CREATING SOLUTIONS TOGETHER

VSL

CREATING SOLUTIONS TOGETHER
The Bouygues Group

World leader in building, civil engineering and power/maintenance activities
France’s leader in property development
World’s no. 1 road construction and maintenance group
France’s leading television group
France’s 3rd largest mobile phone operator
VSL within Bouygues
VSL Brands & Companies

Ground engineering

Construction

Repair, Strengthening & Preservation

CREATING SOLUTIONS TOGETHER
Activities

Your partner for design, construction and related services world-wide:

- Bridges
- Buildings
- Containment structures
- Ground engineering and geotechnical applications
- Industrial facilities
Facts & Figures

3,900 employees, 900 engineers and technicians

60 locations worldwide

2 technical centres (Switzerland, Singapore)

32 registered patents in use

2.8 Million € budget for R&D in 2012
Experience

VSL

More than half a century of new developments, technical breakthroughs, and constant commitment to challenging projects

Leader in the construction of concrete bridges and special structures.

Well-proven systems and sound in-house engineering which guarantee innovative conceptual designs and reliable, efficient engineering solutions

Swiss rooted
Our Values

At VSL, we value:

- Respect for people
- Performance
- Reliability and transparency
- Creativity
- Company culture
Contributing to sustainable solutions

Compared to conventional reinforced concrete, the use of post-tensioning in buildings results in more durable structures, reduced concrete volumes and lowering the CO₂ emissions by up to 37%.
VSL’s top priority is health and safety of its workforce and any person potentially affected by its activities by:

- Always meeting international standards
- Exceeding local requirements
- Continuous training of the staff
- Introducing a major equipment operation permit
- Organising group-wide safety days
- Proactive attitude
Continuous training is the key to ensure the highest levels of competence and safety on our worksites.

Based in Bangkok, the VSL Academy, a unique training facility, trains best practices in post-tensioning techniques and other VSL technologies.
Recent achievements

- Wind tower solutions
- Formwork systems for containment structures
- Innovative deconstruction solutions for a viaduct
- Vibratest to monitor stay cable performance
Activities

GROUND ENGINEERING
- Ground anchors
- Bulk walls
- Dewatering & Dams
- Ground Improvement
- Ground Investigation

CONSTRUCTION
- Bridges
- Buildings
- Slab on grade
- Nuclear containment
- Offshore structures
- LNG & LPG containment
- Heavy-lifting
- Framework & Equipment

REPAIR, STRENGTHENING & PRESERVATION
- Structural Diagnostics & Monitoring
- Repair & Strengthening
- Infrastructure Preservation
- Infrastructure Protection

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Bridge construction services, from design assistance prior to tender to execution of the entire project.
Shenzhen Western Corridor, Hong Kong

Erection of precast viaducts, transportation of segments on deck, supply and installation of post-tensioning, supervision, supply of PT bars...
Kisosansen Bridges, Japan

Design, fabrication and installation of segment formwork and lifting beams, construction methods.
Light Rail Transit (LRT) Dubai, UAE

Precasting and erection of 17,000 segments using 10 launching girders, heavy cranes and lifting frames
Wuhan 27 Bridge, China
Fast track supply and installation of VSL SSI 2000 stay cable system.
Second Gateway Bridge, Brisbane, Australia
Abutment to abutment construction of the duplicate bridge in Alliance with the main contractor
Hodariyat Bridge, Abu Dhabi

VSL, in a joint venture was in charge of the design and build of the bridge.
VSL, in a consortium with three Mexican partners, has built the highest cable-stayed bridge in the world (Guinees book of records).
Construction

Building construction services, from design assistance before tender to execution of the entire project.
Dubai Mall, Dubai, UAE

300,000m² of post-tensioned slabs for the world’s largest shopping mall. …
Venetian Macao Resort Hotel, Macao

Large scale precast beam installation: 9,300 precast units in less than 13 months.
Imaginarium Logistics Centre, Spain

VSL alternative design: suppression of 70% of the columns and increase of span from 6.30m to 12.60m.
Dubai Festival City, Dubai, UAE

Post-tensioning on 5 structures in 2 zones with a total post-tensioned area of 250,000m²...
Kai Tak Cruise Terminal, Hong Kong

Design assistance + construction of all post-tensioning structures including handling and erection of 226 precast beams
Construction

Design, supply and construction of large joint-free reinforced post-tensioned concrete slabs with axial compression forces in the concrete to counteract tensile stresses, which would cause cracks.
Austrack, Australia

Design and build of 16,000 m² of a post-tensioned warehouse slab.
Hangar Mosnov, Czech Republic
Slab on Grade for an aircraft maintenance hangar…
Construction

Design and construction of offshore concrete structures relating to the oil, gas, petrochemical and renewable energy business sectors.
N’Kossa Barge, France

VSL supplied the post-tensioning of the world’s largest floating barge
Construction

Design and construction of concrete containment structures where tensile stresses in the concrete are counteracted by post-tensioning.
SLNG, Singapore
Full scope construction of 3 LNG containments, 180,000 m$^3$ each...
Construction of nuclear containments to withstand internal high pressure in the event of loss of cooling accident
Installation of post-tensioning on the 67.7m-high inner containment shell at LAES-2
Construction

Using automatically-controlled hydraulic jacks and strands for lifting, lowering, tilting or sliding of very heavy loads including bridges, roofs, antennas, pinnacles, boilers and other equipment or structures.
Port of Tangiers, Morocco
Handling of 105 concrete caissons: 28x28m in plan view, 12.5m high and weighing 3,400t
Large Hadron Collider, CERN, Switzerland

Lowering of 15 segments of the CMS detector, weighing between 250t and 1,920t., lowering distance 97 m
Construction

Fixed or moveable specialised formwork to build large or special structures such as high-rise building cores, in-situ balance cantilever bridges and precast segments or beams.
One Island East, Hong Kong
Design and supply of the Climbform to build the central core, supply and installation of 66 post-tensioned floors, totaling 112,000m²
Ground engineering

Ground anchors can be used to mobilise dead loads deep in the ground to stabilise structures against forces induced by wind or suspension cables.
Bullfight arena, Lisbon, Portugal

Ground anchors for the slope stabilisation during excavation adjacent to the historic building
Ground engineering

The combination of backfill, soil reinforcement (steel or polymeric) and facing panels to build cost-effective and aesthetic retaining walls.
Muscat Expressway, Oman

Highest VSoL® wall ever built with 56m
Ground engineering

Underground walls and deep foundations up to 120m in depth for civil engineering and building projects including metro stations, tunnels, bridges and buildings.
Burjuman Station, Dubai, UAE

Diaphragm walls & barrettes for the construction of underground stations and cut & cover tunnels for the LRT project in Dubai
Ground engineering

A combination of techniques to improve ground properties for both temporary and permanent works to enable construction of underground or elevated structures.
Penny’s Bay Reclamation Stage 1, Hong Kong

21 million m$^3$ of vibrocompaction. Maximum depth 48m.
Ground engineering

A combination of techniques to investigate and assess the ground properties (chemical, mechanical…) prior to starting construction works.
Repair, strengthening & preservation

Structural diagnostics and monitoring of concrete structures.
Repair and strengthening of structures because of load capacity upgrades, changes of use, slab openings, construction defects of damage caused by deterioration.
Trançao Bridge, Portugal

Complete retrofitting of the bridge, including the assembly of 72 high distortion rubber bearings, PT bars, FRP strengthening sheets, concrete repair and cover.
Repair, strengthening & preservation

Physical security assessments, design and construction of resilient solutions for critical infrastructure at risk from extreme events
Increasing structural resilience of a building in South America
Repair, strengthening & preservation

Monitoring of structures.
Relevant information is sent straight back to the user’s desk. The system works with any IT and measurement solution.

- Wind speed measured in 3 directions expressed in m/s
- Temperature of cables, concrete expressed in °C
- Humidity expressed in %
- Rain intensity expressed in mm
- Sun intensity expressed in W/m²
- Traffic expressed in km/h, veh/h, t, type...
- Air quality expressed in CO, NOx, O₃, SO2...
- Cable force expressed in kN
- Structural vibration acceleration expressed in g
- Vibration modes expressed in Hz
- Angular movement two directions expressed in °
- Stress and deformation expressed in µm/m and in mm
- Material ageing expressed in Cl⁻, mV...
- Inspection and investigation paper and multimedia reports laboratory or in situ tests

DeMon - Monitoring structures during construction and life time