-mesh data are included only to screen whether a special high-load RFQ is plausible. They are not a QY vehicle or forklift rating.

| Span            | 38 mm max line | 51 mm max line | 38 mm max uniform | 51 mm max uniform |
|-----------------|----------------|----------------|-------------------|-------------------|
| 305 mm / 12 in  | 204.31 kN/m    | 227.66 kN/m    | 1340.65 kPa       | 1493.86 kPa       |
| 457 mm / 18 in  | 135.72 kN/m    | 157.61 kN/m    | 593.72 kPa        | 694.26 kPa        |
| 610 mm / 24 in  | 99.24 kN/m     | 131.35 kN/m    | 325.59 kPa        | 430.92 kPa        |
| 762 mm / 30 in  | 78.81 kN/m     | 105.08 kN/m    | 205.89 kPa        | 277.71 kPa        |
| 914 mm / 36 in  | 65.67 kN/m     | 87.56 kN/m     | 143.64 kPa        | 191.52 kPa        |
| 1067 mm / 42 in | 55.46 kN/m     | 74.43 kN/m     | 105.34 kPa        | 138.85 kPa        |

- Benchmark geometry: 38/51 mm depth, 25 x 51 mm rectangular mesh, load bars across the short panel direction.
- External benchmark basis states static ambient conditions and a 3:1 ratio between maximum and ultimate values.
- Impact, creep, temperature, wheel width, axle distribution, braking, turning and support stiffness require separate review.

## MANDATORY PROJECT ENGINEERING

Do not quote a vehicle/forklift span from this page alone. Require exact series, wheel data, load combinations, support drawing and approval.



# 6.0 MOLDED STAIR TREAD LOAD SCREENING

External benchmark deflection under concentrated loads applied near the nosing is shown for screening. Confirm the exact tread, nosing, width, supports and code.

| Clear span      | L/150 limit | Defl. at 1.11 kN | Defl. at 2.22 kN | Release note |
|-----------------|-------------|------------------|------------------|--------------|
| 457 mm / 18 in  | 3.05 mm     | 0.76 mm          | 1.52 mm          | Benchmark A  |
| 610 mm / 24 in  | 4.06 mm     | 1.27 mm          | 2.54 mm          | Benchmark A  |
| 762 mm / 30 in  | 5.08 mm     | 2.29 mm          | 4.83 mm          | Benchmark A  |
| 914 mm / 36 in  | 6.10 mm     | 4.06 mm          | 8.13 mm          | Benchmark A  |
| 1067 mm / 42 in | 7.11 mm     | 6.35 mm          | 12.70 mm         | Benchmark A  |
| 1219 mm / 48 in | 8.13 mm     | 10.41 mm         | Not published    | Benchmark A  |

## STAIR RELEASE

Record tread depth/width, molded series, nosing, load footprint, supports, fasteners, deflection criterion, rails and governing stair code.

Concentrated loads: 250 lb = 1.11 kN; 500 lb = 2.22 kN. Conversions are rounded.



## 7.0 COVERED GRATING AND FRP PLATE

| Route           | Typical construction                  | Weight benchmark | Release control                                    |
|-----------------|---------------------------------------|------------------|----------------------------------------------------|
| Thin plate      | Nominal 3.2 mm                        | 6.35 kg/m2       | Cover only unless exact load table is released     |
| Plate           | Nominal 6.4 mm                        | 12.70 kg/m2      | Span/load/deflection and support check             |
| Plate           | Nominal 9.5 mm                        | 19.04 kg/m2      | Span/load/deflection and support check             |
| Plate           | Nominal 12.7 mm                       | 25.39 kg/m2      | Span/load/deflection and support check             |
| Plate           | Nominal 19.1 mm                       | 38.09 kg/m2      | Span/load/deflection and support check             |
| Covered grating | Plate bonded to 25-51 mm molded panel | Product-specific | Exact bond, plate, panel and covered-product table |

- Show plate thickness, surface texture, bond system, edge sealing and field cutouts.
- Confirm carts/wheels, point loads, contamination control, drainage and cleaning chemicals.
- Do not apply an open-mesh load table to covered grating without a released covered-product basis.
- Thin plate used as a cover is not automatically a load-bearing floor panel.

### PRODUCT IDENTITY

Covered grating stiffness does not by itself establish allowable load; strength, bond, local plate bending and support details still govern.



# 8.0 CLIPS, CUTTING, SEALING AND INSTALLATION

| Accessory / operation         | Purpose                                            | Drawing / inspection control                     |
|-------------------------------|----------------------------------------------------|--------------------------------------------------|
| Adjacent-bar hold-down        | Secure panel at support                            | Matched mesh, bolt, support and spacing          |
| Single-bar / saddle hold-down | Secure panel where geometry permits                | Clip fit, washer, hole and edge distance         |
| Panel-joint clip              | Align adjacent supported panel edges               | Joint support and removable-panel requirement    |
| Covered-product clip          | Secure covered grating or plate                    | Plate thickness, bolt and support detail         |
| Flange clamp                  | Attachment without support drilling where approved | Flange range, access and slip check              |
| Cut-edge seal                 | Protect exposed reinforcement                      | Compatible material, coverage and inspection     |
| Bonding kit                   | Project-specific joining or finishing              | Surface preparation, cure and approved procedure |

- Use suitable abrasive tooling, dust control and PPE; do not burn or flame-cut FRP.
- Support panels during cutting, avoid damaging remaining bars and seal exposed cuts/holes.
- Verify clip quantity and spacing from the released detail; inspect torque/locking and field access.
- Mark panel identity, bearing direction, location and removable sections before packing.

Installation details remain project-specific; no generic clip spacing is a released design value.



## 9.0 CHEMICAL AND ENVIRONMENTAL RELEASE WORKFLOW

A generic chemical table cannot be converted into a QY warranty. Compatibility depends on exact resin, reinforcement, concentration, temperature, mixtures, cleaning and exposure duration.

| Input              | Minimum record                                                              |
|--------------------|-----------------------------------------------------------------------------|
| Chemical identity  | Full chemical name, concentration, impurities, mixture and pH               |
| Temperature        | Normal, minimum, maximum, excursions and thermal cycling                    |
| Exposure           | Continuous immersion, splash/spill, vapor, cleaning cycle and duration      |
| Mechanical service | Load, impact, abrasion, cut edges, joints and stress concentrations         |
| Environment        | UV, water, humidity, fire/smoke, conductivity and food/potable requirements |
| Evidence           | Exact resin/product statement, coupon test, report revision and limitations |

- C: continuous exposure only when explicitly supported by exact-product evidence.
- S: splash/spill exposure with defined cleaning and duration.
- I: infrequent exposure with immediate cleanup.
- N/T: not recommended or testing required; blank means no conclusion.

### RELEASE GATE

For unlisted chemicals, mixtures, elevated temperature or safety-critical service, require supplier review or testing before quotation commitment.



# QY METAL TECH | MOLDED FRP PRODUCT SUPPORT

## RFQ RELEASE PACKAGE

- Exact product designation, depth, mesh, resin, color, surface and revision.
- Panel/cutting schedule, supports, joints, cutouts, clips and bearing direction.
- Load table or calculation with units, safety factor, deflection limit and applicability.
- Material/resin statement and agreed mechanical, fire, chemical or slip evidence.
- Inspection record, packing list, identification marks and approval status.

## MANDATORY RFQ INPUTS

- Project, destination, quantity and required delivery documents.
- Clear spans, supports, loads, footprint/position, duration, impact and combinations.
- Deflection/comfort criterion, governing code and responsible approval party.
- Chemicals, temperatures, UV/wet service, fire/smoke, electrical and cleaning conditions.



PRODUCT ROUTE



SEND RFQ

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## ENGINEERING BOUNDARY

All Benchmark A values are external screening data with internal provenance. They do not become QY performance claims until exact-series equivalence or verified QY/supplier evidence is recorded.