

# COAL POWER PLANTS





## 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 specialized 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.

Sarens provides services in new built coal fired power plant projects. A dedicated sales and project team focuses on its clients' needs and has developed an efficient from factory to foundation solution.

Our Engineering department continues to assist in optimising crane solutions and on-site transport, depending on site conditions. New lifting and transport techniques are being introduced to allow modularisation and assembly of heavier components leading to cost and time savings during installation.

As such, Sarens offers a tailor-made total concept which includes all services and reduces interfaces to optimise safety, which we secure via implementing our SHEQ (Safety, Health, Environment, and Quality) policy, equipment use, and in-one-hand coordination of all contractors active on the same site.



# OUR SERVICES

## GENERAL CIVIL ENGINEERING

Sarens has been providing services to the coal industry for over 10 years. These years have given Sarens the experience to be able to undertake any kind of coal plant project, no matter how big or how complicated the task at hand may be.

We provide detailed lifting engineering. Our engineers are integrated in the team of the client. In this way, a synergy is created during assembly to ensure the most rapid installation time.

For internal transportation on site, Sarens provides tailor-made engineering. For equipment transportation to the site, we implement Just-In-time delivery concept to minimise storage costs and have an optimal flow of materials so that the assembly can go as planned, without any risk of interruptions.

We generate different concepts with different types of cranes (Crawler Cranes and Tower Cranes), or a mix. We discuss advantages and disadvantages with our clients. Is the site in a windy area? Are there any constraints? What about the occupation on site? Going over all these aspects gives Sarens and the client the opportunity to cover all project aspects and minimise negative outcomes.

Hiring and trusting Sarens comes with a number of key benefits for your project:

- Optimized planning and monitoring during project construction.
- Lay-down area concept for storage.
- More efficiency in assembling modular elements.
- Assembly of parts on the ground level saves cost on scaffolding and is a safer way to work.
- Avoiding double handlings and concept generation on the storage yard.
- Transportation and installation of rotating equipment such as: turbines, stators generators, trafos, et al.
- Engineering solutions for installation with gantry, jacking and skidding.
- Provision of concepts for the installation of Denox / Desox in existing coals plants.

Sarens operations are entirely executed according to our SHEQ (Safety, Health, Environment, and Quality) policy. This policy aims to ensure safety to the people, environment and equipment, and all with an eye for delivering the highest quality to every project.



# OUR EQUIPMENT

Sarens uses the following equipment for project execution:

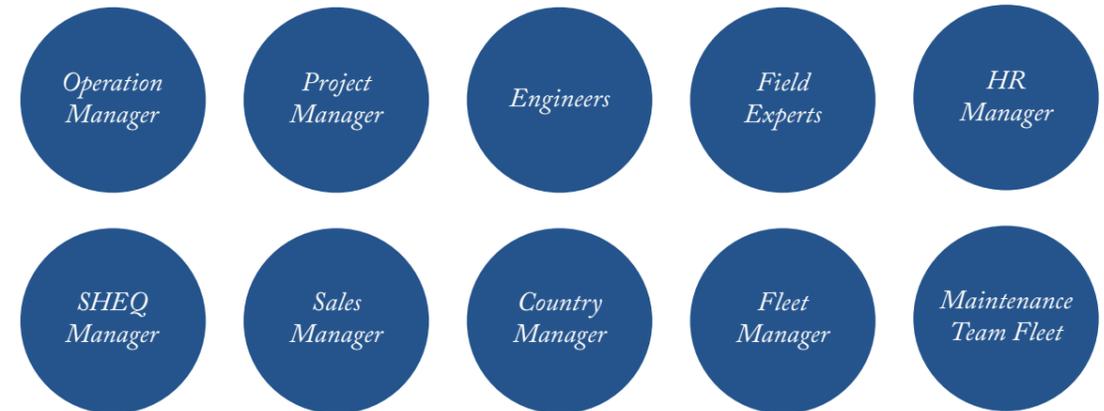
- Flat top tower cranes, used for cooling towers
- Luffing jib tower cranes, types WT 905 up to WT 2405
- Hydraulic cranes, whole range
- LTR 1100 for unloading, loading, and assembly of modules on the assembly yard and lay-down area
- Crawler cranes: SCX 2500 / SCX 2800 / Lr 1350, LR 1400 cc 2400 / CC 2500 / cc 2880-1 / Lr 1600-2 / Lr 1750 / cc 6800 / cc 8800 - 1
- SPMTs for transport on site, Goldhofer & Kamag different configurations
- Strand jacks, different types from 45T up to 185T
- Jacking and skidding of main equipment





# 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

### INSTALLATION AT PTOLEMAIDA POWER STATION, GREECE

Sarens has installed columns and K-bracings for the main steel structure of the Ptolemaida coal-fired power plant Unit V, in northern Greece. Ptolemaida V will be the station's fifth unit, and once operational in 2020 will have a generating capacity of 660 MW. The installation work was performed on behalf of Terna Group, at the site of a 550MW coal-fired power station. The project involved raising the 146-tonne K-bracings, which measured 30 m x 10 m x 2 m, from a horizontal to vertical position. Sarens has utilised its Terex 1.600T capacity CC8800-1 crawler crane, which has a main boom length of 102m, as well as a Terex CC2400-1 and a LiebherrLR1250 for the lifts. For this operation, equipment from across the globe has been dispatched to Ptolemaida. The CC8800-1 arrived at the project site by sea from Kuwait, while the CC2400-1 was dispatched from the Netherlands and delivered to Athens, before being transported by road to Ptolemaida. The LR1250 was transported by sea from Venezuela to Thessaloniki, while the 77-m long jib arrived at the project site by road. As part of the ongoing project, Sarens lifted four columns, with a total weight of 523T, and two K-bracings per day. The team performed the operation in a safe and planned manner. The ground preparation was done according to the contract and very well executed by Terna.



## CASE STUDY II

### TRANSPORTATION OF FLUE FRAGMENT, OPOLE, POLAND

Sarens in Poland recently performed the transportation of a 103T, 50m long flue fragment with a diameter of 9,4 meters inside the cooling tower on the premises of Elektrownia Opole. Sarens was awarded the contract for heavy lifting and transportation at the PGE Mining and Conventional Power Generation SA Branch in August 2014. The contract is part of the construction of Block five and six at the Opole Power Plant. The plant is located in Brzeziny, 9 km from Opole, at the mouth of the river Small Panew to the Oder River, in the municipality of Dobrze góra. The construction of units five and six of firing coal with a total capacity of 1.800 MW started in February 2014, block five is to be completed in the third quarter of 2018 and block six in the first quarter of 2019. The task of loading and transporting the flue inside

the cooling tower was critical due to the limited space available for movement of the flue. In order not to interfere with the timetable, the giant tube was built on the site, but at a distance from the cooling tower, which was to be transported inside the cooling tower. The transportation involved many weeks of preparation, execution of precise measurements, calculations of strength equipment, stability, traction, et al. Many simulations and animations were prepared by the Sarens engineering team to ensure smooth transportation. For the project, Sarens deployed 32 lines Kamag K2400 ST supported by specialized Polish operators. The SPMT provided full manoeuvrability, even in the form of rotation around its axis, which made the critical move successful. The client was pleased with the job accomplished by the Sarens team in Poland.



# OUR PROJECTS

**LOCATION:** Neurath, Germany  
**EQUIPMENT:** 4 x CC2800 in double shift, 2 x LR 1600/2, 2 x LR1350/1, 24 axle lines of SPMTs

Sarens successfully provided heavy lifting services, site supervision, and on site SPMT transport of parts of a coal power plant in Neurath for RWE Power AG. The duration of the project was 42 months, with a maximum of personnel being 15 employees.

**LOCATION:** Rotterdam, Maasvlakte, The Netherlands  
**EQUIPMENT:** AC500-2, AC700, AC650, 2 x 6 axle lines SPMTs

Sarens was commissioned to unload, transport, and assemble all pieces of an excavator. The AC500-2 and AC700 cranes were used to unload the largest piece of 164t onto SPMTs. Other parts weighed between 23 and 107T. Unloading of the ship and transport over 1,5 km to the site took Sarens only three days to complete. A few days later all parts were assembled on the wheel sets that were previously placed on rails.

**LOCATION:** Newcastle, New South Wales, Australia  
**EQUIPMENT:** CC2800-1, LR1350-1

Sarens has completed the lifting and installation of combined stacker/reclaimer components for the NCIG coal export terminal expansion Phase 2. This notably included lifting the Slewdeck (300t) and a tandem lift of the stacker/reclaimer boom (63m - 250T). The completion of these activities has enabled the initial phase commissioning of the export terminal expansion to commence.

**LOCATION:** Convent, Los Angeles United States Of America  
**EQUIPMENT:** 24 axle lines SPMTs

Sarens successfully offloaded, transported, and erected one coal-handling stacker/reclaimer for Raven Energy in Convent, Louisiana. This work highlighted the superior transport capabilities and manoeuvrability of Sarens' SPMTs, as nearly 20 heavy components had to be transported over the Mississippi River levee to the erection site.

# 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.



<b>CRANES</b>	GIANT CRANE	HYDRAULIC CRANES	LATTICE BOOM CRANES	HEAVY LIFTING TOWER CRANES
<b>TRANSPORT</b>	CONVENTIONAL TRAILERS	MODULAR TRAILERS	SPMTs	
<b>CUSTOMISED EQUIPMENT</b>	SKIDDING	BARGES	GANTRIES	JACKING SYSTEMS
			STRAND JACKS	

## GLOBAL PRESENCE





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