



Remanufactured rotary screw compressor with extended life surfaces

A rotary screw compressor is a type of gas compressor which uses a rotary type positive displacement mechanism in a continuous sweeping motion of close fitting rotors. With LaserBond® deposition technology, advanced metallurgy and precision machining means worn-out rotors can be remanufactured to better than new. In this case the screw compressor was operating in harsh mining conditions, where maintenance of air quality is particularly challenging.

The Problem:

Rotary screw compressors are simple and efficient machines which are used in a wide range of harsh environments. Efficient operation relies on maintaining close clearances between tips of screws and bearing journals to prevent leakage. Poor air quality accelerates component wear. In many environments, like drilling and mine sites, it is less than ideal which leads to accelerated wear. The normal maintenance solution is to replace the entire compressor rotor module with a new OEM assembly. Sometimes damage can be worse than wear. Using LaserBond's in-house metallographic lab we can match the substrate material to retain integrity of the part.

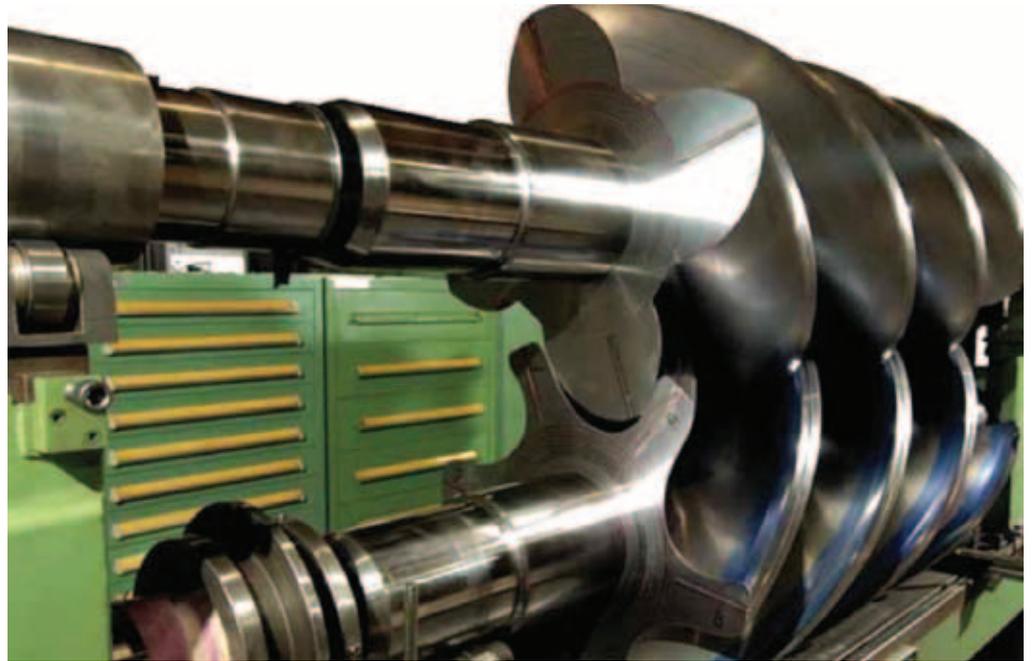


A particularly severely damaged lobed rotor that was repaired and restored back to specification using LaserBond® cladding technology and selected metallurgy.

After benefits and feedback

The Solution

The worn fine edge and the bearing journals were rebuilt with LaserBond® cladding. They were reground and brought back to the original clearance specifications so operating efficiency of the screw compressor was restored. Superior metallurgy of cladding material offers high resistance to erosion wear from superfine particulate matter in a high velocity air stream. It provides longer service life in an application with challenging air quality.



Unlike thermal spraying or plating, LaserBond® cladding provides a strong metallurgical bond with minimal dilution of the base material, exceptional thickness control and negligible heat-affected zone.

Key Benefits

- Operating efficiency of the compressor is restored.
- Significant cost savings over replacement parts.
- Remanufactured screw components have better than new metallurgy to offer superior life.
- Better outcome for the environment - less waste, less energy consumption, lower carbon footprint.



The restoration of the bores in cast iron screw compressor housings using LaserBond's laser cladding process to maintain essential clearances.

Feedback

LaserBond is able to repair and refurbish critical screw compressor components, for a highly cost effective result - and fast.

About LaserBond

LaserBond Limited is an Australian engineering company specialising in surface reclamation and engineering, precision machining and fabrication. LaserBond manufactures, repairs, reclaims and enhances the performance of high wear, critical metal components in a range of capital intensive industries including mining, minerals processing, energy, agricultural, transport, steel, aluminium, marine and manufacturing sectors.