



SMART
CIVILS & PT SYSTEMS

DYWIDAG 

SMART Civils offers technologically proven construction solutions for the building and civil engineering industries on the African continent and the Indian Ocean islands.

LICENCES AND AGREEMENTS



Dywidag Germany: Pre-stressing licensor

Dywidag is a leader in its field with operations world-wide, occupying pre-eminent market positions in the economic powerhouses of the USA and Germany.

Dywidag's reputation for reliability and performance, across the entire spectrum of pre-stressing, started as early as 1927 when they post-tensioned the arch-bridge Alsleben using a prototype DYWIDAG post-tensioning bar system. Since then, Dywidag has continuously improved its systems to keep up with the growing demand for modern construction technology. Dywidag offers a complete product line in strand pre-stressing (bonded, unbonded and external) as well as cable-stay. South Africans will be familiar with the iconic Nelson Mandela Bridge in Newtown, Johannesburg, the most striking feature of which are the Dywidag cable stays.

SMART Civils is in partnership with Dywidag to promote their products and execute projects where Dywidag products and systems are involved.



SMART Civils is an approved installer of the Teufelberger-Redaelli TENSOSTRUCTURE products.

PRODUCTS AND SERVICES

SMART Civils offers expertise, products and services that make it a leader throughout Africa for providing specialist structural solutions in the built environment. We offer:

- **Post-Tensioning**
 - Suspended post-tensioned slabs
 - Post-tensioned slabs on grade
 - Post-tensioned civil engineering structures
 - Cable-stay bridges
- **Civil and Building Construction**
 - Bridges
 - Civil Engineering Services
 - Water & Waste Water Works
 - Reservoirs
 - Schools
 - Clinics
- **Turnkey Solutions**
 - Alternative solutions and construction engineering
 - Bridge permanent and temporary works; and equipment design

Refurbishment of Reservoir 3 - Durban Heights KZN



Construction of the Tolwane River Bridge – Mabopane Gauteng

- **Structural Rehabilitation, Strengthening and Protection**
 - Carbon fibre and bonded steel plate strengthening
 - External post-tensioning
 - Silo and reservoir strengthening
 - Dywidag bar strengthening
- **Waterproofing**
 - Tanking and lining of liquid retaining structures
 - Building structures
 - Basements
 - Car parks
 - Retaining walls
- **Heavy Lifting and Sliding**
 - Incremental launching
 - Balanced cantilever and other movable formwork
 - Heavy lifting
 - Strand jacking and synchronized lifting and lowering
 - Horizontal jacking
 - Bridge jacking and bearing replacement

POST-TENSIONED SUSPENDED SLABS

Post-tensioning is suitable for suspended slabs in almost all buildings; with the exception of very short spans and/or small areas.

Post-tensioning provides for:

- Larger spans and/or thinner slabs
- Reduction or elimination of beams
- Fewer columns, resulting in increased usable space
- Reduced column and foundation loadings, as a result of reduced slab thickness
- Reduced floor to floor heights, as a result of thinner slabs, resulting in savings in façade finishes or increased number of floors
- Logistic and time savings as a result of a reduction in concrete and steel; hence reducing craneage hook time as well as steel fixing and concrete placement times
- Faster turnaround time due to earlier stripping of formwork

POST-TENSIONED SLABS ON GRADE

SMART Civils offers post-tensioned slabs on grade as a complete slab package. This ensures that there is no split responsibility from slab design through to final handover of the finished project.

Post-tensioning of concrete slabs has provided clients with a cost-effective solution for internal and external slabs for more than forty years, worldwide.

Benefits realized with post-tensioned concrete slabs on grade include:

- Large, joint-free slab areas
- Reduced long-term maintenance due to the reduction or removal of joints
- Reduced construction costs
- Reduced subgrade preparation
- Effectiveness in poor ground conditions (clay, dolomite, etc.)
- Accelerated construction
- Increased capacity
- Reduced permeability
- Increased hygiene efficiency (due to joint elimination)

More common applications for post-tensioned concrete slabs of grade include:

- Distribution facilities (internal and external pavements)
- Warehouses (internal and external pavements)
- Factories (internal and external pavements)
- Bulk storage facilities (internal and external pavements)
- Container storage and handling facilities
- Aircraft hangars
- Indoor and outdoor sports facilities
- Freezer stores
- Raft slabs
- Floor slabs for water retaining structures



Sasol Building – Sandton
Main Contractor
Grinaker - LTA



Post-Tensioned slab on grade being installed in a warehouse

POST-TENSIONED CIVIL ENGINEERING STRUCTURES

SMART Civils utilises the Dywidag Multistrand Bonded Post-Tensioning Systems for both internal and external prestressing. DSI Systems comply with the following international specifications and recommendations - ASTM, AAASHTO, BS, Eurocode, DIN, Austrian Code, SIA, FIP, fib, EOTA etc.

Dywidag products and services are fully compliant with ISO 9001.

CABLE-STAY, EXTRADOSED, ARCHED AND SUSPENSION BRIDGES

SMART Civils also supplies and installs the Redaelli, Italy, Tensostructures system.

Redaelli introduced Tensostructures to Italy in 1972 and some recent projects include the Storebaelt suspension bridge (the largest suspension bridge in Europe) and the cables in the Giant London Eye observation wheel.

SMART Civils consider the Redaelli Tensostructures Systems ideally suited for lighter structures. High visibility examples include the "Walking" pedestrian bridge near OR Tambo airport, and the Grayston street pedestrian and cycle bridge; both in Johannesburg.



The construction of a new bridge using the Dywidag Dynagrip System of support cables



London Eye

STRUCTURAL REPAIRS AND STRENGTHENING

SMART Civils, includes in its offering to the built environment the repair, strengthening, rehabilitation and waterproofing of all major engineering structures and buildings.

- **Repairs & Strengthening**

- Concrete Structures -Diagnostics & Repairs
- Brickwork Re-pointing, Pinning & Sealing
- Protective Coatings
- Epoxy Resin Applications
- Concrete Cutting & Coring
- Precision Grouting
- Plating & Carbon Fibre/Strengthening of Structures
- Crack Injection
- Building Façade Refurbishment
- Refurbishment of crane rail systems
- Reinforced and post-tensioned concrete corrosion protection

- **Waterproofing**

- Tanking and Lining of Liquid Retaining Structures
- Building Structures
- Basements
- Car parks
- Retaining Walls

PREVIOUS CONTRACTS

SMART Civils and its staff have a long history in the Specialist Contracting Industry with many projects to their credit.

The Internal refurbishment of Reservoir 3 at Durban Heighths Water Treatment Works won SMART Civils the prestigious Construction World "Winner of the Best Project for 2022" Award



*Elandsfontein Mine Infrastructure
Smart Civils*



*Repairs and Strengthening of the
Olifants River Bridge – Western Cape*





Reservoir under construction at Alexandria



Alexandria Reservoir after completion



Installation completed Tolwane Bridge

Cosmos City Fire Station



Parking Deck Waterproofing



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