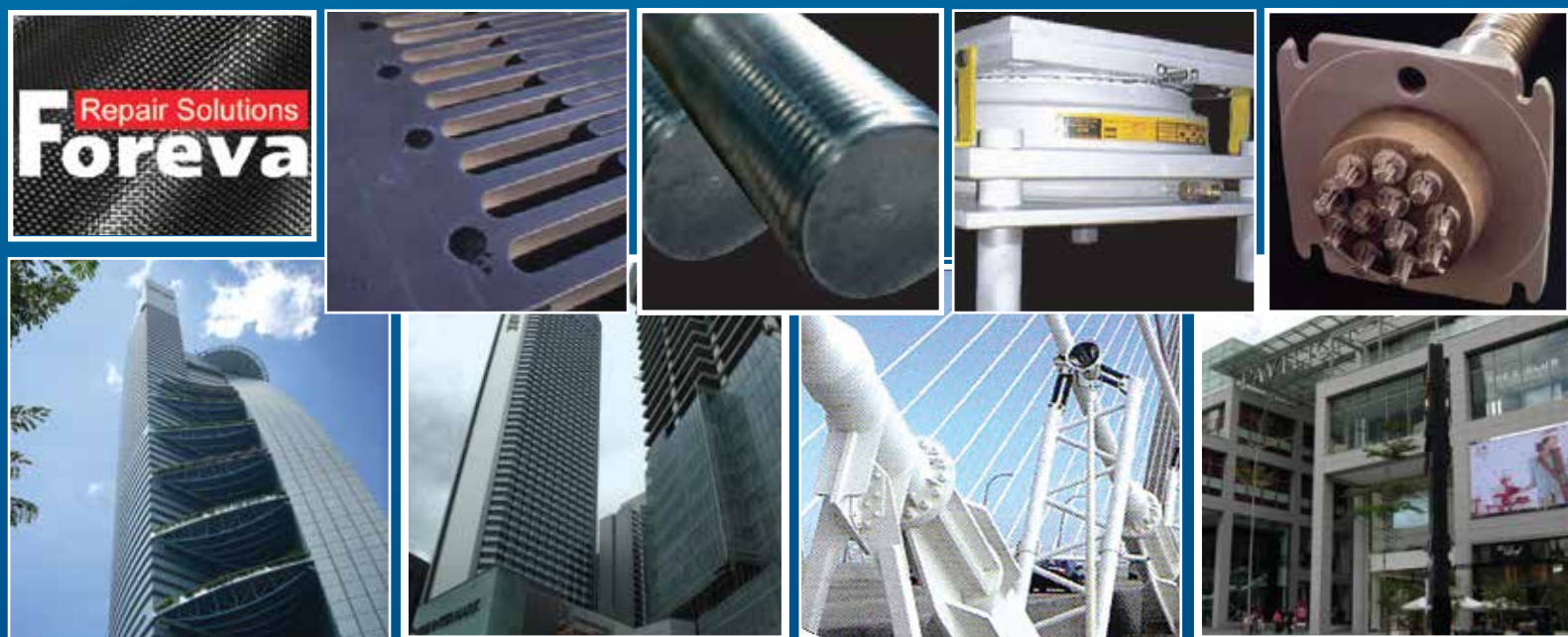


**FREYSSINET PSC (M) SDN BHD**



***The Specialist Contractor To The Construction Industry***

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## The Company

Freyssinet PSC (M) Sdn Bhd had its humble beginning in Prestressed Concrete Structures Sdn Bhd, a company incorporated in September 1970 by the founder, Mr Y. K. Kwan. Since then, the company has come a long way to what it is today.

In 1976, the company was re-named Pre-Stressed Concrete (M) Sdn Bhd to be more reflective of the company's core business of prestressing, along with related engineering products, such as bridge bearings and expansion joints.

By 1988, the company had been restructured into a subsidiary of the Freyssinet International Group, leading to the change in name to the current, Freyssinet PSC (M) Sdn Bhd, in 1991.

While the company's core business is still in the prestressing of bridges, buildings and other pre-stressed structures, it is however being increasingly complemented by the company's other activities. Perhaps now, a more suitable description of the company's businesses would be Specialist Engineering.

Freyssinet PSC (M) Sdn Bhd has become justly well known and trusted in the engineering and construction sectors for its experience, expertise and competence in special engineering and construction techniques. The company's successes in the Cable-Stayed, Balanced Cantilever and Incremental Launching Methods of bridge construction are testimonies to the company's special skills.

As demonstrated with upgrading of the stay cables for the prestigious Penang Bridge, Freyssinet PSC (M) Sdn Bhd now spearheads the introduction of new construction techniques into Malaysia. Freyssinet patented Isotension® technology was the clearly proven best choice for the job.

Freyssinet PSC (M) Sdn Bhd is also pioneering the use of other new and special investigative techniques and construction methods like Soundprint® and the use of TFC fabrics in structural repairs. The introduction of these new technologies certainly augur well for Freyssinet PSC (M) Sdn Bhd as it positions itself to meet the challenges of the 21<sup>st</sup> Century.

Applying a Quality Control System certified to MS ISO 9001:2015, sound management policies and a dedicated workforce, Freyssinet PSC (M) Sdn Bhd will continue to be the Specialist Contractor that customers can confidently count on.

## Products And Services

Freyssinet PSC (M) Sdn Bhd is well equipped to offer the following line of Products And Services: -

### 1. Prestressing (Buildings)

- Alternative Design
- Flat Slab
- Beams And Slab Systems
- Transfer Beams

### 2. Prestressing (Civil Engineering)

- Pre-Tensioning
- Post-Tensioning
- External Prestressing
- Prestressing Bars
- Precast Beams
- Precast Segments
- Box Girder Bridges
- Silos, Reservoirs And Concrete LNG/LPG Tanks

### 3. Bridge Construction Technology Engineering Design

- Alternative Bridge Design
- Casting Yard Design
- Formwork Design
- Segment And Beam Erection

### 4. Bridge Construction Technology Construction Equipment

- Launching Girders
- Precast Segment Casting Cells
- Incremental Launching
- Precast Segment Assembly Trusses
- Travelling formwork

### 5. Cable Stays

- Design, Supply And Installation Of Cable Stay Systems

# Products And Services - continuation -

## **6. Structural Repairs**

- Bridge Strengthening
- Concrete And Structural Repairs
- Crack Injection
- Rehabilitation Of Structures
- Bridge Bearing Replacement

## **7. Heavy-Lifting**

- Strand Jacks
- Flat Jacks
- Controlled Lifting And Moving Of Heavy Structures
- Tower Lift System

## **8. Bridge Bearings**

- Design, Supply, Testing And Installation Of Elastomeric Bearings
- Design, Supply, Testing And Installation Of Mechanical Bearings

## **9. Expansion Joints**

- Design, Supply And Installation Of Extruded And Mechanical Joints

## **10. Geotechnical**

- Ground Anchors
- Micropiles

## **11. Construction Products**

- Water-Stops
- Joint Sealants
- Concrete Admixtures
- Waterproofing Materials
- Concrete Curing Compounds
- Monitoring Instrumentation to Cable Stays
- Epoxy Mortar
- Non-Shrink Grout

## Freyssinet PSC (M) Sdn Bhd

The Prestressing Specialist

Freyssinet PSC (M) Sdn Bhd entered the construction-engineering business as a prestressing specialist. Prestressing is still one of its mainstays. The company's product range includes Freyssinet's 'K' and C-Range prestressing systems. One of the large C-Range jacks is shown on the right.



Freyssinet's K-Range prestressing system has been used in Malaysia for well over 48 years. Its reputation for reliability is well established in the industry. The more compact C-Range system of prestressing is also offered now.

Freyssinet PSC's reputation and reliability is not mere coincidence. The company desires to provide the best service to its' clients with a system of quality control certified to MS ISO 9001:2015. This calls for all equipment used by the company to be well maintained, rigorously and to schedule. Jacks and pressure equipment are calibrated with a system reference-calibrated by an internationally recognised authority in Japan. Services offered by the company include the calibration of such equipment.



All equipment used are maintained and serviced by highly skilled, trained technicians. Experts trained by Freyssinet, the company's parent in France, look after all proprietary equipment such as the Freyssinet jacks and hydraulic systems.

## Freyssinet PSC (M) Sdn Bhd Core Business A

### Small Selection Of Our Other Products

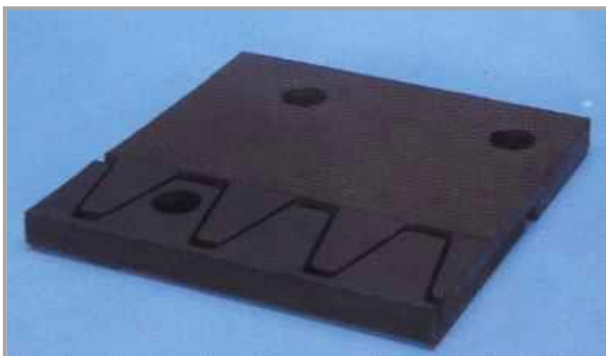
Freyssinet PSC's specialist engineering products includes a complete range of PSC elastomeric bearings. A long list of satisfied clients bear testimony to their design, engineering and manufacturing excellence. One of the company's laminated, elastomeric bearing pads is shown on the right. These can be custom designed in line with the customer's particular needs.



The Freyssinet PSC range of structural bearings also includes mechanical spherical, pot, roller and other highly specialised bearings. These are purpose-designed to resist the forces and provide articulation in whatever combination specified by the client. Shown on the left and below, are some of the company's mechanical bearings, the products and installation work



Freyssinet PSC also market and install expansion joints such as the CIPEC and PSC-Felspan range. These joints are used in bridge decks and building slabs where expansion and contraction due to creep, shrinkage and temperature change need to be accommodated.





## Freyssinet PSC (M) Sdn Bhd Our Other Specialties



Freyssinet PSC is justly well known as a reliable provider of specialist engineering services for bridge and building construction. Highly innovative methods of construction have been developed to solve a wide range of engineering problems at very competitive costs. Freyssinet PSC is in the forefront of technologies such as the Balanced Cantilever Method (*left/below*) and the Incremental Launching Method of bridge construction. The underslung form of the BCM method is shown on the left and the top-hung form is shown below.



Freyssinet PSC has also pioneered the use of the ILM (Incremental Launching) method of construction where completed segments are pushed out over the bridge to be spanned.

Construction of the Bridge Over Sg. Dinding with this method is shown in the picture on the right.



## Freyssinet PSC (M) Sdn Bhd - Projects

### Bridges



The triple-decked **Jalan Duta Interchange** shown on the left, has substantially alleviated the traffic congestion that had been plaguing the decades old existing roundabout. All prestressing work for the interchange bridges were undertaken by Freyssinet PSC.

The **Permas Jaya Bridge** (*right*) links Bakar Batu with Permas Jaya in Johor Bahru. The specialist work, of prestressing, supply and operation of the travelling formwork, supply of mechanical bridge bearings and the supply and installation of the bridge expansion joints was undertaken by Freyssinet PSC.



The **Kuala Lumpur – Putrajaya Highway** or 'Maju Expressway' by its official name (*left, top and bottom*) has significantly shortened travelling time between Kuala Lumpur and the new Malaysian administrative capital of Putrajaya. Travelling time between the city and the country's shining new airport at Sepang has also been much reduced.



Freyssinet PSC undertook a major portion of the prestressing for the elevated sections of the highway. The prestressing work for over a 1,000 post-tensioned beams (*in addition to box girder bridges*) were sub-contracted to the company.

The top picture is of a beginning stretch of the highway at Kuala Lumpur and the bottom picture is of a bridge taking the highway over the Cyberjaya highway.

## Freyssinet PSC (M) Sdn Bhd - Projects

### Buildings

The Malaysian **Securities Commission** at Bukit Kiara in Kuala Lumpur is shown on the right. Its strikingly artistic architecture/façade complements the excellent combination of form and function. The best use is made of available space which, coupled with the latest "intelligent" features.....makes it an outstanding building. Freyssinet PSC (M) Sdn Bhd had a hand in this, providing the prestressing system that helped to make a lot of desired requirements possible.



The new headquarters of the **National Registration Department** at Putrajaya (*left*) made good use of prestressing carried out by Freyssinet PSC (M) Sdn Bhd.



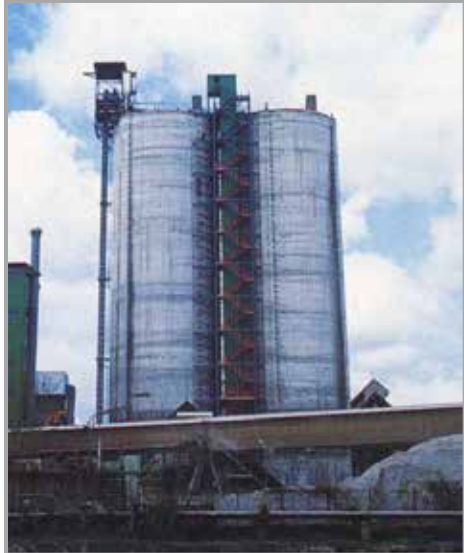
The **Ministry Of Finance** building (*below*) is another of the numerous buildings in Putrajaya with floor slabs and beams prestressed by Freyssinet PSC using the Flat Slab and Freyssinet K-Range systems. About 420 tonnes of prestressing strand was used for the building.



The **Kuala Lumpur Pavilion** (*left*) which was opened to the public early in 2008 has a distinct new look, appeal and spaciousness made possible by good architecture supported by the well thought use of prestressing. From the shopping podium right up to the roof of the two residential towers, prestressing by Freyssinet PSC was used to good effect.

## Freyssinet PSC (M) Sdn Bhd - Projects

### Other Structures and Products



The company is also a specialist in the prestressing of circular containment structures. Two of the cement silos at the **Kedah Cement** production facilities on the island of Langkawi for which the company provided prestressing, are shown at left.

Vertical and circumferential prestressing for the 6m high and 66m diameter **Mt. Austin Reservoir** for the Johor Water Supply Authority (*below*) was carried out with the Freyssinet K-Range of prestressing.



We join things up...a technician makes some final adjustments to a stretch of newly installed **CIPEC Joint** (*left*) and....we also patch things up, taking care of the **Silo Repair** shown below with circular prestressing.



## High Technology The Freyssinet Stay Cable



Left :  
Jambatan  
Wawasan  
Putrajaya

Right :  
Bridge Over Sungai Prai



Left :  
Sg. Terip Dam Water Intake  
Structure

Right :  
Bridge Over Sungai Muar On  
The Muar Bypass



Freyssinet PSC (M) Sdn Bhd has always believed that the progress of a nation is measured by the ability of its people to adopt new ideas and to continuously improve themselves with new products and innovations. Consonant with this ideology is the *Freyssinet Stay Cable*, a new and better way of doing things with stay cables and one which Freyssinet PSC (M) Sdn Bhd is proud to have introduced into Malaysia.

From the characteristics of the stay itself (offering an *innovative, multi-layer corrosion resistant protection system that conforms to the extremely stringent Freyssinet Design and Specifications*) to the installation of the stays using the patented Freyssinet 'Isotension' system, the Freyssinet Stay Cable represents nothing less than 'state of the art' technology.

The Isotension system allows for the perfect control and induction of the tensile forces in all the cables, to the very high degree of accuracy required by the exacting design of stay cable bridges. At the heart of the Isotension system is the ISO Control Box (pictured on the right), a patented microprocessor controlled device designed and manufactured by Freyssinet.



This ISO-Tension Control device together with its system of transponders enables the tensile forces in the stays to be measured and controlled precisely during the entire operation as the cables in the stays are each brought up to their required tension (as shown in the pictures on the left and below).



Forces are monitored and measured accurately and continuously, resulting in a bridge that satisfies all the requirements of the design-engineer and having less engineering data being based on assumptions.

The Freyssinet Stay Cable System was used for the following projects in Malaysia :

- The Upgrading Of The Stay Cables For The Penang Bridge
- Jambatan Wawasan (Bridge N°. BR9), Putrajaya
- Phase II Water Intake Bridge, Sg.Terip Water Treatment Project,
- Bridge Over Sungai Prai, Butterworth Outer Ring Road Project
- Bridge Over Sungai Muar, Muar Bypass Road Project

## SOME OF FREYSSINET PSC'S ACHIEVEMENTS



The structures shown on this page may not be listed in the "Guinness Book Of World Records" but they are still notable achievements in their own right.

**Left : The Bridge Over Sungai Muar** on the Muar Bypass is the first cable stayed bridge in the world to use the innovative Freyssinet Cohestrand Stay System. All prestressing, cable stay and bridge bearing works were done by us.

**Below, the Bridge Over Sungai Prai**, on the Butterworth Outer Ring Road. The highly specialised and complicated segment launching and cable stay works for the bridge, including the supply and operation of huge (800 tonnes, lifting 1,500 tonnes) launching gantries was undertaken by the company.



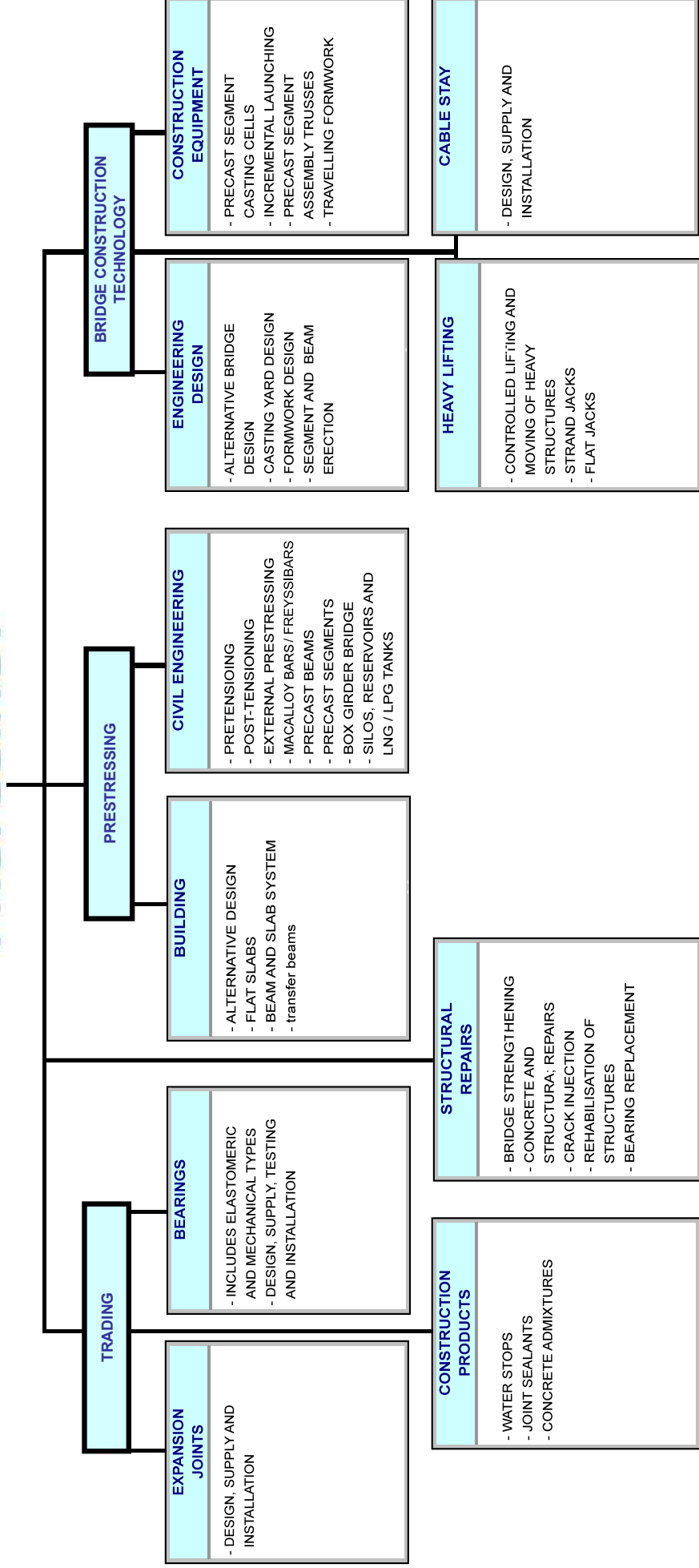
The '**Telekom Tower**' at Pantai on the right is reputed to be the world's tallest pre-stressed building. The company proposed, supplied and completed the alternative system of prestressing as a Specialist Sub-Contractor.



# THE MAIN ACTIVITIES OF FREYSSINET PSC (M) SDN BHD



**FREYSSINET**









**FREYSSINET PSC (M) SDN BHD** (9902-X)

No. 9, Jalan 2/137B, Resource Industrial Centre, Off 5th Mile,  
Jalan Klang Lama, 58000 Kuala Lumpur.  
Tel: +60(3) 7982.8599 Fax: +60(3) 7981.5530  
Email: [admin@fpscmalaysia.com](mailto:admin@fpscmalaysia.com)  
Website: [www.fpscmalaysia.com](http://www.fpscmalaysia.com)



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