relinea®
Reliable, Resourceful.

GRP PALISADE FENCING

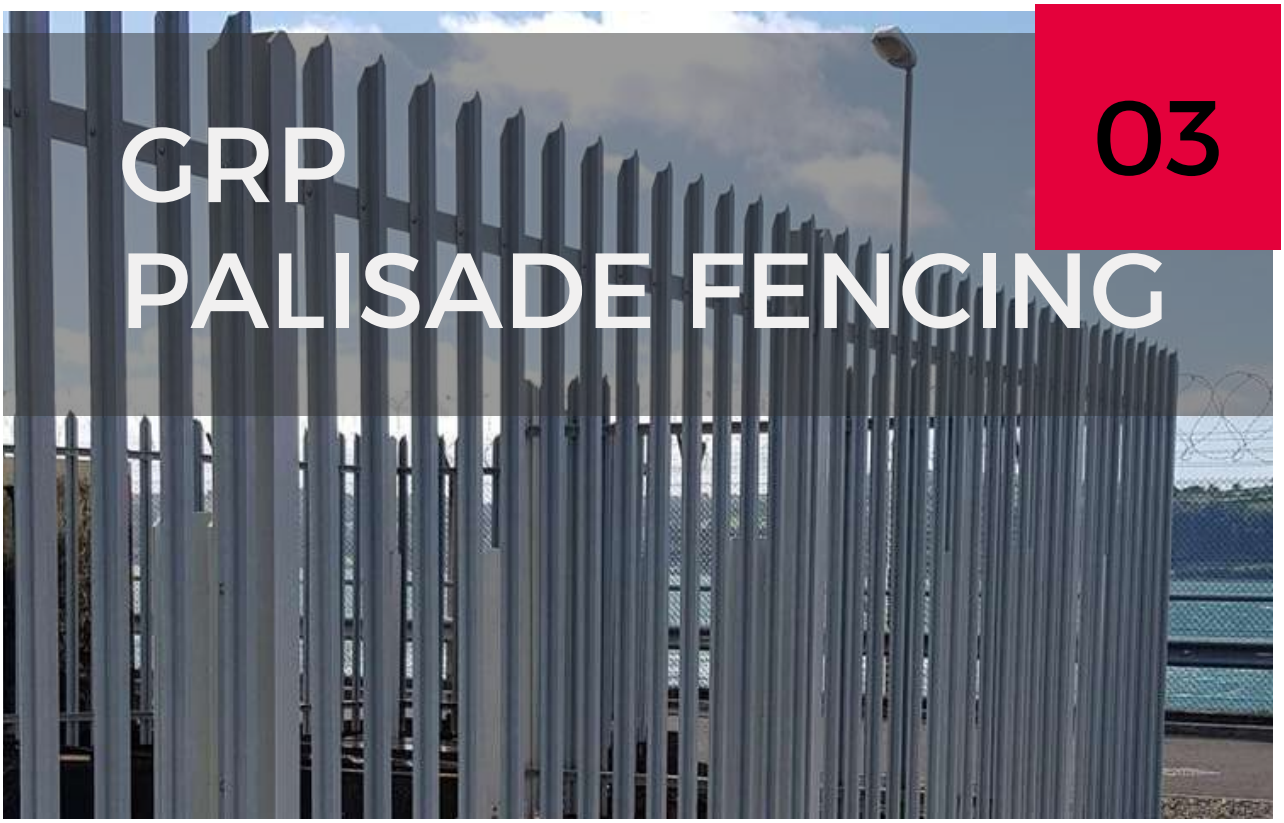
02

ABOUT US

Relinea is a trusted, pioneering expert with 18 years' experience designing and delivering alternative composite solutions to the construction industry. We are at the forefront of a revolution in materials through GRP innovation & design.

We innovate, design and fabricate advanced technical GRP structural components to overcome weight, corrosion and slip issues. With a revolutionary approach that uses intelligent GRP design and innovative composite manufacturing to challenge the conventions of construction, we work with our clients to find unique, long-lasting, sustainable solutions.

Our GRP designers, technicians, and installation teams deliver entire projects from start to finish. Our team has a deep understanding of our customers' operational and process challenges, and the expertise and specialist knowledge to design bespoke GRP solutions. Harnessing our strengths, we develop new products and services that fulfil our customer's needs and help build a better, stronger, more sustainable world.



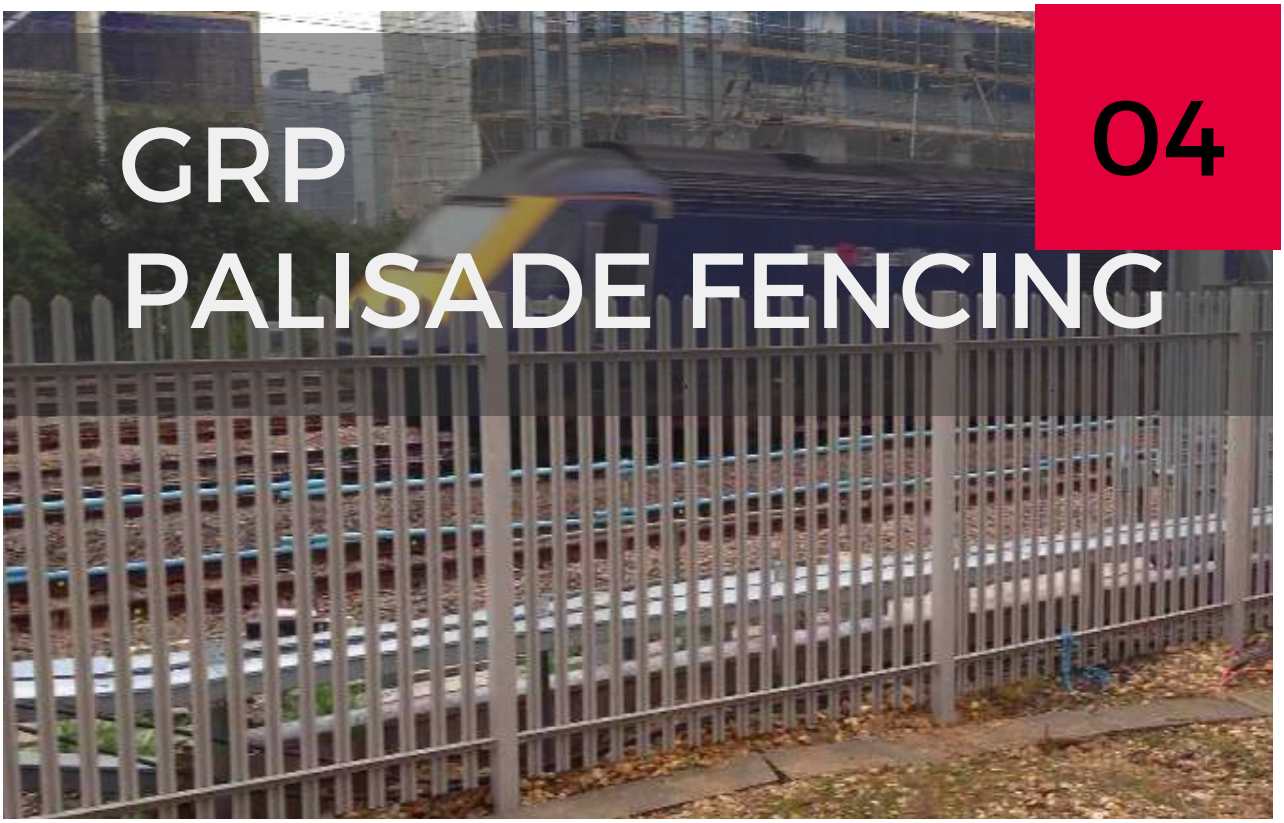
GRP PALISADE FENCING

03

GRP Palisade Fencing is ideal for corrosive environments such as chemical plants and wastewater treatment facilities. As GRP is a non-conductive material, it is also the perfect material for live power stations, substations, and use near power plants.

Our GRP Palisade Fencing comes pre-assembled and is easily installed. No welding is required eliminating the need for bulky welding equipment and hot works permits. Long-lasting, durable, and easy to install our GRP palisade fencing has a multitude of benefits over steel, making it suitable for practically all environments.

- GRP Palisade Fencing Panels are a non-conductive, non-rust alternative to traditional steel fencing.
- Our GRP Fencing Panels have a high energy absorption and can be repeatedly knocked without causing permanent damage, unlike steel which will buckle under impact.
- Lightweight – you don't need any heavy lifting gear or specialist equipment to install our GRP Fencing – a two-person team can easily complete the job.
- The chemical-resistant resin means our fencing can be used in the toughest conditions such as oil rigs, chemical plants, rail, and coastal applications.
- GRP fencing is radio frequency transparent and sound absorbing, making it suitable for a variety of environments and applications where radio frequency may be a factor. It also isn't magnetic, meaning it's suitable in environments where this may also be an issue.
- Due to its non-conductive nature GRP fencing does not have to be earthed.



GRP PALISADE FENCING

04

GRP Palisade Fencing Applications Include:

- Boundary fencing
- Railway trackside fencing
- Power Station and Power Plant fencing
- Data Centre and Substation boundary fencing
- Airport and Defence Site fencing
- Schools, Playing Fields, Building Perimeter Fencing

Up to 80% lighter than steel, GRP fencing makes for a simple two-man installation – and without the resale value of steel, you can have peace of mind that the fencing panels won't be removed by thieves.

With the plethora of benefits and advantages over steel, it is easy to see why GRP palisade fencing is quickly becoming the product of choice among many industrial sectors. GRP Palisade Fencing offers an exceptional solution for the likes of Railway, Power Stations, Data Centres, and other industrial sites, where they require a safe fencing system that is non-conductive and quickly installed.

Whatever the requirements of your site, our GRP palisade fencing is made to measure and manufactured to BS EN ISO14122-3:2001 and BS5395-1-2010.

Railway Platform Fencing


Electrical Box Fencing


Boundary Fencing


Railway Trackside Fencing

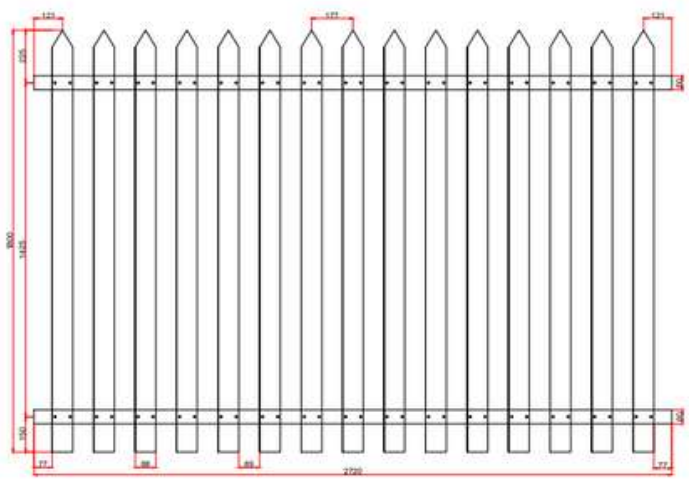
SPECIFICATIONS 06

Our GRP Pales have been Independently Tested & Comply with the Requirements of BS 1722-12:2016 for General Purpose Fences.

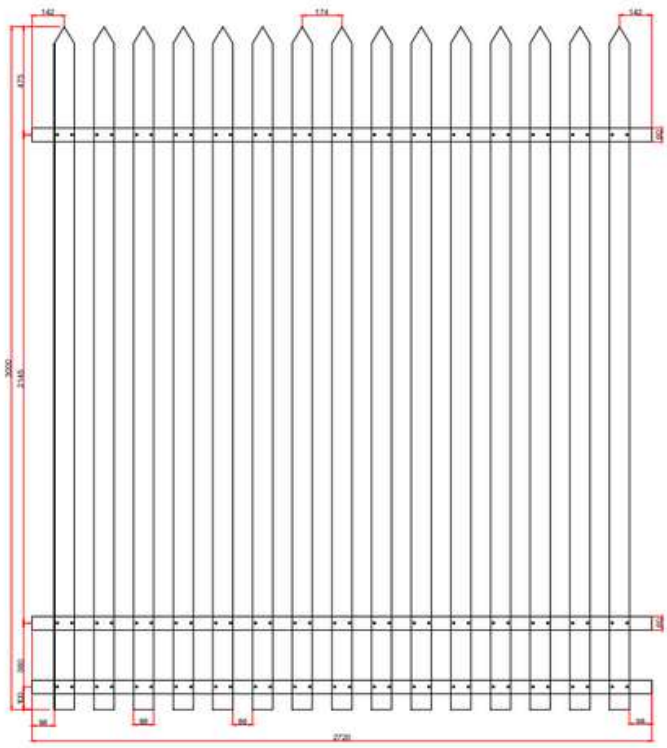
Our system has also been Independently Tested & Complies with the pull out test for BS 1722-12:2016.

We have three standard sizes of Palisade Fence Panels:

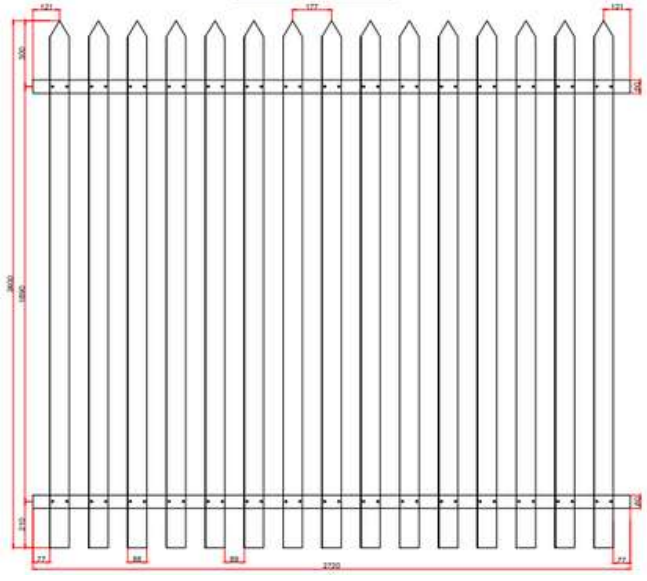
1800mm Fence Panel



3000mm Fence Panel



2400mm Fence Panel



SPECIFICATIONS 07

PRODUCTS: GRP pultruded sections

RAW MATERIALS: Isophthalic polyester resin
E glass fibre roving, and continuous filament mat
together with woven roving fabric as appropriate for the individual profiles
Polyester surface veil together with continuous filament glass fibre mat on all external surfaces

COLOUR: Stocked In Profiles :-Grey RAL 7001 or Green RAL 6005.

PRODUCT STANDARD: EN13706-2, EN13706-3 and BS 1722-12:2016

PRODUCT DIMENSIONS: Various sizes, please see quotation.

PRODUCT SPECIFICATION: Profiles manufactured by the pultrusion process.

Fully complying with all the requirements of EN13706 -2 including dimensional tolerances and quality assurance parameters. Please see the table below.

Structural properties meeting the E17 for profiles with wall thickness Smm and below and E23 grade for profiles with wall thickness greater than Smm
of EN 13706 — 3.

Our pale has been independently Tested & Complies with the standard BS 1722-12:2016 The method of attachment has also been independently tested and complies with the pull out test of BS 1722-12:2016.

ISO 9001 registered quality controlled production.

Minimum properties that are required for each grade:

	Property	Unit	Test method	Minimum Properties	
				E23 Grade	E17 Grade
1.1	Full section test	GPa	Annex D, EN 13706-2	23	17
1.2	Tension modulus-axial	GPa	EN ISO 527-4	23	17
1.3	Tension modulus-transverse	GPa	EN ISO 527-4	7	5
1.4	Tension strength-axial	MPa	EN ISO 527-4	240	170
1.5	Tension strength-transverse	MPa	EN ISO 527-4	50	30
1.6	Pin-bearing strength-axial	MPa	Annex E, EN 13706-2	150	90
1.7	Pin-bearing strength-transverse	MPa	Annex E, EN 13706-2	70	50
1.8	Flexural strength —axial	MPa	EN ISO 14125	240	170
1.9	Flexural strength — transverse	MPa	EN ISO 14125	100	70
1.10	Interlaminar shear strength-axial	MPa	EN ISO 14130	25	15

08

CASE STUDY BALLYLUMFORD POWER STATION

Problem/Challenge

Due to the site being so close to the sea and saltwater splashing onto the existing steel handrail, it had corroded to the extent of falling apart. This led to the handrail failing and caused a major safety concern.

As this application was also located within a Power Station, the live conductive nature of the surroundings also had to be taken into consideration.

09

Solution

Referencing the saltwater corrosion concerns, GRP was chosen by the client due to its excellent corrosion resistance properties in a marine environment and long lifespan.

Our GRP Palisade fence offered the customer a solution to the corrosion issues. GRP Palisade Fencing Panels are a non-conductive, non-rust alternative to traditional steel fencing. The chemical-resistant resin means our fencing can be used in the toughest conditions such as oil rigs, chemical plants, rail and coastal applications. As GRP is a non-conductive material, this makes it the perfect application for a power station.

Relinea provided a bespoke design solution completed by our inhouse design team and approved by the customer prior to installation. Meaning the customer didn't have to worry about any of the technical details as it was looked after by our design and installation teams. The installation went smoothly and timely by our experienced team and was completed to the upmost satisfaction of the client.

OUR SERVICES

Our GRP designers, technicians, and installation teams deliver entire projects from start to finish. Our team has a deep understanding of our customers' operational and process challenges, and the expertise and specialist knowledge to design, fabricate and install bespoke GRP solutions.

CONSULTATION

We navigate our clients through their specific GRP technical issues to find composite cost reduction solutions that are flexible, long, lasting and easier to install. Our focus is engineering, not sales, which speaks volumes about our corporate philosophy.

DESIGN

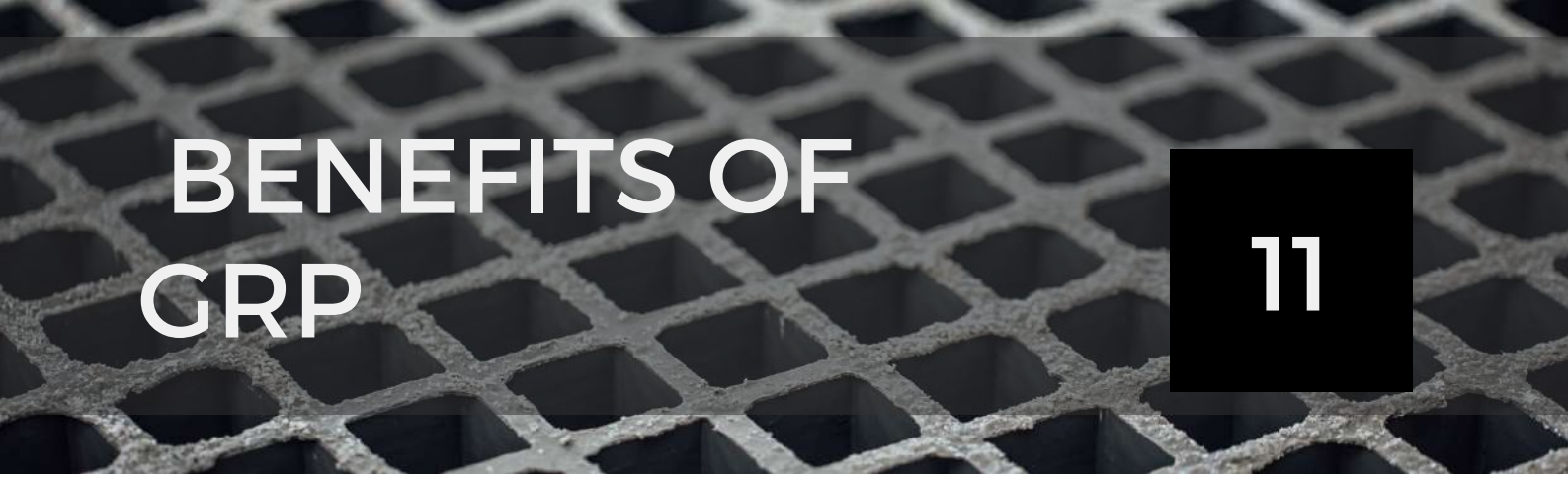
With one of the largest dedicated composite design teams in the sector combined with 18 years' experience in the manufacture of GRP products we are best placed to provide truly innovative, sustainable solutions.

FABRICATION

Our highly skilled composite fabrication teams use the latest technology and manufacturing techniques to deliver peerless results reducing on-site adjustment time of GRP mouldings and fabricated structures.

INSTALLATION

Our expert GRP installation team brings years of professional experience to every job, ensuring that your completed project meets our high-quality standards.



BENEFITS OF GRP

11

Maintenance free, corrosion and impact resistant, our GRP products have considerably low life cycle costs compared to traditional materials.

GRP can be effectively used in the development of new structures to achieve a superior service life without the need for regular, costly maintenance. As we work towards sustainability goals and extending the life of products, glass-reinforced plastic can also be incorporated into existing structures to extend existing service life.

Relinea can develop solutions that have a much lower carbon footprint in comparison to traditional building materials such as concrete & steel. Built to last, GRP is the material of the future for those seeking energy-efficient, green, sustainable solutions.

Long Term Cost Savings

Maintenance free, corrosion and impact resistant, and with a life span of 50+ years, our GRP products have considerably low life cycle costs compared to traditional materials. No replacing, re-painting or repairing.

The Safety Benefits of GRP

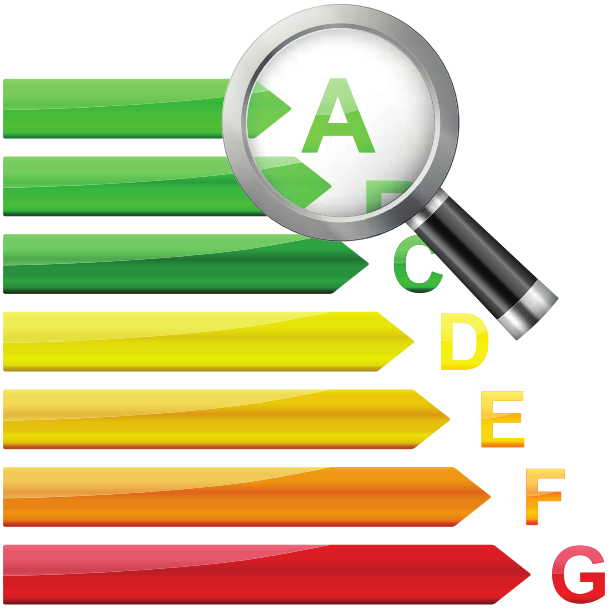
Slip resistant, non-conductive, and fire retardant. Our integral grit finish offers the world's highest slip resistance for a walk-on surface. Due to their non-conductive nature our products do not have to be earthed.

The Practical Benefits of GRP

75% lighter than steel, GRP products make for an easy two man installation. Impact resistant and with a high strength to weight ratio, they are easily fabricated and handled on site.

ENVIRONMENTAL BENEFITS OF GRP

12



Recyclable

GRP waste is often shredded and processed to create a high-grade alternative for the cement industry, where it is used as a fuel and mineral raw material. GRP products are also commonly upcycled for use in a wide range of non-standard applications.

Long Lifespan

The thermosetting resins used in GRP are far stronger and more durable than other plastics, giving most GRP products a lifespan of more than 50 years.

Low Carbon Footprint

GRP's CO2 equivalent is less than half that of a concrete bridge and approximately a third of the CO2 equivalent for a steel bridge. As a result, GRP's carbon footprint is also very favourable.

Energy Efficient

75% less energy is needed to produce glass-reinforced plastic (GRP) than steel.

Lightweight

GRP structures are 75% lighter than steel which means 50% less energy is needed for transport and assembly.

Eco Friendly

GRP produces fewer greenhouse gasses and consumes less energy at the production stage than both steel and aluminum. The production of base resins and fibre rovings doesn't have the same impact on the environment as the production of metals. Pultrusion takes place in a fully-closed process, which minimises the evaporation of volatile compounds, and no smoke clouds or toxic air pollutants are created.

We innovate, design, and fabricate advanced technical GRP structural components to overcome weight, corrosion, and slip issues. With a revolutionary approach that uses intelligent GRP design and innovative composite manufacturing to challenge the conventions of construction, we work with our clients to find unique, long-lasting, sustainable solutions. From GRP design to installation, we are a specialist, one-stop resource.

Relinea, 14 Crosshill Road, Crumlin, BT29 4BQ

+44 (0) 28 9447 0010

www.relinea.com