## Steinmüller Africa: the steam

## generation expert

African Fusion talks to Steinmüller Africa Director, Moso Bolofo, about the company's legacy and its ongoing fabrication and service offering to boiler- and process-steam operators in South Africa and across the African continent.

e have been in this country since 1962, so we have a 60-year legacy, largely in the power generation sector," begins Moso Bolofo, the Steinmüller Africa Director. "We started with the now old stations of Grootvlei and Hendrina, then went on to the other baseload stations of Kriel, Duvha, Tutuka and Majuba.

"In recent times, we have been subcontractors to Hitachi for the fabrication of the Medupi and Kusile boilers, which are supercritical boilers that operate at main steam conditions of 240 bar at 560 °C, with reheat temperatures up to 570 °C. This requires Level 1 high-pressure pipework, which is an area of expertise for us," Bolofo tells African Fusion.

Steinmüller Africa, he adds, also operates in other industries that use steam, be it for use in their production processes, as in the pulp and paper and sugar industries, or for the generation or reticulation of

that steam, as in the petrochemical plants and the fuel refineries.

From doing all the fabrication and following up with the installation and commissioning of several early boilers, the company has progressed to become a key service provider for ongoing plant maintenance. "So when it came to mothballing and de-mothballing the returnto-service plants - Camden, Grootvlei and Komati Power Stations, for example - we were there, doing whatever was needed to make it happen," he says, pointing out that Steinmüller's history proves the claim of being an end-to-end service provider, that "really does look at the whole lifecycle of a plant, from conceptual design, manufacture and installation and, thereafter, to the maintenance and all the way through the service life until de-commissioning."

## World-class fabrication capabilities

"In our capacity as an OEM, we did fabrication and construction work for the early power stations, Hendrina, Duvha, Tutuka, Kriel and Majuba and the construction of Matimba power station. Later we were subcontracted for manufacturing of the Medupi and Kusile new-builds and we were a lead contractor for the fabrication of the HP piping," notes Bolofo.

Consequently, Steinmüller Africa has accumulated local manufacturing capabilities that cover a wide range of highpressure components for steam boilers. "Our large-scale facilities in Pretoria North have world-class fabrication equipment, such as our Oerlikon Automatic nipple welding system for steam headers; and the Cojafex Induction Bending Machine for



pipe spools, both of which are unique to the African continent," he says.

The company's Pretoria facilities have 50 000 m<sup>2</sup> of under-roof fabrication workshops, with a lifting capacity of up to 50 t. "We have bays up to 35 m wide and 700 m long and a pressure component production capacity of 1-million hours per year,"

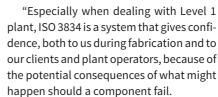
Notable welding equipment for fabricating HP boiler components includes:

- · A KLOOS semi-automatic CNC MIG fin welding system for sling tubes, which includes a chuck, a conveyer and two welding heads.
- · A PEMA six-head submerge-arc membrane wall welding unit complete with 1.5 m wide by 30 m long conveyers; a turn-around mechanism; storage rack for flat bar and tube: shot blast stations:





Steinmüller Africa's header nipple welder with two submerge arc heads and an inner fusion TIG head, with each head able to travel across a 28 m length. Right: A completed header manufactured by Steinmüller Africa in Pretoria North as part of its Medupi and Kusile new-build contract.



Steinmüller Africa's Piping Division is a one-stop shop for all induction bending requirements.

and a calibrator for flat bar from 26 to

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Steinmüller Africa is also the only com-

pany in South Africa qualified and ap-

proved to perform explosive welding for

the power generation sector. This is used

to fuse tubes to tube plates or headers

in high-pressure heat exchangers and

for plugging and sealing leaking tubes.

Describing the induction bending ma-

chine, Bolofo says that this unit controls

the temperature of the pipe bending zone

within a very narrow temperature band,

plasticising it by just enough to enable

highly complex and accurate pipe bends

to be formed – without introducing defects

or high internal stress to the pipe material.

"And we are able to send completed piping

for onsite stress relief in our 12.5 by 4.0 m

gas furnace or one of our two 11 m long

top hat heat treatment furnaces," he adds.

ny is in the area of milling for the pulverised

fuel (PF) needed by steam boiler operators.

"We have done quite a lot of contract work

managing PF milling plants and resurfacing

the mills with new grinding media. We take

care of the plant performance and uptime

and are paid purely on the PF produce and

plant availability, so clients who use our

services have one less critical area to worry

"Welding is our bread and butter, so certi-

fications such as ISO 3834, which deals di-

rectly with weld quality issues, are vital, es-

pecially since we produce welded pressure

vessels and high pressure components.

about," he informs African Fusion.

management

ISO 3834 and fabrication quality

Another area of expertise for the compa-

70 mm wide.

"The ISO 3834 welding quality system makes sure that, from the inception of pressure parts, all processes, equipment and everything involved in producing high quality and safe welded constructions is line with the codes and is traceable with repeatable results," he explains. "Everybody thinks they can weld, but unfortunately materials change all the time and when considering the operating conditions of most plant, if fabricators are not really careful about managing every aspect of weld quality, very serious, dangerous and expensive consequences may arise once a boiler is put into service," he warns.

larly important, because we continue to be involved on the in-service side for the entire life of boilers. So the ability to track back to find correct information and to know, always, what it is that has been done and how, enables us to respond to issues quickly and appropriately and to best manage longevity," he adds.

Another other area of strength for the company is welder skills and skills development. "This is a big challenge, not only with respect to artisans, but supervisory skills and engineering backup are also scarce. Fundamental to our business is the retention of skills for the country, and this tricky.

cyclical, and even on the in-service side, plants are typically running during winter and being shut down for a period in the summer months for repairs. But we need to develop and retain the skills during the quiet months, so the people we need are

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available when we need them," Bolofo says.

"Then we have to train welders when new and sophisticated alloy materials are introduced, for example. We tend to look for talent among the communities around boiler plants, picking up those that don't have higher qualifications and taking them from basic training and onto being A-plus welders. We have our own Welding Academy for developing these welders, but we also use the EBS Academy, which specialises in training in-service boiler tube welders for maintenance work.

"In the past, we used to be dependent on overseas skills, but that's now at an end. So maintaining the welding skills base to ensure we can keep plants running is more important than ever," he notes.

"In all that we do, we strive for very high quality standards, and in the stringent high pressure boiler fabrication environment, which generally requires 100% of the welds to be X-rayed, we are achieving repair rates of 3% and less, well below global norms," concludes Moso Bolofo.

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