

# Custom sluice gate valves for SARAS refinery in Cagliari, Sardinia

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## Cagliari, Sardinia

The SARAS refinery, one of Europe's largest oil refineries, is located in Sarroch near Cagliari, the Sardinian capital. Saras Group processes 300,000 barrels of crude oil every day; that's about 15% of the total supply in Italy.

The refinery in Sarroch also has an IGCC plant (Integrated Gasification Combined Cycle), making it the biggest gasification plant in the world. Refined heavy oils are converted into syngas, which is used to produce both hydrogen and steam for the refinery and electricity for the national grid.

## Project overview

### Project:

Refurbishment of cooling tower for the power station

### Valves:

4 Sluice Gate Valves  
DN 1400 x 1900 with AUMA SA14.5

### Project duration:

November 2007 to April 2011

### Client:

SARAS Spa

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INGEGNERIA DEGLI IDROCARBURI S.p.A.  
Progettazione e Contratti Impianti Industriali



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The IGCC's main and single unit is the seawater cooling tower, which was fully refurbished in 2011 after 10 years of continuous operation. Some serious defects were discovered during this period, so SARAS decided to put a project in place to carry out all of the necessary modifications and commissioned their consulting engineer Giampaolo Porcu to coordinate all of the relevant engineering and construction activities. The IGCC was shut down in April 2011 so that all of the modifications could be carried out at the same time.

The main refurbishment consisted of replacing the four sluice gate valves that regulate the inflow of seawater into the cooling tower and close the inlet in each of the four tower's quadrants.

With the help of the Italian engineering firm IDI and VAG specialists, SARAS engineers and Mr Porcu defined the project for the new sluice valves, which were to be built in duplex steel in a configuration that enables them to be removed from the frame for maintenance while the cooling tower is in operation. Duplex steel offers the best protection against marine corrosion (high salt concentration at 38°C).

To create this configuration, the cooling tower's top riser, which is made of reinforced concrete, was removed and replaced with a new one made of prefabricated steel after the four new sluice valves had been installed in the riser.

The functional tests performed during the erection works and when the cooling tower was started up confirmed that all the project goals had been met successfully.



It was the effort of VAG engineers Mr Rienmuller from Germany and Mr Veronese from Italy, and of IDI and SARAS engineers under Mr Porcu's coordination that enabled us to achieve these excellent results.

