

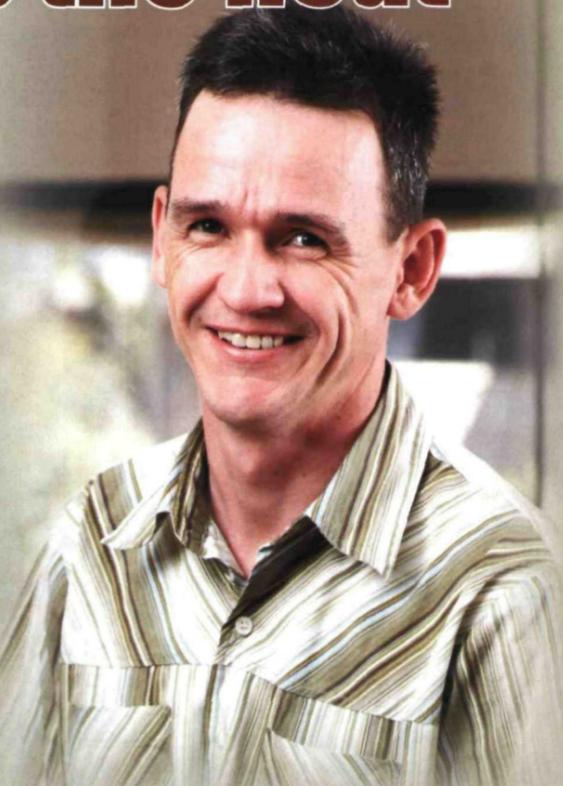
Metix takes the heat

The Metix solution is high-conductivity forged copper and silver alloy pressure rings, which have proven extremely successful at withstanding the adverse conditions in the heart of a furnace. Metix pressure rings apply pressure to the contact shoes on the electrodes, and can operate in temperatures of up to 2800°C.

Metix technology equipment director, Jacques Venter (right), says: "Pressure rings are our most important piece of technology equipment, and key components of the furnace. They have traditionally been troublesome during the operation of an electric submerged arc furnace using the Soderburg type of electrode.

"This type of furnace requires that the electrodes are supported at the lowest possible point, placing the pressure ring precariously close to the extremely hot plasma jets blowing up the side of the electrodes. However, the Metix design is proving to be a winner for furnace operators, with 14 furnaces currently running on Metix pressure rings in SA."

"Furnaces operate 24/7, and just a few hours of downtime can quickly add up to millions of rands in lost production," says Venter. "When a pressure ring fails, it causes water to leak into the furnace, which is extremely dangerous and can cause a furnace to erupt violently.



"A furnace is typically fitted with safety instruments that detect these leaks and is normally automatically switched out in order to make the needed repairs. Depending on the design of the pressure ring, this can take up to 24 hours to effect, with personnel constantly working in the potentially dangerous conditions."

Site installation at Lion Ferrochrome.



In view of this, the Metix design is focused on ease of fitment and removal, requiring only a hammer, crowbar and lifting equipment to fit or remove the pressure ring. This reduces down time to as little as an hour in most cases.

“Metix has successfully replaced existing pressure rings within a single eight-hour shift. This is encouraging to companies like Xstrata – currently our biggest client, with nine of its 20 furnaces either running on our pressure rings or waiting to be fitted with ordered units.”

Says Xstrata works engineering manager, Hennie Grobler: “Failures from the previous pressure rings due to cracks and the bending open of the skirts exposed and stressed the expansion bellows. The Metix pressure rings have offered a solution. They are also easy to assemble and dis-assemble – and we are experiencing better baking of the electrodes.”

“Xstrata requires a reliable operation that is not interrupted with water leaks and downtime to repair them. We believe that with the new pressure rings, the risk of water in the furnace is minimised – thereby making our operation far safer.”

Xstrata isn't the only happy client: All of Herculite's ferrochrome furnaces are running on Metix equipment, including the largest ferrochrome furnace in SA – rated at 78 MVA. Other clients include Rand Carbide, with two ferrosilicon furnaces operating on Metix equipment. ○



7850kg forged copper ring.

Inspection and pressure testing of forged pressure rings.

