

Modern metals technology

The heat is on for high conductivity quality pressure rings

Pressure rings don't just apply pressure to the contact shoes on electrodes, they operate in temperatures of up to 2 800°C, creating safety challenges that companies can do without.

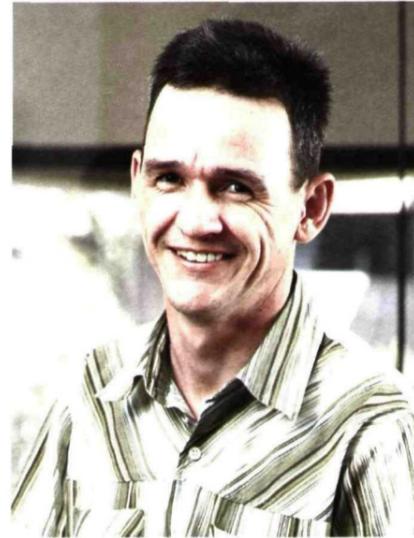
According to Metix technology equipment director Jacques Venter, the Metix solution is high conductivity forged copper and silver alloy pressure rings, which are highly successful at withstanding and adverse conditions in the heart of a furnace. "Pressure rings are our most important piece of technology equipment and key components of the furnace," he explains. "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 electrodes. However,

the Metix design is proving to be a winner for furnace operators, with 14 furnaces currently running on Metix pressure rings in South Africa."

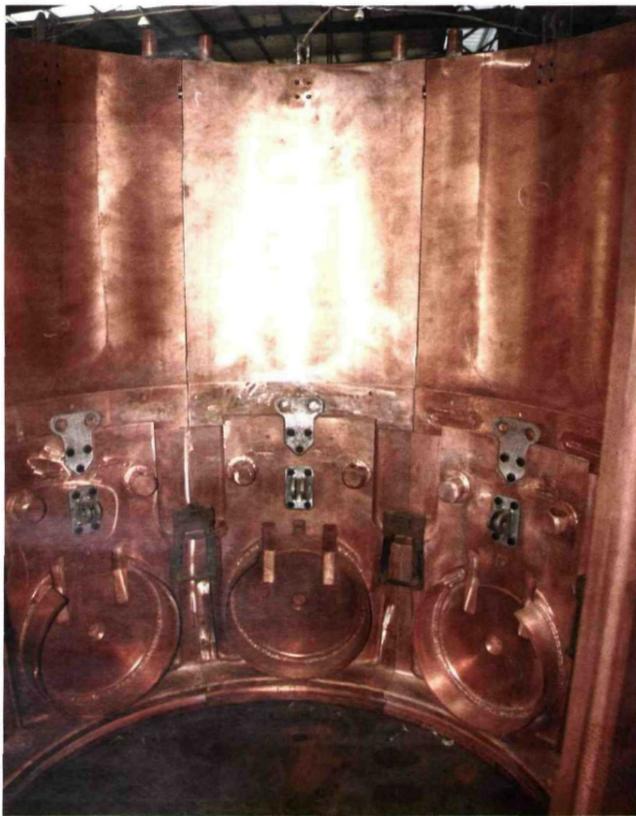
Venter says furnaces operate 24 hours a day, seven days a week, and a few hours of downtime quickly add up to millions of rands in lost production. "When a pressure ring fails, it causes water to leak into the furnace, which is extremely dangerous and can cause a furnace to erupt violently."

A furnace is typically fitted with safety instruments that detect these leaks and is normally automatically switched out 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 potentially-dangerous conditions. In view of



Metix technology equipment director Jacques Venter.

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 downtime to as little as an hour in most cases.



Trial assembly of forged pressure rings and heat shields during inspections in China.



With the taller pressure rings, the insulation between the shields and pressure rings will never be exposed to the heat in the furnace.

