

**Case Study:**

Expanding packing set for hydraulic metallurgical forging press

**Problem**

The press had significant wear resulting from the piston being out of alignment. As a result, the life of the existing seal was being very seriously compromised, leading to pressure loss within the cylinder and massively impacting upon the plant's overall productivity. The existing sealing solution simply couldn't cope with the extremely poor sealing environment in which it was being asked to operate and at the worst point, the press was being shut down every two or three days to have the seals replaced. The consequences included, a catastrophic loss of productivity and a massive maintenance bill for replacement seals, hydraulic oil and 5 hours of uninterrupted maintenance team labour costs every time that the seals needed to be replaced. The position was completely unsustainable.

**Significant costs and downtime**

**Application**

Heavy duty hydraulic ram seal on the largest forging press in Brazil with an 8,000 metric tonne force, used to manufacture work and back-up rolls for the Brazilian steel industry.

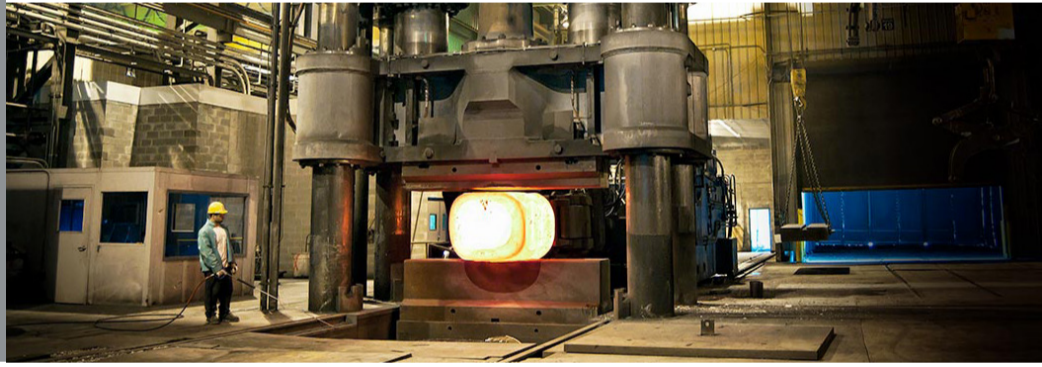
- Pressure: 300 bar
- Media: Emulsion of hydraulic oil and water
- Temperature: 80°C

**Existing solution**

Alternative heavy duty compression packing

**James Walker solution**

A nitrile rubber-proofed fabric based expanding packing set was installed on an initial 3 month trial. Expanding packing has been specially designed to cope with machinery with worn bushes and rams, providing bearing support to the ram and helping to maintain alignment. Expanding packing sets have a proven track record across a wide range of heavy duty hydraulic sealing applications and can tolerate the most aggressive working conditions whilst maintaining plant efficiency.



**Results and benefits**

Although originally fitted as a 3 month trial, the expanding packing set operated successfully for a period of 12 months, at which point it was changed as part of a planned preventative maintenance cycle. The seal was still working perfectly when it was replaced. The difference between constant shutdowns and seal replacement every 2 to 3 days, versus 12 months of trouble free operation to the next planned preventative maintenance cycle, speaks for itself. James Walker is now considered a trusted hydraulic seals consultant for this customer in Brazil.



Significantly extended product life and extended productive life of ageing plant



Improved productivity - potentially saving at least £18k per day in lost production



Improved health and safety - clean, leak free environment



Hugely reduced maintenance costs

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