GRP Round Tubular Handrail System Specification

Identification of the Product & Company

Product: **GRP Round Tubular Handrail System**
- Glass Reinforced Plastic (GRP) safe access products

Company Details: Evergrip Limited
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United Kingdom

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Quality Assurance

The GRP Handrail System covered by this specification is manufactured by our **ISO-9001:2015** certified partners. Evergrip are closely involved in the production of all our products with regular visits to the factory facilities undertaken.

Product Description

Evergrip offer a high quality, round tubular GRP Handrail system complete with all required fittings. The product has been tested and approved to standards:

BS EN ISO 14122-3:2001
Safety of Machinery - Permanent means of access to machinery. Part 3: Stairways, stepladders & guard-rails.

BS 6399-1:1996
Loading for buildings - Part 1: Code of practice for dead and imposed loads

The system is designed to offer a cost effective alternative to stainless or galvanised steel when used in new build or refurbishment projects.

Available in high visibility safety yellow or steel grey, GRP Handrail provides all the advantages of lightweight, high strength and durability, coupled with a corrosion resistant, low maintenance, 20 year design life.

The rail is manufactured from polyester resin and glass fibre by a process of pultrusion with a surface veil. The associated GRP fittings are made by casting.

Designed to provide worker or general public segregation and safety in a wide variety of locations throughout industry or public access areas e.g. loading bays, walkways, guarding around machinery etc.

Material & Design Criteria

- The handrail tube is produced by a process of pultrusion with an applied synthetic surface veil in accordance with standard EN 13706-3
- Lightweight with a high strength to weight ratio
- Warm to touch
- Electrically & thermally non-conductive
- Good chemical & corrosion resistance
- Fire retardant
- Transparent to electromagnetic and radio frequencies
- Low maintenance - no scraping, shot-blasting or painting required
- Long design life - typically 20 years
- Durable
- Simple & rapid construction – easy fabrication on or off site
- Range of fixings & fasteners available
- Available with a choice of standard colours: high visibility safety yellow RAL 1023 or steel grey RAL 7045 (other RAL colours are available with minimum order quantities applicable)

Composition

Glass fibre, isophthalic polyester resin, inert fillers, UV stabilisers, promoters and flame retardants. Chemical pigment is mixed into the resin to produce the final colour; offering a natural finish with no requirement for painting.

Loading Data

The system has been independently tested by Sheffield Hallam University Centre for Infrastructure Management to satisfy the requirements of:

BS EN ISO 14122-3:2001 & BS 6399-1:1996

Chemical Resistance

Chemical resistance data for a wide variety of substances is available. The standard handrail exhibits good resistance when exposed to many common chemicals for example citric acid, calcium chloride, fresh/salt water, ethylene glycol, oil & petrol etc. It is not recommended for exposure to high concentrations of acids & alkalis. Further details are available on request. Please check before specifying into chemically aggressive environments.

Operating Temperature Range

Operating temperature range of **minimum -50ºC** to **maximum +100ºC**

Fire Resistance

Tested to:
American **ASTM E-84-15a** Standard with a **flame spread of 20**
British Standard **BS476: Part 7:1997** (Ad-hoc, Exova) **Class D2**

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Dimensions & Weights

	Product Code	Description	Unit of Sale	Weight kg / unit
	HR005	Rail tube 50mm diameter	6m length	5.400
	HR007	Kick Plate profile	6m length	5.100
	HR001	Floor Socket	each	0.435
	HR002	Two Socket Cross	each	0.325
	HR003	Single Socket Tee	each	0.240
	HR004	90º Elbow	each	0.370
	HR006	Wall Socket (side mount)	each	0.250

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evergrip composite products for safe access

	HR008	Adjustable Elbow	each	0.435
	HR009	60º Single Socket Tee	each	0.250
	HR010	60º Two Socket Cross	each	0.335
	HR011	120º Elbow	each	0.330
	HR012	150º Elbow	each	0.273
	HR013	Top Corner Side Outlet Elbow	each	0.558
	HR014	Mid Corner Side Outlet Tee	each	0.671
		**Fasteners:** M5 x 65 Screw, Nylon Insert Nut, 5mm Washer (A2 stainless steel) and optional nylon nut cover cap. NB Large diameter colour matched aluminium rivets are used for factory built assemblies.	100	1.100

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		**Floor or Wall Fixings:** Carbon or stainless steel expansion bolts or chemical anchors. Concrete: Fischer/Rawl Type Throughbolt Brickwork: Fischer/Rawl Type Sleeve Anchor	-	-

Service Life, Routine & Maintenance Inspections

The handrail carries a design life of 20 years. GRP materials have been used successfully in building and construction for 30+ years, with no discernable degradation in performance. Some fading of colours take place over time where the product is continually exposed to sunlight.

The product is designed to be low maintenance. In safety critical applications, routine inspection of installations is recommended and should be carried out at an interval to be determined by the client's own risk assessment and depending upon the application/operating environment. Simple cleaning with mild (non-caustic) detergent solution will restore the appearance of the handrail.

Disposal & Environmental Considerations

GRP is an inert product. Currently, small quantities of scrap and waste material should be disposed of in approved landfill facilities adhering to local regulatory handling and documentation requirements. The material presents no special hazard to the environment.

At present, options for recycling are in development and are already on-stream within the UK & EU. Scrap GRP can be utilised as an energy source and fuel in the production of concrete. When burned in a furnace, glass by-product is also recoverable from the ash. It is expected that by the end of life of new products, that these processes will be well established.

Handling, Re-working & Machining of GRP Materials - COSHH Advisory Notes

Operators should observe correct Manual Handling techniques when lifting & moving products to prevent personal injury.

General guidelines are when cutting or machining GRP products with power tools, the material produces a non-toxic, biologically inert nuisance dust. The dust levels should be kept as low as is reasonably practicable and must not exceed the Occupational Exposure Limit of 10mg/m^3 total inhalable dust and 4mg/m^3 respirable dust – 8 hour TWA value. When working out of doors, it is unlikely that these levels will be reached. When working indoors or in confined spaces, adequate ventilation and suitable dust extraction should be provided. Operators should wear fitted dust masks (FFP2) & goggles.

In isolated cases, GRP dust may cause transient skin irritation. Should these effects become prolonged or should any signs of a rash occur, medical advice should be sought. All exposed skin should be thoroughly washed with soap and water. Any eye contamination should be washed out with copious amounts of bottled sterile water or fresh clean water.

Do not smoke, eat or drink in working areas.

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