

Customer: Wenco
Location: O'Connor, WA
Project: Outer Dome Plates
Date: May 2006



Wenco prepares steel for its toughest test

One of Australia's most widely experienced and best equipped heavy engineering companies is in the final stages of a unique fabrication project to return steel to the blast furnace which produced it.

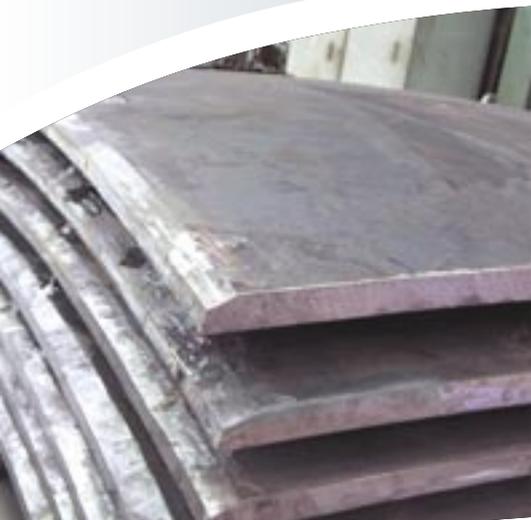
Wenco Pty Ltd of O'Connor in Western Australia is well ahead of schedule to fabricate outer dome plate sections for major maintenance work on the No. 5 Blast Furnace at BlueScope Steel's Port Kembla Steelworks.

Wenco is carrying out the fabrication work as a sub-contractor to lead contractor, the John Holland Group (JHG).

Work on the No. 5 Blast Furnace is strategically important for large, steel reliant sectors of Australian industry.

Wenco is supplying fabricated sections of dome plate covers to serve as new outer shells for three stoves which provide super-heated air to the blast furnace.





“The stoves are crucial pressure vessels which are subjected to enormous thermal stresses over several cycles around the clock each day,” BlueScope Steel Project Manager Peter Roberts explained.

“The No. 5 Blast Furnace was commissioned in 1978 and the remedial work is required to keep the unit at its designed operating efficiency.

“Wenco’s dome plate structures will form a new outer shell over each of the three stoves which serve the Blast Furnace. This is new technology for Australia and it will provide another 15 to 20 years of useful working life for the furnace.

“Nitrogen Oxide gases that are formed inside the stove above 1350 degrees Celsius condense on the surface and create corrosive nitrates. This attacks areas of high residual stress on the inside of the shell plate and affects the microstructures of the steel, which in turn leads to stress corrosion.

“The special 16Mo3 Grade of XLERPLATE® steel which we have specified for the project is only available in Australia from BlueScope Steel and because of its unique properties it is one that is not often used.

“It is known as creep-resistant steel or 16Mo3 steel and its molybdenum content makes it ideal for use in such severe applications. More than 100 tonnes will go into the fabrication of each dome.”

Wenco is fabricating sections of the dome plate covers at its works in WA from the special grade of XLERPLATE® steel in plate thicknesses ranging from 20mm to 55mm. The fabricated sections are then shipped to Port Kembla for blasting and coating before installation 40 metres above the base of the blast furnace.

The company’s Manager/Estimator Paul Peca said the project presented a challenge for Wenco despite its wide experience in heavy engineering work for Australia’s resources and metals processing businesses.

Above right: Manager/Estimator Paul Peca: “Basically, if it can be engineered, we can fabricate it.”

“BlueScope Steel technical support, JHG Management, the skills, experience and dedication of our workforce combined to provide a quality product to the client.”

Paul Peca, Wenco Manager/Estimator



The Wenco Group was established in 1980. As well as its heavy engineering activities it also operates an Onshore/Offshore Services division, which provides expertise in fibreglass piping systems to the mining and oil and gas industries.

“Our heavy engineering division incorporates the manufacture of Dished Heads as well as general and specialised plate pressing, bending, rolling and structural section rolling operations,” Paul Peca said.

“Basically, if it can be engineered, we can fabricate it. We’ve built up a reputation for quality, safety, documentation and on-time delivery that has seen us become the preferred sub-contractor for major projects all over Australia.

Above: Wenco is possibly the only organisation in Australia with the expertise to fabricate XLERPLATE® steel for the outer dome plate stove sections for the blast furnace maintenance project.

The special grade of XLERPLATE® steel specified for the project is only available in Australia from BlueScope Steel.



"Our market niche is 'unique work'. For instance we would probably be the only company in Australia able to attempt projects of such exacting requirements as the blast furnace stoves.

"The Wenco heavy engineering workforce is only 20 strong, but our people have an unmatched range of skills, experience and pride. The majority of them have been with us for a very long time.

Mr Peca said Wenco's staff received comprehensive technical support from BlueScope Steel. "They gave us a complete technical brief on the properties of the steel we were fabricating," he said.

"One of the challenges on this job was that we had to hot form 55mm XLERPLATE® steel to a complex double knuckle. This involved heating the steel up to 900 degrees and welding the two sub-sections of the double knuckle. The finished segment is then normalised.

The thinner sections were cold formed. Each individual ring was trial assembled prior to delivery.

"Completing the fabricated sections for the first dome went slowly because we had to calculate and then closely observe every procedure as we progressed.

"BlueScope Steel technical support, JHG Management, the skills, experience and dedication of our workforce combined to provide a quality product to the client and as a result we anticipate completing our part of the project well ahead of schedule.

More than 14 kilometres of welding is necessary to complete each dome. The installation of the three domes will be completed around August 2006.

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