

CIVIL





NOTHING TOO HEAVY, NOTHING TOO HIGH

ABOUT US

**WITH STATE OF THE ART EQUIPMENT
AND VALUE ENGINEERING,
WE OFFER OUR CLIENTS CREATIVE
SOLUTIONS.**

At Sarens, we have the noble mission to be the reference in crane rental services, heavy lifting, and engineered transport for our clients. With state-of-the-art equipment and value engineering, we offer our clients creative and intelligent solutions to today's heavy lifting and engineered transport challenges. We are able to offer our clients ready-made innovative solutions thanks to our subsidiaries around the world. With more than 100 entities over 60 locations operating without borders, we are the ideal partner for small-scale to mega-scale projects.

Safety and excellence in all we do are paramount to us. We strive continuously to establish a safe environment for our personnel, the client's employees and the equipment we operate and handle. While we continue to build our future on the foundations of our rich past and successful methods, we ensure our clients that we will stay ahead of the game with innovative approaches for your heavy lifting and specialised engineered transport needs. We will keep breaking ground and secure that your projects are delivered in a safe, and cost-effective way, while making sure everything is on time.

GENERAL CIVIL ENGINEERING

Over the last decade, Sarens has been involved in many new-built civil construction activities around the globe, providing cranes for steel assembly work and installation of complex roof structures for soccer and event stadia, as well as industrial buildings. Soccer games generate strong emotions amongst the spectators but also at the level of the clubs, the investors and the engineers who design them. All are unique and challenge the manufacturers for innovative solutions. Sarens provides engineering support to the designers and develops lifting solutions for the complex steel structures, whether those require cranes, strand jacks, or a combination of lifting devices.

BRIDGES

Sarens has a rich history in accelerated bridge replacement and installation technologies. In the early eighties, Sarens moved its first bridge with SPMTs. Today, an average of 70 bridge projects are executed each year using alternative rapid replacement technologies, and many more with the use of cranes. Sarens developed specialised equipment for creative and tailor-made solutions, and is able to do all design and engineering in house.

OUR SERVICES

GENERAL CIVIL ENGINEERING

SERVICES

- Major steel-assembly works
- Installation of complex roof structures
- Installation of soccer and event stadia
- Industrial and utility buildings
- Infrastructural works
- Typical bridge installations
- Exceptional civil transports and lifts
- Port related heavy lift and transport

BENEFITS

- All projects are executed according to SHEQ (Safety, Health, Environment, and Quality) policy
- Years of experience
- State-of-the-art equipment
- Best technical solution through creative engineering



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BRIDGES

SERVICES

- Land transport of bridge elements
- Water transport of bridge elements
- Bridge installations
- Removal of old bridges / existing structures
- Installation management including project
- Project management and Safety, Health, Environment, and Quality control

BENEFITS

- Specialised equipment
- Creative and tailor-made solutions
- In-house design
- Engineering capabilities
- Rich experience in replacement and installation
- Technologies featuring state-of-the-art interventions with emphasis on safety and operational excellence



OUR EQUIPMENT

Sarens uses the following equipment for project execution:

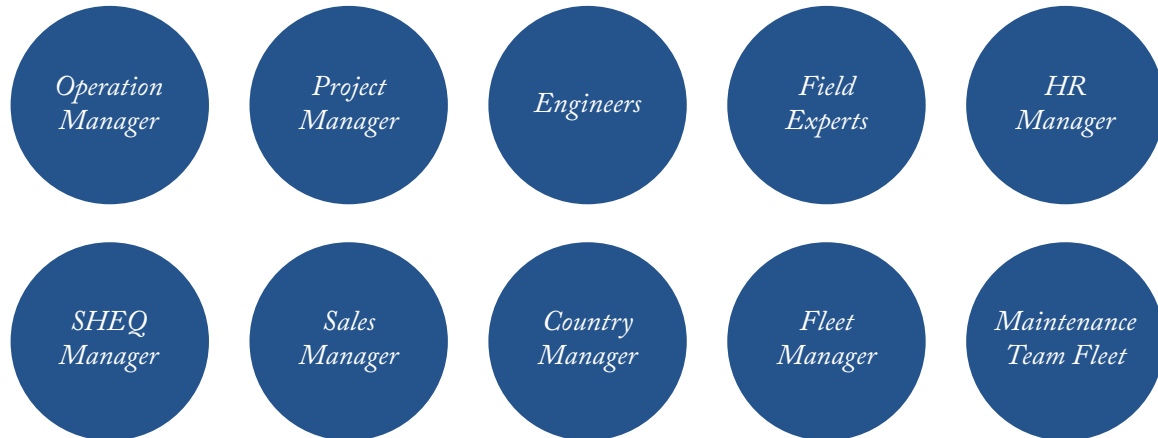
- Lattice boom cranes
- Hydraulic cranes
- Strand jacks
- Combination of lifting devices
- Supporting equipment and rigging auxiliaries
- Climbing systems
- Jacking
- SPMTs
- Barges
- Ballasting systems
- Mooring equipment



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OUR PEOPLE

At Sarens, we play a key role in the civil market and support our clients in the most efficient way. We rely on our people to ensure every project is executed in a structured, safe, and efficient manner. We employ engineers, lawyers, finance experts, field personnel, safety and quality advisors, and sales consultants.



WHO DO WE EMPLOY

To secure a quality-service for our clients, our team consists of a variety of professionals. We have well-established hiring procedures that guarantees us qan arsenal of dynamic and qualified experts from all around the world.

WE IMPROVE OUR TALENT

Sarens also provides constant training to employees. In this way, all of our representatives are skilled to supply Sarens with the benefits of the latest methodologies in the field both on a back-office and an on-site level. We believe in continued education and, to that end, we have our own Learning Management System, and provide SWOT analyses in our Assessment and Development centre. Through the growing opportunities we provide, our employees work in a framework of constant improvement



CASE STUDY I

CHAMPLAIN PROJECT, MONTREAL, CANADA

Sarens installed footings for the New Champlain Bridge over the Saint Lawrence river for client Signature sur le Saint-Laurent. The bridge consists of 74 footings, 38 of which were prefabricated at the jetty, while the 36 other footings are made by pouring concrete directly into foundations in the river bed. Each footing is 11m x 11m x 2m (or 11m X 9m X 2m), and comes with a pier starter, giving the overall assembly a height of up to 14m. The weight of each footing ranges between 600 and 1.000T.

Sarens was commissioned to install 38 footings for the New Champlain Bridge in Montreal. The bridge is part of a vital overland link for freight transportation between Canada and the United States. The bridge is also used by residents of the metropolitan region for their everyday commute.

Since there were no Canadian vessels able to service within the constraints of the project, Sarens offered a unique solution by designing and building an ingenious

installation device, the Floating Foundation Installer (FFI). The FFI is a purpose-built self-propelled catamaran, with gantry, that can lift, transport, and install foundations by its own means. It is outfitted to operate in strong currents and to lift and transport parts that can weigh up to 1.000T. The lifting equipment has a turntable, allowing for a 180-degree rotation of the parts. The FFI consists of the following equipment:

- **Sarens modular barges (SMB)**
- **Sarens Multi Lifting Tower (SMLT)**
- **Sarens gantry, bogies, and strand jacks**

As a result of world-class development, design, planning and safe, disciplined execution, the project was successfully completed.

Factors contributing to the success included a strong emphasis on safety and highly experienced Sarens team



CASE STUDY II

RAILWAY BRIDGE, THE NETHERLANDS

Having accomplished key projects in bridge installation in Western Europe and specifically in the Netherlands, Sarens was contacted by Victor Buyck Steel Construction, one of the largest Belgian steel manufacturers, for the “SAAone” consortium to undertake the project of the moving and placement of a 255m long, 17m wide, and 50m high railway bridge, weighing a whopping 8.400T.

It is the heaviest railway bridge ever moved by road in the world and by far the longest single-span bridge across a motorway. The 8.400T bridge had to be moved 400 metres from the location where it was assembled to the correct site over the A1 highway.

The A1 highway normally carries almost 200.000 vehicles per day, and traffic tends to be heavy during weekends as well. Considering the great amount of traffic inflow, the task was designated to be carried out during the night for which the A1 was closed from 20:00 hrs on Friday, till 12:00 hrs on Saturday. The entire operation

from driving start to set-down on the bridge foundations took about six hours, three hours ahead of schedule.

Sarens steered the huge steel bridge using 244 axle lines SPMT K2400-ST, 122 axle lines on each side which were spaced 220 metres apart. This is also the heaviest bridge ever to be transported by SPMTs. The high forces due to the large size and weight of the bridge, and the large spacing between the two SPMT groups, made it challenging to design a sufficiently strong supporting structure.

Moreover, the entire SPMT combination was controlled by a single operator. Both SPMT groups, spaced 220 meters apart, were linked together using a wireless data connection; it was the first time ever a wireless data connection was used among SPMT groups over such a long distance. But with proficient engineering and our operations team, Sarens skilfully completed the task much before the initial schedule indicated.



OUR PROJECTS

LOCATION: Salt Lake City, Utah, USA
EQUIPMENT: 96 axle lines SPMTs and a custom-built support system

Sarens performed a record-setting rapid bridge move in North America, moving the 108m long, 1.700T Sam White Bridge using self-propelled modular transporters during an overnight closure of the heavily travelled I-15 freeway. With several thousand spectators lining the freeway to witness the record-setting move, the structure was transported from the temporary construction site and positioned over the eight lane freeway ahead of time in less than five hours. involves all Project Management, engineering, HSEW, and takes over all time planning risks from the client.

LOCATION: Muscat, Oman
EQUIPMENT: CC 8800-1, CC 2800-1, approximately 30 cranes ranging from 50 to 300T

There is more to Oman than the white sandy beaches in the south of Muscat or the tropical weather of Salalah. The Sultanate is also a growing country with ambitious plans to become a key player in the Middle East. Sarens is participating to that growth by providing high capacity crawler cranes for the construction of Muscat International Airport. Not only is it the biggest project of its kind in the region, it is also one of the most beautiful and complex pieces of architecture known to man. 93T which is mounted on top of the 80m high towers.

LOCATION: Ghent, Belgium
EQUIPMENT: : 2 X LTM1130-5.1, LTM1150-6.1, LTM1160-5, AC200-1, LTM1400-7.1, LTM1500-8.1, AC700s

Sarens pulled 750m of pipeline with a total weight of 750T in a trench below street level. The cranes were positioned every 35m (= 35T per crane) in a straight line on a narrow access way, paved with steel driving plates. To complete this job, the pipeline had to be pulled both horizontally and vertically in an arch, with a maximum height of 9m. In order to do this, the middle cranes needed to lower the boom by approximately 6m

LOCATION: Adelaide, Australia
EQUIPMENT: 132 axle lines Kamag 2400 2nd and 3rd generation, 8 x jacking tower CS250 and bracing system 114mm, construction system (support system 610 and bracing system 324), about 100T steel mats and beams

In what could be a first for Australian civil construction, Sarens recently used SPMTs to carefully manoeuvre a 3.000T bridge section into place. The operation was performed as part of upgrade work to the Darlington Bridge in Adelaide, on behalf of the Gateway South project consortium.

Sarens was tasked with finding a way to maneuver the 3.000T, 183-metre long Darlington Bridge into its final position. The bridge, which was built over the span of four months, will carry the Main South Road over the motorway. The manoeuvre took about 22 hours of worktime, 38 hours ahead of schedule.

LOCATION: Gdansk, Poland
EQUIPMENT: 24 axle lines SPMTs, floating crane 350T, barge, skidding system, LR 1600/2, CC 2800-1, 2 X LMK 100, AC 500, LTM 1250, LTM 1160, LTM 1100, AC 100, LTM 1070, AC 50

Sarens in Poland supplied multiple cranes and SPMTs for the drilling of a tunnel under the Dead Vistula river in Gdansk. The tunnel is the longest underwater tunnel in Poland with a length of 1,3km. It will be a crucial part of the inner ring of Gdansk connecting the airport, the seaport and the city centre. This is the first underwater tunnel in Poland which uses one of the biggest Tunnel Boring Machines in the world.

LOCATION: Abidjan, Ivory Coast
EQUIPMENT: Sarskid 310, Sarbogies, 8 x CS 250, barge SMB, 4 x 8T winches

Sarens collaborated in the first bridge project after the end of the war in Abidjan, Ivory Coast. This bridge links the city with the airport and measures 1,5km in length. It consists out of 30 spans, all made out of 2 pre-constrained 1.000T concrete beams. The beams were made on site and then installed by Sarens. First the beams were skid transversally to place them onto Sarbogies. Next, they were moved by the bogies and loaded onto a modular container barge (Sarens Modular Barge). The last step, after being jacked up by CS 250, was the installation of the beams onto their piles. All 60 elements with a weight between 979T and 1.026T were installed this way.

KEY FACTS

SARENS IS THE RECOGNIZED WORLDWIDE LEADER IN HEAVY LIFTING AND ENGINEERED TRANSPORT.

With state of the art equipment and value engineering, Sarens offers its clients creative solutions to today's heavy lift and transport challenges. With offices in more than 65 countries and dedicated employees, we are well prepared to support your next project.



9
REGIONS



65
COUNTRIES

CRANES



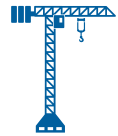
GIANT CRANE



HYDRAULIC CRANES



LATTICE BOOM CRANES



HEAVY LIFTING TOWER CRANES

TRANSPORT



CONVENTIONAL TRAILERS



MODULAR TRAILERS



SPMTs

CUSTOMISED EQUIPMENT



SKIDDING



BARGES



GANTRIES

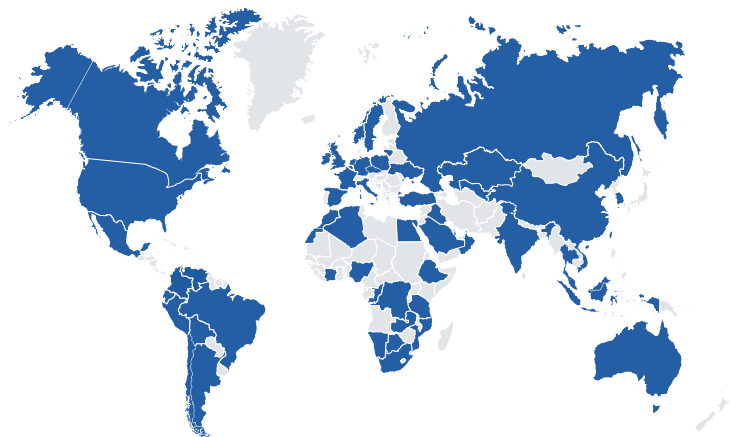


JACKING SYSTEMS



STRAND JACKS

GLOBAL PRESENCE





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