

## SOUTH AMERICAN BRICKING SOLUTIONS

BY BILL BARRAUGH, PRESIDENT BRICKING SOLUTIONS, A DIVISION OF PNEUMAT-O-RING INTERNATIONAL, INC.

- N&S** A refractory bricking contractor in Chile has been using a Brokk tear-out robot and Bricking Solutions' pneumatic bricking machine to speed up cement kiln lining demolition and to accelerate and improve the quality of rebricking.
- N&S** Uma empresa de aplicação de tijolos refratários do Chile, para apressar a demolição do revestimento dos fornos de cimento e para acelerar e melhorar a qualidade do novo revestimento, tem utilizado um robô Brokk de arrancar tijolos e uma prensa pneumática de tijolos da Bricking Solutions.
- N&S** Un contratista chileno de ladrillos refractarios ha estado utilizando un robot de desgarrador Brokk y una máquina neumática para ladrillos de Bricking Solutions para agilizar la demolición del revestimiento del horno de cemento y para acelerar y mejorar la calidad del nuevo revestimiento con ladrillos.

Anders Karlgren, owner of refrAK Bricking Systems in Los Angeles, Chile, has been installing bricks and solving problems in rotary kilns since 1974. Anders has installed over 7000 meters of brick in 79 kilns. From the beginning, Anders has always looked for ways to improve his skills and knowledge and to use these improvements to improve his service to his customers. In recent years Anders has used the equipment of Bricking Solutions (a division of Pneumat-O-Ring International), Monroe, WA USA, and of Brokk AB, Skelleftea, Sweden, to further enhance his skills and knowledge and thus his value to his customers.

Bill Barraugh, president of Bricking Solutions, spoke with Anders for **N & S American CEMENT MAGAZINE**, about his approach to problems. The interview was conducted at the Juan Minetti plant in Mendoza, Argentina, while later in the article, we have a chance to see how further projects have been developed.

"Bricking systems and the equipment used as part of these systems must be looked at from two aspects; primarily to help

improve brick installation quality which will ensure longer brick life, and secondly to minimise down time. Together, these two aspects help ensure an as high as possible service factor," says Anders.

"When I started working in Cemento Melon, its precalciner kiln had a service factor below 90% and a high number of outages per year, normally one outage every three months.

Cemento Melon's long dry process kiln had an average of four outages each year due to refractory problems. In four years, we have eliminated emergency outages for refractory problems. The last emergency outage for a refractory problem is now over two years ago. In addition, we have achieved good results in decreasing refractory consumption. The two kilns are now consuming refractory at

Below: A Brokk tear-out machine at work inside the kiln





around 330g/t of clinker. Our goal is to be below 300g/t next year. We also reached a record service factor of 96.9% in the precalciner kiln in 1997.

"From the secondary aspect of minimising down-time, we have cut down-time to a fraction of what it used to be. The reduction in down-time was accomplished by utilising the Brokk tear-out robot, which saved an estimated 72 hours of demolition time, and through the use of a Bricking Solutions bricking machine, which installed brick at daily rates three times faster than traditional installation methods, with a record of 17.4 meters in 24 hours. Most important was the improved quality of installation. The Bricking Solutions machine, when properly-used, is not only the quickest installation method, but also the best from a quality point of view. The first installation with the Bricking Solutions bricking machine in Melon lasted 14 months.

### Juan Minetti

"Our success at Cemento Melon led to contacts and contracts at other plants. One of these was for Juan Minetti in Mendoza, Argentina. The Mendoza Juan Minetti kiln is 81 meters long with diameters of 4.55, 4.88 and 5.33 meters connected with two taper or conical sections. The kiln over the years has been the poorest performing within its group and has an actual refractory use of over 1.8kg/t of clinker.

"In summary our approach to the Juan Minetti problem is as follows:

- To utilise top-of-the-line equipment to decrease demolition and installation time. The equipment included a kiln access ramp, Brokk tear-out

**Anders with his Brokk tear-out robot**



robot, Bobcat skid steer loader with a Muck-it bucket for mucking out, Bricking Solutions and a Bricking Solutions adjustable bricking machine that would accommodate the different kiln diameters and taper sections. We hope to add a bedding cart, a 'Radialign' laser alignment device to ensure that the brick was installed perpendicular to the kiln axis, and Line-O-Meter before the next outage. Our goal is to complete a 40-meter repair in less than 7 days (cooling and heating time included), similar to what we have already accomplished at Cemento Melon.

- To take training of the plant masons very seriously. I have personally trained the masons in Melon, and none of them has less than 160 hours of training. I will also continue to supervise all installation jobs at Juan Minetti. Our goal is to be below 600g of refractory per ton of clinker and to run throughout the year 2000 without one single emergency outage. Hopefully I will be able to come back to you with good news!"

### Cemento Polpaico

"We are starting a similar long-term project at Cemento Polpaico in Chile. At this time, the actual outage time at Cemento Polpaico using traditional methods is three times as long as in Cemento Melon. Cemento Polpaico, as well as Juan Minetti, has made the

correct conclusions based on the positive experiences in Melon.

"These companies have understood that investments in the best equipment, combined with proper planning, training and most importantly careful supervision of the tear out and installation of brick, will eventually ensure increased bottom line profits," says Anders Karlgren.

### Latest results

Anders has now started projects at Juan Minetti and Polpaico. In the first outage at Juan Minetti he utilised a new Bricking Solutions access ramp, the Brokk tear-out machine, a Bobcat with a Muck-it bucket, and a Bricking Solutions adjustable 'Expand-O-Ring' bricking machine.

The demolition rate with the Brokk was 8.3 meters per hour in the basic zone. The muck out rate with the Bobcat was greatly improved due to the new Bricking Solutions access ramp. Anders only had a short training time with the plant masons before the outage, but they managed to install 12 meters in 24 hours in the basic zone, compared to 8 meters using their old bricking machine. Installation rates in the alumina zone were slower due to the fact the plant masons had never installed with mortared joints before. Anders has also started work at Polpaico. Initial comments indicate similar good results to those obtained at Cemento Melon and Juan Minetti. **N&SAC**

**Below: Bricking Solutions bricking machine inside the kiln at Juan Minetti**

