

Piston Redesign Extends Life of Cylinder Bores

The Challenge

The compressor unit was running an original one-piece solid piston with solid bronze dovetailed rider bands and laminate piston rings. Pistons and bronze riders were wearing the cylinder bores over time and the customer would have to have the cylinder re-sleeved plus have the pistons sent out to have the bronze riders machined out and new bronze riders sprayed on. This procedure was very costly and time consuming for the customer.

The Solution

During the 2012 outage CPI, part of the Howden group, was provided a sample of the customer's piston and we recorded the weight, dimensions and operating parameters of the unit. Engineering then designed a new three piece aluminium / steel piston with CPI 315 riders and piston rings to fit their dimensional and operating parameters. The customer approved the design and installed CPI's piston for trial.

Result

The initial trial of three months was sufficient for the customer to approve the new CPI piston design and take the decision to convert a further six cylinders in 2013, followed by six more in 2014. They then converted all of their 24 cylinders over to the new CPI piston design over the following two years.



Customers original single piece piston, showing damage to the sprayed on bronze rider bands



CPI's solution, an engineered 3-piece piston, to carry CPI 315 piston and rider rings

