MagmaTech®

RockBar®

RockBar is a range of basalt fibre composite reinforcing bars for use in Concrete, Mortar and Cast Stone.

The properties of RockBar include:

- Excellent chemical and corrosion resistance
- 3.7 times lighter than steel and stainless steel
- 2.5 times stronger in tensile strength than steel and stainless steel
- Over 60 times less thermally conductive than steel and over 20 times less thermally conductive than stainless steel
- Non magnetic
- Electrically non-conductive

Environmental performance of RockBar includes:

- 40% lower global warming impact than stainless steel
- No waste production during manufacture
- Basalt is one of the most common rock types in the Earth's crust

Key advantages

High tensile strength

RockBar's extremely high tensile strength allows for large factors of safety in the structural design of concrete members and structures, such as bridges.

Chemical resistance

RockBar is permanently resistant to acids and bases. Corrosion protection is not required. Thus RockBar is ideally suited for any type of construction in highly corrosive environments.

Non-conducting

As it is electromagnetically non-conducting, RockBar is ideally suited for applications in electrical and research facilities.

Easily machined

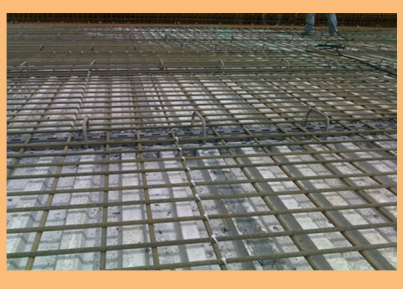
RockBar can be cut by tunnel boring machines. Therefore it is the ideal temporary reinforcement in tunnelling projects. The installation of RockBar results in substantial time and cost savings.

Technical Information

Length	Stock lengths are 2.5m. Cutting to required lengths is possible.
Nominal Diameters Available	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 10mm, 12mm Other diameters available on request.
Composition	Basalt fibre reinforced polymer (BFRP) bar with a sanded finish to aid bonding to mortar.
Tensile strength	1000 Mpa +
Elastic Modulus	45 Gpa +
Bond Strength	Sand coating gives an excellent bond strength in concrete, standard mortar and lime mortar.
Durability	Durability tests which model the alkali environment of concrete have been completed. Estimated environmental strength reduction factor for a period of 100 years in wet concrete conditions is 1.25 which corresponds to a strength retention of 79.6%.
Sustainability	A life cycle analysis has been conducted which concludes that; "The production of stainless steel bars emits ~170% more CO2 than the BFRP bars".
Coefficient of Thermal Expansion	2 x 10-6 1/k (in the longitudinal direction)
Thermal Conductivity	0.7 W/K.m

More information and data available on request

Project: reinforcement of a concrete bridge deck in Northern Ireland, UK



Applications

Aggressive ground water environments
- Industrial environments
- Petrochemical / Refineries
- Waste water treatment plants
- Desalination plants
- Large industrial complexes

Low concrete cover / discontinuous concrete cover
- Architectural concrete / cast stone
- Thin concrete products like pre-cast wall panels
- Connections / modular component systems (e.g. balcony connector, balustrade rail locating pin, floor slab expansion joints)

Near electrical equipment / specialist machinery
- MRI scanner rooms
- Smart roads
- Railway infrastructure
- Telecommunication / mobile phone installations

Structures that have a long design life (100 years +)
- Major civic projects
- Symbolic buildings and infrastructure
- Bridges / Tunnels

Transport Infrastructure exposed to de-icing salts
- Car parks / multi-storey parking
- Bridges / Tunnels
- Airport taxiway / runways

Costal / Marine areas
- Splash zone / wash zone
- Offshore industries Harbour installations, Piers, Dams
- Ferry berths

Tunnelling
- Cut-able "Soft eyes" for tunnel boring machines

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