

WOLFF Power for South Africa – WOLFFKRAN's strongest luffing cranes on Kusile Power Plant project

Kusile, Nkangala district, Mpumalanga province, South Africa – February 2016. Although it is one of Africa's largest economies, South Africa is struggling with energy shortages. The construction of two new power plants within the country aims to remedy this situation and to stabilize the power supply in the long term. In Nkangala district, located in the northeastern province of Mpumalanga, seven red WOLFF cranes (four of which are the BIG WOLFF 1250 B) owned by Mitsubishi Hitachi Power Systems Africa (MHPSA) are currently in operation to help build the coal-fired Kusile Power Station.

The mega power plant will consist of six 800 megawatt units and produce 4,800 megawatts of electricity a year making it the fourth-largest coal-fired power plant in the world. It goes without saying that the dimensions on the site are correspondingly big: Almost 60-ton heavy steel and concrete elements have to be moved, and a total of approximately 115,000 tons of steel will be installed in the construction. A job for the strongest WOLFFs in the pack. Therefore, no less than four BIG WOLFF 1250 B luffing cranes are in use in South Africa since this year. At the power plant site they really earn their place with their impressive lifting capacity of up to 60 tons. But by the same token, they also convince with the standard WOLFF Fine Positioning controls allowing for a centimeter accurate positioning of loads, which is of major importance in the cramped conditions on the construction site.

Despite having a tower height of 120 meters, the WOLFF 1250 B cranes with their 60-meter-long jibs are only tied to the stair towers of the boiler plants once. "Working together with MHPSA, our technical support department developed special collar frames for the stair towers to enable simple and yet stable anchoring of the crane to the structure", explains Andreas Kahl, Managing Director at WOLFFKRAN. "The crane concept envisages that one of the 1250 B cranes will be relocated to Unit 6 as construction progresses," says Kahl.

Economical – luffing crane on top of boiler plant

The four red giants are supported by three WOLFF 355 B luffing cranes with 50-meter jibs, which were erected directly on top of the 122-meter high boiler plants. In this way, an overall hook height of 186 meters was achieved with the use of just one tower segment. "This saves on space on the ground as well as costs for the customer, because fewer tower

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elements are required and the assembly, using a mobile crane, is much faster," says Andreas Kahl. Mounted on the mobile WOLFF undercarriage UW 260.3, the luffers can move back and forth along rails on the roof of the boiler plants and thus have a movement radius of approximately 40 meters. They were already used from 2011 to 2013 on first three of the six boiler plants and are now being used on Units 2, 3 and 4.

Four WOLFFKRAN service technicians were sent to South Africa for the assembly and technical monitoring of the work. "The requirements for the personnel on the construction site are very high and the safety regulations are understandably strict," says Andreas Kahl. "The space on the site is not only very restricted, but it also appears quite chaotic to the untrained eye. In addition to the seven WOLFFs, numerous crawler and lattice-boom cranes are also in use to move very heavy and large components. That is why safety has top priority at the site," says Kahl.

Proven concept convinces customer

To date, Mitsubishi Hitachi Power Systems has only used crawler and lattice-boom cranes in South Africa for power plant construction. The successful combination of WOLFF 355 B and WOLFF 1250 B cranes in the construction of the coal-fired plants in Wilhelmshaven (Germany) and Maasvlakte (Netherlands) convinced MHP SA of the more economical tower crane concept. After the European construction projects were successfully completed with rental cranes, MHP SA successively bought the seven WOLFFs for the mega-project in South Africa. "With this investment, we are not only investing in Kusile, but also in future power plant projects," says Stanley Langkilde, Construction Services Manager at MHP SA. "The concept suits our needs perfectly. Together with WOLFFKRAN's technical services and the long-lasting, modular cranes, we are very well set-up in the power plant supply and construction market," says Langkilde.

Three further 355 B WOLFF cranes owned MHP SA are also currently in use at the Medupi Power Station in the neighboring province of Limpopo. Working on behalf of the South African electricity generator Eskom, the two modern coal-fired power plants in Kusile and Medupi will bring a reliable supply of energy into the resource-rich region for decades to come.

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WOLFF cranes being used in Nkangala district:

WOLFF Model	Crane Base	Jib Radius, m	Tower Height, m	Max. Lifting Capacity, t
1250 B (4 cranes)	Cross frame	60	120	60
355 B (3 cranes)	Undercarriage	50	9	28

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Photos and captions



Four WOLFF 1250 B and three WOLFF 355 B are in operation at the Kusile Power Plant construction site amidst a multitude of crawler and lattice boom cranes.



The WOLFF 1250 B with a 60 meter jib and a tower height of 120 meters is tied to stair tower of the boiler house with only one tie.



WOLFFKRAN and MHP SA worked closely together to develop a collar frame for the stair towers to securely tie the crane to the structure.



The WOLFF 355 B luffers were erected directly on the 122 meter high boiler plants. In this way, an overall hook height of 186 meters was achieved with the use of just one tower segment.



The standard WOLFF Fine Positioning Controls are of utmost importance on cramped construction sites such as the Kusile Power Plant project.

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With a tradition of over 150 years WOLFFKRAN is one of the leading manufacturers and rental companies of high-quality tower cranes in Central and Eastern Europe, the Middle East, North America, Australia and Hong Kong. The worldwide rental fleet comprises more than 750 WOLFF cranes. It is headquartered in Zug (Switzerland) and has manufacturing sites in Heilbronn and Luckau (Germany), as well as international subsidiaries and partnerships around the world. It employs a global workforce of approx. 800 people.