“Success is underpinned by the calibre and experience of each member of the Freyssinet project team...ensuring successful resolution with well developed method statements and risk assessment.”
INTRODUCTION
Freyssinet Limited, since its inception in 1950, has been at the forefront of providing specialised civil engineering technology, consultancy and installation for projects large and small.

“Freyssinet’s unique approach blends years of hands-on experience with expertise at the cutting edge of engineering. A total service approach dedicated to the task of nurturing, maintaining and reviving the life force of bridge, building and industrial structures.”
Part of the Soletanche Freyssinet Group, Freyssinet is respected worldwide for delivering innovative solutions and pushing the envelope of civil and structural engineering achievement.

Originally a specialist in bridge components and post-tensioning, Freyssinet has successfully expanded its portfolio of products and services into repair, protection and strengthening of structures, specialising in diagnostic surveys, repairs, refurbishment and cathodic protection to reinforced concrete in the building, civil and marine sectors.

In 2007 the Freyssinet Group adopted the ‘Sustainable Technology’ tagline. Our products and services offer high value added solutions which are synonymous with sustainability, our aim is “to do more with less materials and energy”, setting us apart from conventional solutions.

Freyssinet's innovative spirit and expertise in the critical discipline of engineering has secured its involvement in many landmark projects for clients such as the Highways Agency and others.

Years of experience in the design, construction, testing and monitoring of structural systems have equipped Freyssinet with exceptional insight and resources in the field of repair and strengthening.

Freyssinet's resources in repair and strengthening include a wide range of proven products and techniques, and the expertise to combine principles and methods to innovate bespoke solutions.

**Concrete Enhancement**
- Concrete Repair
- Concrete Replacement
- Hydrodemolition
- Wall Sawing
- Diamond Coring

**Strengthening**
- External Post-Tensioning
- High-Tensile Bars - Freyssibar
- TFC® Carbon Fibre
- Plate Bonding

**Bearing Replacement**
- Lifting / Jacking / Propping
- Specialist Expansion Joint Replacement

**Structural Enhancement Techniques**
- Cathodic Protection
- Coatings / Silane
- Resin / Grout Injection
- Wax Injection

Success is underpinned by the calibre and experience of each member of the Freyssinet project team. Our highly qualified engineers are trained to identify problems then select and justify effective solutions, supporting site activities with design and technical input throughout. Our construction managers understand the dynamics of delivering quality and safety within demanding environments, ensuring successful resolution with well-developed method statements and risk assessment. Site operatives and supervisors follow only the highest standards of preparation, application and after-care to ensure the quality of repair and strengthening.
CONCRETE ENHANCEMENT

Freyssinet clients have access to a complete range of concrete assessment, repair and strengthening resources, applied and managed to the highest standards throughout 'one-stop' contracting service.

“Early detection of defects or of unseen, potentially damaging change enables clients to implement repair and treatment to prolong design life and minimise the long-term cost of maintenance.”
We work closely with the major material suppliers to ensure our concrete repair and strengthening solutions benefit from the latest materials engineering.

**Diagnosis, prevention and cure**
Freyssinet offers a comprehensive range of tests to enable clients to accurately evaluate concrete structure problems and identify appropriate repair strategies. Testing techniques include cover surveys, half cell testing, dust sampling, chemical analysis, defects surveys and other state-of-the-art diagnostic methods. Advitam, a sister company of Freyssinet, is a dedicated resource of highly qualified engineers and technicians offering structural evaluations and ‘health checks’ using the latest computer-aided diagnostic techniques and equipment.

In-service monitoring of bridges, buildings and other structures provides asset owners with vital information on their condition.

Early detection of defects or of unseen, potentially damaging changes enables clients to implement repair and treatment to prolong design life and minimise the long-term cost of maintenance.

**Concrete repair**
Repair of spalled, cracked, honeycombed or otherwise damaged concrete is achieved using the latest methods and materials including:

- Modified mortars for patch and thin bond repairs
- Pressure and/or vacuum resin injection using epoxy, polyester and cementitious grouts
- Sprayed concrete
- Leak sealing

**Concrete replacement**
Replacement may be the only viable answer to poor concrete condition or strength. Freyssinet can provide removal by conventional breaking out or hydrodemolition techniques performed by their own in-house team, followed by replacement using high performance repair concretes and mortars. Required falsework, shuttering, propping and jacking are all part of Freyssinet’s concrete repair capabilities.

**Coatings and complementary services**
Corrosion inhibitors, anti-carbonation coatings, waterproofing membranes, paints, other sealants and decorative finishes are among the specialist restorative coatings and concrete treatments provided by Freyssinet. Concrete repair is frequently undertaken alongside other strengthening and remedial work such as repair and strengthening of bridges, buildings, car parks and industrial structures in the public and private sectors.

Member of the Concrete Repair Association
Freyssinet has amassed a wealth of experience and technology in the strengthening of structures aimed at prolonging service life or facilitating a change of use. Project expertise includes bridge deck strengthening, column reinforcement, upgrading floor slab load capability and strengthening work around new structural openings.

“Freyssinet’s capability in engineering naturally embraces the full range of services needed in defining economic and effective programmes for strengthening”
External post-tensioning
Particularly applicable to bridge deck strengthening, Freyssinet offers the design and installation of additional post-tensioning to existing structures. For large span box girder bridges, tendons are often retrofitted inside the structure, for smaller span structures, it may be appropriate to fit tendons to the exterior. The effect in both cases is to introduce extra compression in areas subject to excessive tensile forces, allowing the structure to carry higher loads. The technique has many benefits, but is most effective in upgrading circular storage tanks or strengthening bridges.

High-tensile bars - Freyssibar
Freyssibar bars are often used up following analysis of live loading to introduce pre-stress into existing areas with high stress concentrations or subject to bursting forces.

Developed by Freyssinet, this pre-stressing system comprises of a wide range of fully threaded bar and complementary anchoring, coupling and extension devices. It is used for post-tension cables and pre-stressed ground anchors and can also be transferred to any application involving temporary or permanent tie rods.

Carbon fibre
Freyssinet is able to formulate, design and install many carbon fibre applications, including:
- Column wrapping
- Beam strengthening
- Floor slab strengthening
- Reinforcement around new structural openings

Steel plate bonding
Plate bonding is another proven technique within Freyssinet’s first class engineering portfolio for increasing the load bearing capacity of beams and floor slabs. The process involves the bolting and/or bonding of steel plates, of precision-calculated length and cross section, to the tension zone of the structural component using high performance epoxy adhesive. The steel acts compositely with the beam or slab to achieve an increase in section and consequently in load carrying capability.

Geotechnical solutions:
Ground anchors
Freyssinet’s long standing expertise in geotechnical systems offers a complementary resource for ground anchor solutions. Freyssinet carry out testing and in-service assessment of installed ground anchors.

Design and calculation for strengthening work
Freyssinet’s capability in engineering naturally embraces the full range of structural assessment, calculation and consultation services needed in defining economic and effective programmes for strengthening. All these resources are available in-house, enabling us to service clients with a complete design-and-install package for the strengthening application.
BEARING REPLACEMENT

Freyssinet is hugely experienced in bearing, jacking and sliding technology, and in the management of the safety and logistics of these often very complex, high risk projects in accordance with client deadlines and budget.

“As the foremost designer and manufacturer of bridge bearings in the UK, Freyssinet is eminently qualified to support client’s project planning.”
Bearing assessment
As the foremost designer and manufacturer of bridge bearings in the UK, Freyssinet is eminently qualified in the assessment of in-service bearings. Consultation includes bearing inspection and testing, identification and confirmation of the design specification from archived drawings. We provide clients with advice and recommendations for bearing refurbishment or replacement, together with cost estimates and photographic material to support client's project planning including tender documentation.

Our own design and contracting service in bearing replacement, both mechanical and elastomeric, assures bearing design to current standards. Our in-house design team will readily modify bearing arrangements to make replacement easier. Refurbishment contracts are completed to the same exacting standards as new bearing installation.

Bearing replacement
Freyssinet offers bearing replacement as principle contractor or on a subcontractor basis. This one-stop service combines our proven expertise in bridge bearing design with knowledge of jacking operations and specifically construction chemicals. An extensive range of repair and strengthening services are available where bearing work is accompanied by other structural needs. Hydrodemolition, wall sawing and diamond drilling carried out by our in-house teams complete the package.

Jacking and sliding
Our skilled application of jacking technology will remedy problems in new and existing structures. Principally using flat jack and conventional hydraulic jack techniques, we are able to complete critical procedures to lift, slide and realign structures. As experts in bearing manufacture, we have pioneered the additions of PTFE and elastomer sliding surfaces to the jack head to accommodate limited vertical and horizontal movement to permit bridge deck jacking under live traffic.

Expansion joint replacement
We offer a specialised expansion joint replacement service which includes design.
Corrosion, cracking, voids, tensile forces and compression forces are all issues that Freyssinet have been applying longer life treatments to for over 30 years.

“Reinforcement corrosion, exacerbated by reduced alkalinity of the surrounding concrete, is the major cause of concrete deterioration.”
Cathodic protection
Reinforcement corrosion, exacerbated by reduced alkalinity of the surrounding concrete, is the major cause of concrete deterioration. The two main mechanisms behind this deterioration, evidenced by cracks, spalling and delamination, are carbonation (from atmospheric carbon dioxide) and chloride attack (from seawater, marine aggregates and de-icing salts).

Overtaking the use of traditional patch repair of damaged concrete are a range of techniques providing effective treatment, such as corrosion inhibitors, re-alkalisation, chloride extraction and cathodic protection. The latter provides on-going corrosion protection through the addition of a small electric current through the reinforcement layer.

Offering significant benefits over other techniques, Freyssinet has developed a one-stop service in the design and installation of cathodic protection in partnership with sister company Corrosion Control Services Ltd (CCSL).

www.corrosioncontrolservices.co.uk

Resins and grouts
Resin and cementitious based media can be used for numerous structural and non-structural void filling applications. These include injection into fine cracks within reinforced concrete structures as well as mass stabilisation of voided sub-strata. Using high and low pressure injection equipment in conjunction with the latest vacuum assisted grouting technology, polyester epoxy and polyurethane resins, Freyssinet provide a comprehensive service of injection techniques.

Coatings
Freyssinet offers a full range of coating treatments including corrosion inhibitors, anti-carbonation, waterproofing and chemical resistant applications. We provide solutions for waterproofing, flexibility and chemical attack, all having long life expectancy and low maintenance costs.

Slab connectors
The component assembly, design principle and installation method of the Freyssinet slab connector combine to create a visually neat, simply installed and cost-effective solution to slab joint failure. Cast iron, steel and elastomer components interact to provide a high performance connector for management of vertical loads, horizontal expansion and contraction movement. Freyssinet slab connectors are sized for numerous applications, including industrial flooring, road carriageways, airport runways and aprons.

Wax injection
For the full range of treatment work, from post-tensioning to ground anchors and cable stay systems, Freyssinet increasingly adopts wax in favour to traditional grouts. These modern semi-solid bonding agents are more flexible to work with and corrosion resistant. We provide plant for wax bonding anything from 2 litre ‘top hat’ caps to 2000 litre capacity cable stay sheaths on bridge decks.
HEALTH, SAFETY, ENVIRONMENT & QUALITY

Freyssinet Limited is wholly committed to meeting our legal and ethical responsibilities. This applies to the health and safety of our employees and clients, the environments in which they work and the quality and sustainability of the products and services which we provide.

“Freyssinet’s health, safety, environment and welfare standards stand positive comparison with recognised good practise within the construction industry at all times.”
Safety and Environment

Freyssinet believes that the company’s health, safety, environment and welfare standards stand positive comparison with recognised good practise within the construction industry at all times. Our Health and Safety system is accredited to OHSAS 18001 and our policy on Environmental Protection is accredited to ISO 14001.

Freyssinet employs a full time in-house NEBOSH qualified HSE Manager who has ready access to group level and external health, safety and environmental advisors when required.

Freyssinet is regularly employed on a main contractor basis and is experienced at fulfilling the role of Principle Contractor required by the CDM regulations. The majority of our site operatives are directly employed and all hold CSCS cards. All employees enjoy access to appropriate safety and training equipment.

Quality

Freyssinet was amongst the first construction companies in the UK to be awarded BS EN ISO 9001 and has long known that complete client satisfaction with our products and services is the only way to ensure repeat business. Our certificate includes full scope for repair and strengthening works, and recognises the in-house design facility that Freyssinet is able to provide. Freyssinet employ a full time Quality Manager to ensure both internal and external quality expectations are met and exceeded.

Clients

Freyssinet enjoys an extensive client list that features the Highways Agency, Local Authorities, industrial clients and developers, and main contractors. Freyssinet operates both as a principle contractor as well as a specialist subcontractor. Freyssinet is approved by Constructionline, CHAS, EXOR and Achilles, and has significant notation for civil engineering works. Freyssinet is an active member of the Concrete Repair Association, the only recognised grouping of major contractors and materials suppliers in the repair industry. Additional association memberships include:

- Bridge Joint Association
- Corrosion Prevention Association
- Post Tensioning Association
- Sprayed Concrete Association
- Water Jetting Association
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www.freyssinet.co.uk

Freyssinet operates across the whole of the UK and Ireland from bases in Telford, London, Glasgow and Dublin.
For enquiries, technical advice, and to arrange inspection visits please contact our Head Office at Telford.

Other services offered by Freyssinet:
- Bridge Bearing – Design & Manufacture
- Post Tensioned Systems – Design & Installation
- Cable-stayed Structures
- Reinforced Earth Structures