



Panchvaktram
Engineering Private Limited

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Panchvaktram Engineering Private Limited (PEPL) provides quality engineering products, project management and construction solutions to core industries such as Ports, Mining, Tunneling, Oil & Gas, Heavy Civil, Infrastructure, Automotive and Transportation.

PEPL offers new quality products from internationally reliable and prominent manufacturers as a best fit solution to its valuable clients. We primarily cater to our clients through two business segments namely,

- **Engineering:** PEPL is provider of the most viable and economical solution to the critical requirements of the client through its global associations and relationship with the leading and reputed engineering companies.
- **Liasioning:** We represent and liaison for global corporations that specialize in their respective areas to deliver the customer with reliable, dynamic and most trusted array of solutions from their stable, facilitating interactive and productive exchange between international manufacturers and global clients.

Some of the key products we actively market include shear connector studs, glass fiber reinforced polymer (GFRP) rockbolts, wire mesh, lattice girders, swellex type rock bolts, self drilling bolts in steel, python rockbolts, THN arch systems, RTA soil nail/anchors, shear key bars, access gangways, mooring winches, specialty steel raw material, plastic components used in precast concrete segments amongst others.

Our highly experienced engineers also provide on-site handling solutions and training to the clients so that they get the best out of our product offerings.

For many years now, our products have been extremely acknowledged and appreciated by industry leaders in the various segments serviced by us.

Our entire product portfolio is exhibited in the coming sections of this brochure which includes our product description, applications and advantages.



About Us



Panchvaktram
Engineering Private Limited



Areas of Operation



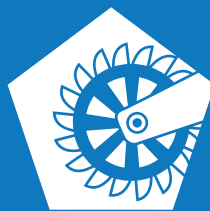
Automobile



Marine



Construction



Mining



Tunnelling



Nuclear



Shipbuilding



Metro (MRTS)

Nelson Stud Welding USA

Nelson Stud Welding is world's largest producer of studs, ferrules, welding machines and its accessories offering whole turnkey solution for customers. Nelson offers a complete line of stud welding systems under the Nelson® Nelweld®, N800i™, N1500i™, and NCD+™ brands and offers custom designed modular, fixed production and robotic TARC and NUT welding systems.



Nelson offers its products through two categories, namely,

Studs : Offers variety of specialized and standardized fasteners including shear connectors, threaded and non-threaded studs, collar studs, deformed bar anchors, headed concrete anchors, T-studs, lagging studs, insulation pins, wide flange studs and a full complement of specialized fasteners.

Equipment & Systems : Offers a complete line of portable and feed stud welding systems, including custom designed systems for a variety of end use applications including fixed, manual and automatic feed systems for high production environment.

Key Application Areas:

Automotive Sector: Typical applications include

securing body trims, electrical fuel and hydraulic lines, components and insulation.

Construction Sector: Offers a full complement of stud welding fasteners and application equipment to non-residential building contractors and OEMs for use in applications ranging from bridges and high-rise buildings to construction machinery and power generation equipment including nuclear power plants.

Industrial sector: Offers products that are used by OEM's in the manufacture of arm machinery, drilling machinery, maintenance vehicles, power transformers, industrial control systems, gas turbine engines and conveyor belts to consumer and commercial products such as kitchen ranges, washers, recreational vehicles and medical equipment.

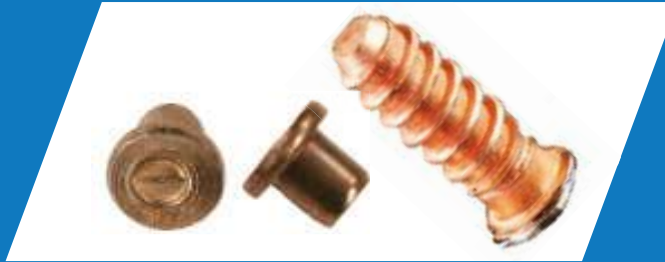
Key Advantages:

- World's largest producer of studs, ferrules, welding machines and its accessories.
- Offers a whole turnkey solution for customers.
- Nelson can manufacture the stud qualifying to all available and applicable standards.
- Nelson guarantees that every weld will be a 100% good weld when the customer uses a complete package of their products.
- Amongst the world's few who are a Nuclear Certified stud welding products manufacturing company.

Product Portfolio



Product: CPL Studs with Ferrules
Application: Shipbuilding and Industrial



Product: Trim Studs and Fir Tree Studs
Application: Automotive and Industrial



Product: W-Top Wide Flange Studs
Application: Automotive and other thin base materials



Product: H4L Deformed Anchor
Application: Construction and Industrial



Product: Port Studs
Application: Hydraulic Applications



Product: H4L and S3L Shear Connector Studs
Application: Construction, Industrial, Pre-Engineered Building



Product: NBL Boiler Studs
Application: Boiler Manufacturing and Nuclear



Product: Nelson Range of Ferrules
Application: All Industries



Product: Nelson Aluminium Flux
Application: All Industries

Stud Welding Equipment



Product: Nelweld 6000
Stud Range: 5mm - 25mm
Output: 300 - 2500 amps



Product: Nelweld 4000
Stud Range: 5mm - 22mm
Output: 300 - 2100 amps



Product: Nelweld N1500i
Stud Range: 5mm - 19mm
Output: 500 - 1500 amps



Product: Nelweld N800i
Stud Range: 2mm - 12mm
Output: 50 - 800 amps



Product: 4500 Series
Stud Range: 3mm - 13mm
Output: 200 - 850 amps



Product: N550c Arc Charger
Max Stud Dia. : 9.5mm
Output: 120 volts



Product: NCD+ 3200 CD Welder
Max Stud Dia. : 9.5mm flanged
Output: 70 - 200 volts



Product: NCD+ 1000/1600 CD Welder
Stud Range: 6mm - 10.5mm
Output: 70 - 200 volts



Product: N4 Inverter
Stud Range: Varied
Output: 200/250 - 1500 amps



Firep AG

Leading international manufacturer of GFRP based products with a global presence.

GFRP Rebars For Soft Eyes

FRP reinforcement can either be used for permanent applications or in the case of the requirement to avoid disturbances of electric or magnetic fields or for temporary application (e.g. Soft Eyes)

For temporary reinforcement of diaphragm walls, it is now state of the art to use a mixed cages of steel in the upper and lower section and FRP in the middle section.

This section, called "Soft-Eye", that will later be cut by the Tunnel Boring Machine (TBM).

Key advantages include high corrosion resistance for permanent application, proper bonding to concrete high tensile strength, low weight, magnetic neutrality/ antimagnetic and easy cutting.

Key applications include the use of rebars in temporary application (soft eye), exposed structures, infrastructural buildings, waterway engineering, railways/ aprons using induction loops, industrial plants, foundations to name a few.

GFRP Rockbolts

FiReP® POWERTHREAD® is a system of FRP rock bolts and FRP injection tubes with advanced strength and head load. It was developed for strata support in mining and tunnelling as well as for slope and face stabilization.

The products have a high ultimate load and due to their profile they offer a maximum bondage with all grouting material.

The cutting ability protects machinery and

equipment and prevents damage to machinery and equipment while drifting and enlarging tunnels.

The bolts and tubes have a high corrosion resistance under acid conditions and are well suited for permanent support. Due to its high tensile strength the bolt has a high and immediate load bearing capacity if applied with fast setting resin capsules.

Key advantages: Offers an all-thread bolt, provides for high end loading, flexibility, easy handling and antistatic coating (optionally).

Key application areas include:

Permanent support of structures, temporary application, for application without coupling in confined locations, in cementitious grout, resin capsules and injection of resin.



Firep AG

Leading international manufacturer of GFRP based products with a global presence.

GFRP Self Drilling Rock Bolts

FiReP® SPINMAX® is a self drilling rock bolt with advanced torque and pressure resistance and with high load bearing capacity of the threaded profile which allows strong jointing with drill bits, nuts and also couplers.

Due to its cuttability SPINMAX® FRP Self-Drilling Rockbolt is an economical alternative and also offers enormous advantages for modern rapid heating methods in tunneling.

The bolt has a high radial pressure resistance for injections with resins or grout and is corrosion resistant for permanent support.

The SPINMAX® offers a high tensile strength and can carry high loads.

Its low weight with high torsional strength makes the bolt well suited for works in loose rock up to a maximum hardness of 60 – 70 MPa.

Key advantage: Offers various distinct advantages including super high torque resistance, high end loading, easy handling and carries a R32 standard thread profile.

Key applications include face stabilization, forepoling, slope stabilization, ground support in soft rock and systematic rock bolting.

GFRP Powermesh

The GRP POWERMESH was developed according to standard grid applications featuring high load capacity at each jointing, comparable to welded steel mesh.

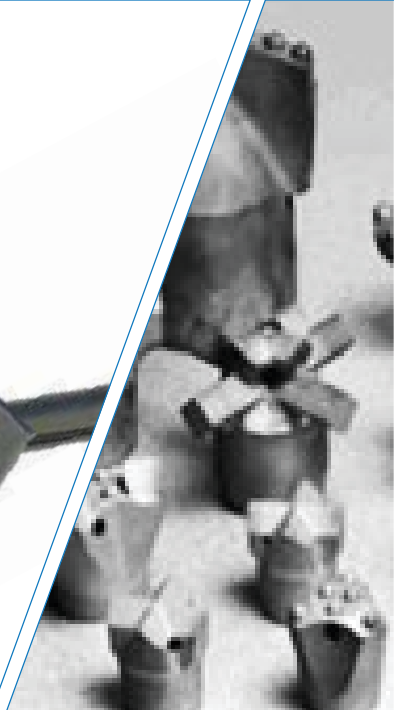
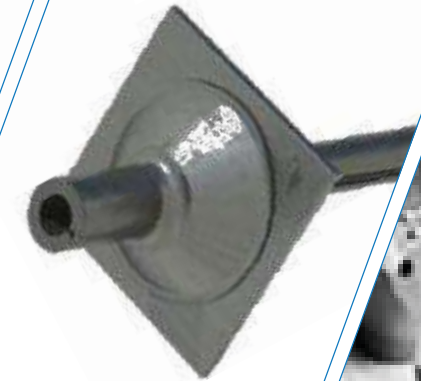
Key applications include face stabilization, slope stabilization.

GRP Lattice Girder

Firep's GRP lattice Girders with its continuous threaded surface and their high tensile strength distinguish them positively from other GRP products and make them very suitable for replacing steel products.

Jennmar Inc.

Jennmar is a leader in ground control technology for the mining, tunneling and civil construction industries with over 25 production plants around the world. Jennmar's vast range of products include bolts, beams, channels, trusses, resin, rebar, SDA's to name a few.



Jennmar Python Bolting System

The PYTHON rock bolt range features friction bolts with superior product characteristics to meet the most demanding roof support applications.

The Python range consists of three products namely the Python Standard for lighter applications with a load capacity of 12 metric tons, Python Midi load capacity of 16 tons and the robust Python Super with a capacity of 24 metric tons.

Key advantages include immediate full length support for faster excavation cycles and safer working conditions, excellent elongation properties add to the application flexibility, no grouting or use of chemicals needed to avoid contamination, versatile bolting solution for variable ground conditions.

Jennmar Python Expandable Rock Bolts

Python expandable rock bolts offer superior quality that responds to the most demanding roof support applications. Python's high load capacity along with excellent elongation properties

PYTHON bolts tie and join fractures because of their ability to withstand high loads and since the bolt has excellent elastic properties, it is able to withstand rock movement without cutting.

Jennmar Self-Drilling Bolt Anchor System

The Self-Drilling Bolt anchor system consists of a hollow bolt with a left-hand thread that spans the entire length of the outside diameter of the bolt.

This continuous thread also permits adding

accessory threaded couplers to the bolt if desired.

As the bolt is hollow, water and air can flow freely through the interior of the bolt during the drilling process and grouting can be injected through the bolt after application as well.

These bolts are known for their excellent load capacity and are available in diameters from 25mm to 103mm and Normal (N) or Special (S) type.

Key features include drilling, anchor installation and grouting in single operation, freedom from separate anchor installation or removal of casing and drill rods, ability to work with small drill rigs without casing in restricted headroom conditions, availability of enhance corrosion protection upon request.

Jenmar Inc.

Jenmar is a leader in ground control technology for the mining, tunneling and civil construction industries with over 25 production plants around the world. Jenmar's vast range of products include bolts, beams, channels, trusses, resin, rebar, SDA's to name a few.



Jenmar THN Arch System

The THN Arch produces a relation of transversal and longitudinal force that is nearly one, which in turn means that it works evenly in any direction of support.

The Profiles has quickly gained wide market acceptance by uniting high resistance to load along with dynamic behavior that is unseen in other arches in the industry.

THN Arches are assembled by overlapping one beam to another which are then connected to one another using a special joint.

With this revolutionary assembly technique, the beams slide between each other at the overlapping

joints and dissipate the load, energy and friction from the rock mass without suffering any deformation and still maintaining balance.

Key advantages include : Manganese enriched steel guarantees better quality, equal stress resistance in all directions, fast and easy installation, dynamic system allows for improved energy absorption, adequate for large convergence areas, total functionality even in variable inclination areas.

Jenmar Umbrella Tubes Concentric Drilling System

Umbrella Tubes Concentric Drilling System is a pre-support system of concentric drilling with simultaneous tube installation.

Any excavation process directly affects the

distribution of existing tensions in a rock mass.

In order to minimize the effect of these new tensions, pre-support systems have been developed that allow for later work in much safer working conditions until the final support systems have been installed.

Key application areas include: tunnel entry portal support, drainage system, tunneling in unstable terrain, ground, rock, even slopes on bad terrain, slope stabilization and civil applications in urban areas.

Ace Winches

ACE Winches is a global leader in the design, manufacture and hire of winches, marine deck machinery and the provision of associated hire personnel for the offshore oil and gas, marine and renewable energy industries.



ACE Manufacturing

ACE Manufacturing is a turnkey solution provider covering the design, manufacture, testing and installation of high quality bespoke winching equipment and deck machinery.

ACE Winches manufactures equipment to full certification by accredited bodies and to industry standards ensuring clients' specific quality obligations and statutory requirements are met.

Key products include drum winches, spooling winches, linear winches, traction winches, umbilical winches, tensioners and powered reel systems, launch & recovery systems, control & monitoring systems, hydraulic power units, rollers, sheaves & fairleads.

ACE products are designed to operate in hazardous

areas, meeting all relative ATEX standards, and are reviewed by Lloyds, ABS, DNV and BV when required.

Key application areas: lifting winches, abandonment and recovery winches, mooring and anchor winches, subsea umbilical, riser and flowline (SURF) installation, salvage and decommissioning, pipelay and trenching operations among others.

ACE Hire Equipment

ACE Hire Equipment supplies a comprehensive range of winch and deck machinery equipment for use on floating vessels, fixed offshore installations and land-based projects.

Key products offered for hire include drum winches, spooling winches, linear and wire storage winches, chain winches, synthetic rope traction

winches, hose reelers, running line monitors, rollers, sheaves & fairleads and other ancillary equipment.

ACE Hire Personnel

Provide support for ACE Winches products and clients by offering multi-disciplined personnel who are qualified to commission and operate all types of deck and platform equipment worldwide.

ACE Test Bed and Ships Bollard Pull Facilities

ACE Test Bed Facility, in Aberdeenshire, is designed to accommodate up to 800 metric tonnes of load. The test bed allows our winches to be fully tested prior to working operations. Tests simulating virtually any static or dynamic working arrangements are available. Operating from our base at Dusavik, Stavanger we provide vessel bollard pulls up to 700 metric tonnes.



Buitendijk Techniek

Buitendijk Techniek was established more than in 1950 and since then accumulated a wealth of experience in the construction of all types of steel structures from simple steel components to the most intricate sections for all kinds of projects ashore and afloat.

Access Gangway Systems

Designs, produces and delivers sophisticated Gangway Systems, customized to client demands.

The gangways can be with or without crane on top Structural or tubular type Hydraulic or Electrical driven

The access gangway can be fully automatic Standard execution or tailor-made.

These systems are used to give personal and crew access to ship and shore.

The gangways can be structure or tubular type and can be either hydraulic or electrically driven.

Key products include access towers, telescopic

gangways with self leveling steps, electric or hydraulic cranes, control cabins, (EX) radiographic remote control systems and fire fighting equipment.

Key Features: Gangways can be integrated with fire fighting equipment, video monitor system, control cabins, flood lights, lighting protection, in explosion-proof execution (Ex), (Ex) radiographic remote control systems, etc.

Access Gangway Integrations

Buitendijk is able to integrate and delivery various add-on features like fire fighting equipment and fire monitor towers, video monitor systems, control cabins, flood lights, lightning protection, in explosion-proof execution (EX), (Ex) radiographic remote control systems amongst others.

SHF Cranes

Designs, produces and delivers a wide range of cranes for seagoing ships, ships for inland waterways, dredgers, on-and off-shore usage, hose handling and for ex purposes.

SHF Cranes can be manual, electric, and hydraulic or diesel driven.

Offers various types of cranes depending upon the clients project needs including fixed jib slewing deck crane, luffing by cylinder, telescopic cranes, folding jib cranes, rack and pinion driven pump and engine room cranes or trolleys.



GTM France

*Specializing in heat treatment
of carbon and alloyed steel
bars and tubes)*

Having over two decades of experience, GTM France is a specialist in heat treatment and finishing of steel bars.

Key products offered include hot rolled or forged bars, cold formed bars and tubes, threaded rods for general use or presses, geotechnical tubes, mechanical tubes for hydraulic cylinders amongst others.

GTM products are widely used as anchoring systems, pre-stressed ties, hangers and rods, power station rods and as anchorage for wind towers.

HSA – HTSR Pre-Stressing Bars

GTM HTSR prestressing bars are manufactured using specific industrial processes including heat

treatment (quench & tempered) that ensures increased mechanical characteristics. The resulting ductility, tensile and yield strengths are greater than for typical prestressing bars (the bars may be bent 90 degrees at tight radii without fracture).

Applications for use of prestressing bars include heavy lifting, lifting tie downs and structural connections where their greater yield strength allows for more compact solutions. Prestressing bars are also well suited for structures subject to seismic loadings and possess excellent cold temperature properties.

Technical Characteristics:

Threading is performed by cold rolling, in accordance with ISO 965-1. The main mechanical

characteristics are the following:

Modulus of Elasticity: $E = 29,000 \text{ ksi (200 GPa)}$

Minimum Guaranteed Tensile Strength: $f_{pk} = 174 \text{ ksi (1,200 MPa)}$

Minimum Guaranteed Yield Strength: $f_{p0.2k} = 152 \text{ ksi (1,050 MPa)}$

Minimum Guaranteed Elongation at Rupture: $A\% = 10$

The guaranteed characteristics of Resilience for are indicated below:

Resilience at 68°F (20°C): 50 J

Resilience at 32°F (0°C): 30 J

Resilience at -4°F (-20°C): 20 J

Resilience characteristics at colder temperature (-40°F, -76°F) (-40°C, -60°C) can be provided upon request.

GTM France

*Specializing in heat treatment
of carbon and alloyed steel
bars and tubes)*



Specific Orders:

Prestressing bars are available in maximum 48.50 ft (14.80 m) lengths or may be pre-cut to specific lengths. Threads are provided at the ends with sufficient thread length to accommodate anchorage hardware, anticipated elongation, standard construction tolerances and as may be otherwise specified. Prestressing bars can be manufactured to specific custom diameters up to 3 inches (75 mm) by request.

Description Of The Bars 2-XI

Technical Characteristics

1. Threading left or right is performed by cold rolling, or by machining threading.

The main mechanical characteristics of our bars are the following:

Modulus of Elasticity: $E = 200 \text{ Gpa}$

Minimum of Guaranteed Rupture Strength: $f_{pk} = 355 \text{ to } 1\,200 \text{ Mpa}$

Minimum Guaranteed Yield Strength: $f_{p0.2k} = 335 \text{ to } 1\,050 \text{ Mpa}$

Minimum Guaranteed Elongation at Rupture: $A\% > 10 \text{ to } 22 \%$

Test realised on sample Depending of the grade, the guaranteed characteristics of Resilience (2) are indicated below :

Resilience at 20°C : 50 J

Resilience at 0°C : 30 J

Resilience at -20°C : 20 J

Resilience characteristics at colder temperature (-40°C , -60°C) can be provided upon request.

Test carried in accordance with EN ISO6892-1

Test carried in accordance with EN ISO148-1

Past Projects



Year: 2014
Project: T-74R(A) Tunnel
Principal: Jennmar Spain LA
Scope: Swellex and SDA



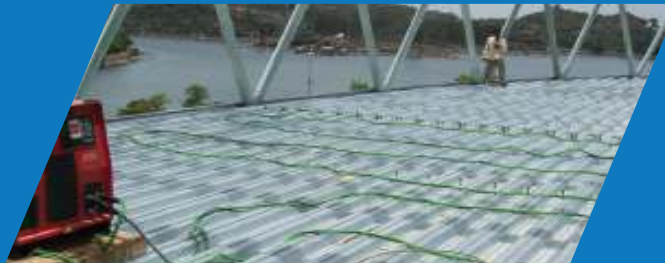
Year: 2014
Project: T-74R(A) Tunnel
Principal: Firep AG
Scope: GFRP Rock Bolts



Year: 2014
Project: Dahej Stanby Jetty
Principal: ACE Winches
Scope: 8 mooring Winches



Year: 2014
Project: Nandnagari FOB
Principal: Nelson Stud Welding
Scope: Studs + Equipment



Year: 2013
Project: ICICI Bank Building
Principal: Nelson Stud Welding
Scope: Studs + Equipment



Year: 2013
Project: Chennai Metro
Principal: Self
Scope: Rail Switches



Year: 2013
Project: Reliance Jamnagar DTA & SEZ Site
Principal: Nelson Stud Welding
Scope: Studs + Equipment



Year: 2013
Project: Munger Bridge
Principal: Nelson Stud Welding
Scope: Studs + Equipment



Year: 2012
Project: Chennai Metro
Principal: Firep AG
Scope: GFRP Soft Eyes



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