



BluGeo GRP Systems

ANCHORS, SOIL NAILS AND REINFORCEMENT



BluGeo GRP Systems
are Glass-Fibre
Reinforced Polymer
(GRP) continuously
threaded bar products,
suited to applications
in ground stabilisation,
reinforcement and civil
engineering projects.

BluGeo GRP Systems

PRODUCT INFORMATION

BluGeo GRP Systems offer a robust, lightweight, durable and economical solution for anchoring, soil nailing and reinforcement projects.

WHERE TO USE BLUGEO GRP SYSTEMS

- Face and slope stabilisation
- Ground support
- Rock bolting
- Tunnelling
- Reinforcement
- Permanent and Temporary Applications

ADVANTAGES OF BLUGEO GRP SYSTEMS

- Durability: 100-year design life
- Lightweight: 25% weight of steel
- High tensile and shear strength
- Faster and safer to install
- Non-conductive material - no stray currents
- Low carbon footprint
- Economical



Bluey Technologies recognised a need in the industry for a more efficient, economical and durable method for anchoring and soil nailing.

COMPOSITE REINFORCEMENT AND MANUFACTURING

The manufacturing process is a unique form of pultrusion using a combination of Japanese and Swiss engineering.

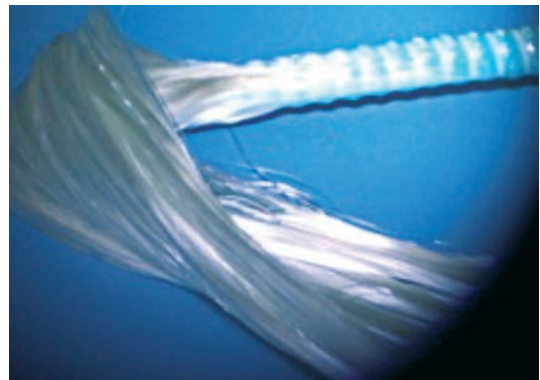
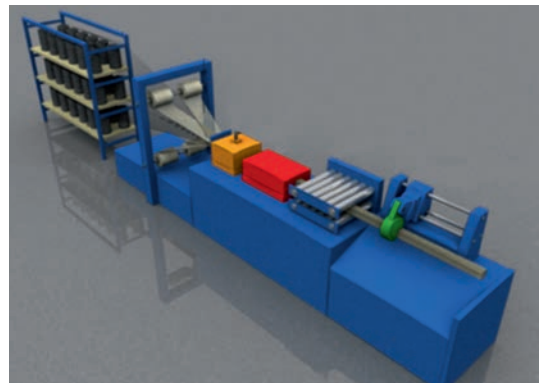
This unique process results in an ultra-high shear capacity and thread strength. Composite manufacturing process and high quality materials influence final characteristics:

Glass fibres/1000MPa (standard)

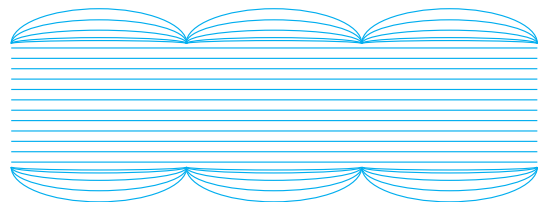
Vinylester resin (permanent application)

MATERIAL PROPERTIES

- Very high tensile strength
- High shear strength
- Bond stress to grout greater than steel



LONGITUDINAL SECTION



BluGeo GRP Systems

PRODUCT AND APPLICATIONS

BluGeo GRP60

GRP CONTINUOUSLY THREADED SOLID BAR

BluGeo GRP60 is a Vinyl Ester glass composite bar, based on leading-edge Swiss and Japanese design and manufacturing technology. The unique manufacturing process results in an ultra-high shear capacity and thread strength. The product has been designed and extensively tested to International standards for GRP bar manufacture and to provide a 100-year design life. The system includes GRP, steel nuts and plates to provide the appropriate load capacity for the anchors. The product is easily cut, non-conductive and lightweight, reducing site safety risks.



BluGeo GRP Reo

GRP CONTINUOUSLY DEFORMED REINFORCEMENT BAR

BluGeo GRP Reo is a reinforcement bar for use in design of tunneling softeyes or for reinforcement of concrete elements that are subjected to highly corrosive environments. The bar is manufactured from polyester resin and E glass fibres to provide a high strength, non-corrosive and lightweight alternative to regular steel bars.



BluGeo GRP Cablex-S

GRP CONTINUOUSLY THREADED FLEXIBLE BAR

BluGeo GRP Cablex-S is a cable bolt with high flexibility, strength and durability in corrosive and acidic environments. Cablex-S can be easily assembled with no special tools or equipment.



PRODUCT ADVANTAGES

- Lightweight and easy to install
- No sheathing required
- Reliable single stage grouting process
- Cost effective
- High tensile and shear strengths
- Acid resistant

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PRODUCT FEATURES AND BENEFITS

NON-CONDUCTIVE

- BluGeo Powerthread is a non-conductive element
- Resistance > 1000kΩ/cm (immeasurable)
- Eliminates stray current corrosion
- Reduces maintenance costs for Rail Authorities

RELIABILITY

- Galvanising or sheathing for corrosion protection not required

DURABILITY

- BluGeo GRP System bars have durability exceeding 100-years
- The bars are resistant against acid attack as well as against alkaline attack and provide a long service life in aggressive soil conditions

SAFE INSTALLATION

- 12m bar can be lifted safely by 1 person
- Simple installation operation

IMPROVED SITE HANDLING

- Less crane movements and machinery required on site
- Reduces risk of site transport, loading and unloading incidents
- No need to protect from the weather as GRP is non-corrosive and UV resistant

LIGHTWEIGHT

- Due to the low density of glass and resin, BluGeo GRP bars are 25% the weight of steel
- The low weight facilitates handling and reduces risk of injury to installers where manual installation is necessary
- This feature minimises the transportation cost and can reduce dead loads on structures



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PRODUCT FEATURES AND BENEFITS

HIGH TENSILE SHEAR STRENGTH

- The BluGeo GRP bar has double the tensile strength of normal steel and high shear strength.

CUTTABILITY

- Much safer cutting without the need for high-speed disc or oxy-acetylene equipment
- Allows easy future excavation for widening works - whole of life cost
- Continuous thread profile allows the bar to be trimmed on site

QUALITY OF INSTALLATION

- No reliance on galvanising or sheathing for corrosion protection
- No risk of damage to complex DCP system during installation
- No minimum cover requirements in accordance with AS3600

FAST, EASY GROUTING

- BluGeo Powerthread only requires a single grouting operation with no sheathing
- Full encapsulation and engagement of the bar with RMS approved grout BluCem HS200G allows pull testing after 24hrs

ECONOMICAL

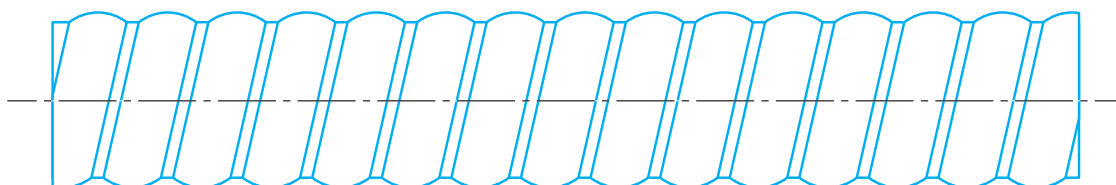
- No sheathing is required, allowing single stage grouting and fast, easy install.
- Savings of up to 50% can be made compared to steel DCP products.
- BluGeo Powerthread offers significant cost reductions on: material supply; installation and site storage; whole of life cost



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PRODUCTS AND ACCESSORIES

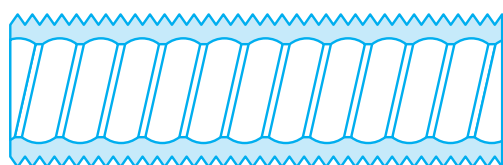
BLUGEO GRP60 BAR



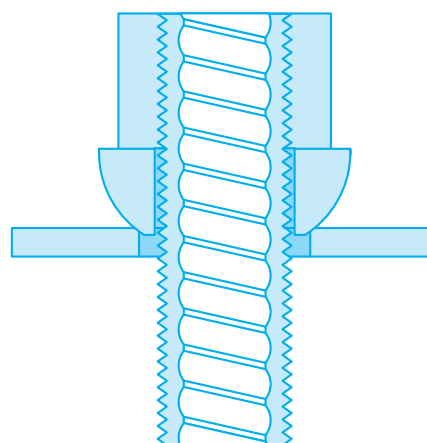
BLUGEO CABLEX - S



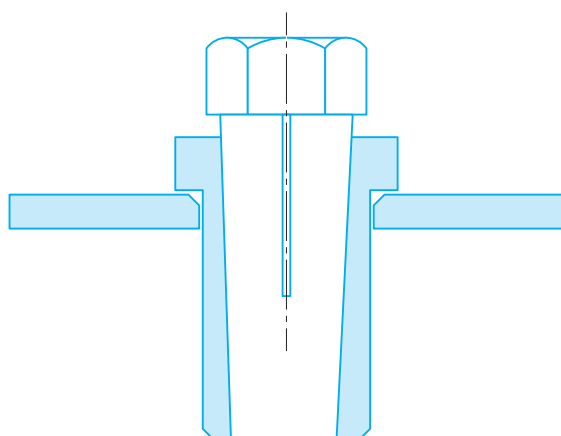
BLUGEO STEEL ACCESSORIES



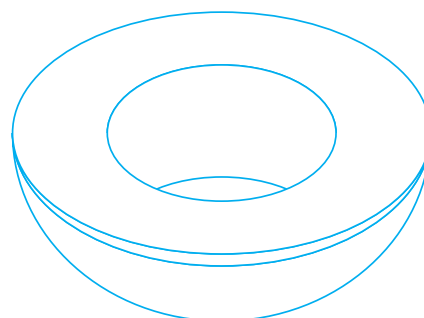
DT Nut



DT Nut Assembly



Duo Nut Assembly

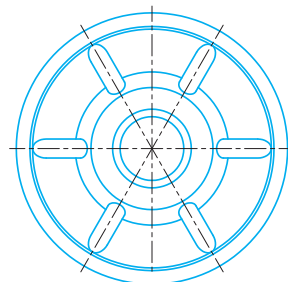
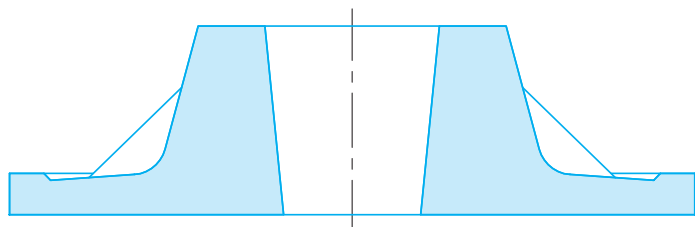


Dome Washer

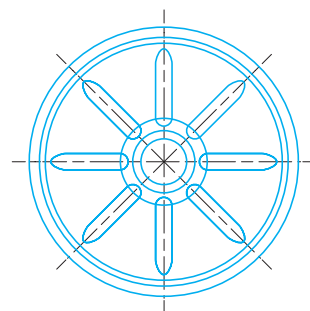
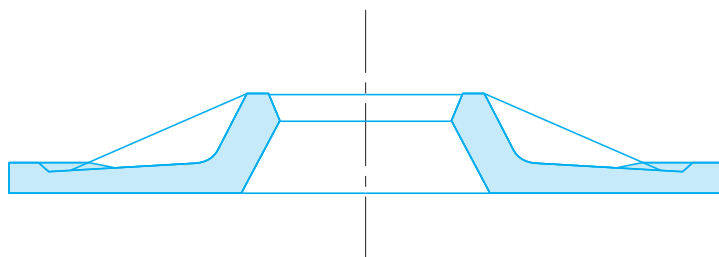
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PRODUCTS AND ACCESSORIES

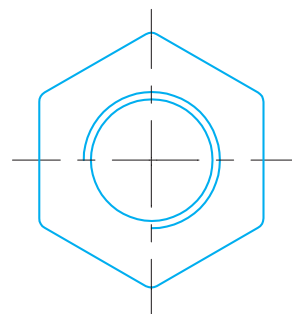
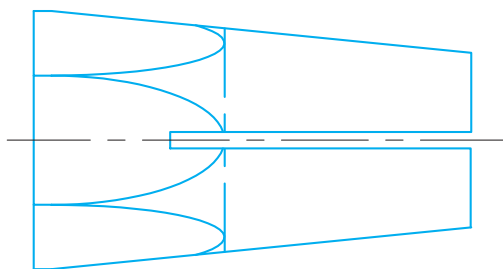
BLUGEO GRP POWER PLATE



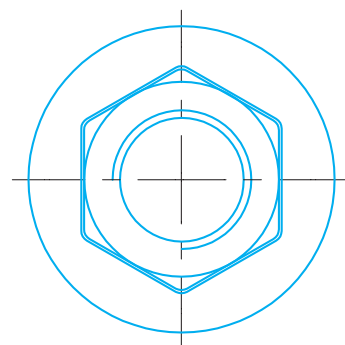
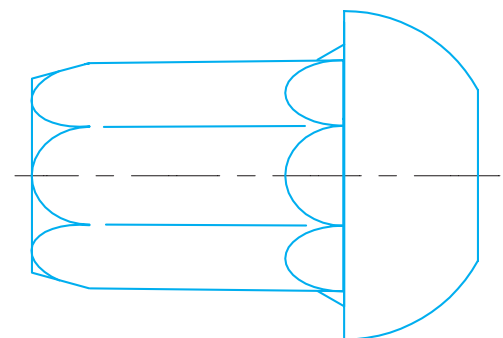
BLUGEO GRP DOME PLATE



BLUGEO GRP POWER NUT



BLUGEO GRP DOME NUT



	BLUGEO GRP60		STEEL BAR
	25mm Bar	32mm Bar	25mm Bar
Outer Diameter	25mm	32mm	29mm
Tensile Stress Area	346mm ²	580mm ²	491mm ²
Unit Weight	0.9kg/m	1.5kg/m	3.85kg/m
Minimum Tensile Strength	350kN	560kN	245kN
Shear @90°	170kN	245kN	173kN
Shear @50°	345kN	490kN	173kN
Tensile E-Modulus	60GPa	60GPa	205GPa
Steel Nut Break Load (150mm)	220kN	320kN	245kN
Steel Nut Break Load (200mm)	250kN	380kN	245kN
GRP Nut Break Load	70kN	90kN	92kN
GRP Power Nut	180kN	180kN	
Steel Coupler	220kN	320kN	
Steel Duo Nut Break Load	300kN	450kN	
Electrical Resistance	>1000kΩ/cm	>1000kΩ/cm	>0kΩ/cm

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INTERNATIONAL STANDARDS, TEST DATA AND APPROVALS

AVAILABLE TEST DATA INCLUDES:

Sherbrooke - Bond Dependent Coefficient
Sherbrooke - Bond Strength
Sherbrooke - Creep Test
Sherbrooke - Creep Rupture Strength
Sherbrooke - Longitudinal Tensile Properties
Sherbrooke - Bond Strength
Sherbrooke - Flexural Properties
Sherbrooke - Transverse Shear Strength
Sherbrooke - Tensile Strength Of Best Bars
Sherbrooke - Alkali Resistance
DMT Test Report U2333nn-Bs-A Shear Test
50° K60-32
DMT Test Report U2330nn-Bs-A Shear Test
90° K60-32
EMPA Test Report 456496
EMPA Test Report 456497
FiReP Thread Characteristics
Investigation Report ER. 19.03.2010

STANDARDS

BluGeo GRP conforms to the following Standards for use in permanent applications.

ACI 440
BS8006-2-2011
CSA S-805
CSA S-807
Eurocode 7
VicRoads Section 683 – Soil nails

AUTHORITY APPROVALS

BluGeo GRP has been approved by the following Authorities in accordance with the Standards listed above.

DPTi – SA
Metro Trains VIC
NZTA
SCIRT – NZ Christchurch
Rebuild Christchurch City Council
TMR





We deliver...

- Products developed for civil engineering
- Product technical knowledge
- Site application knowhow
- A collaborative approach
- Economical solutions for large projects



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