

CASE STUDY

RE-ENGINEERING OF PUMP PARTS PREVENTS PRODUCTION LOSSES AT BITUMEN PLANT

- Re-engineered parts to meet customer requirements
- Alternative mechanical welding solution developed
- Time and budget constraints met; production losses averted



Cutting tool for machining of parts

CHALLENGE

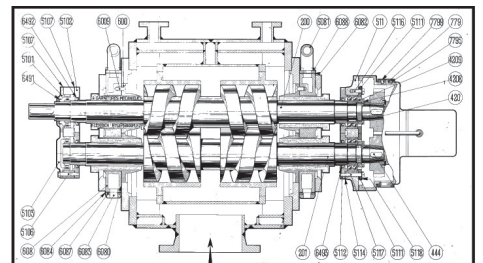
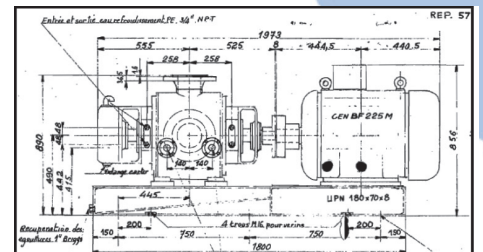
The customer asked ClydeUnion Pumps to overhaul a twin rotor screw pump used in the production of bitumen. The focus was on the replacement of bearing housings and heating boxes that had been damaged over the years and re-machined several times by the end user to allow correct alignment of the shafts.

Replacement parts were no longer available, so ClydeUnion Pumps had to find an alternative solution to meet the client's time and cost constraints.



Industry: Oil & Gas - downstream
Region: Europe
Category: Re-engineering
API Type: Screw pump

ClydeUnion Pumps Aftermarket Technical Services team has experience across a range of services on critical rotating and reciprocating equipment to improve operational safety, reliability and efficiency. The re-engineering of the 2D 150-68 screw pump for the oil and gas market is one of our success stories documented in our library of case studies. These case studies highlight the requirement from the customer, how we achieved the goal and the process we followed to deliver the improvements.

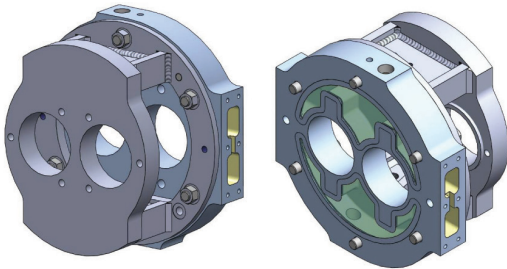


SOLUTION

Demonstrating the added value of working with a Celeros Flow Technology company, ClydeUnion Pumps proposed to create new mechanically welded bearing housings and heating boxes based on measurements taken on site. As well as controlling costs and delivering a solution on time, the re-design of these parts also allowed ClydeUnion Pumps to accommodate requirements formulated by the end user's maintenance team to improve the alignment of bearing housings on the pump casing. ClydeUnion Pumps developed the new designs and used computer-aided manufacturing techniques to make the new bearing housings and heating boxes. They also performed hydrostatic tests on the heating boxes prior to delivering the parts to the customer.

OUTCOMES

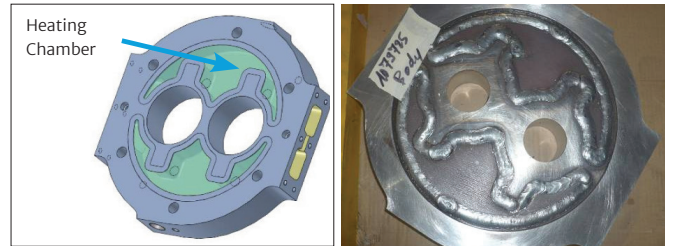
The new parts have improved pumping screw alignment, improving overall performance. Improved mechanical seal accessibility makes service and maintenance easier. The choice of mechanically welded design parts meant there were no pattern costs involved and delivery deadlines could be met. The new drawings and computer-aided manufacturing techniques deployed by ClydeUnion Pumps have also reduced parts delivery time for upgrades of other screw pumps on the site: one of which was an identical pump in spare suffering from severe deterioration. The ability to reinstate the spare pump effectively has removed the risk of production loss due to pump failure.



Purchase of specific cutting tools for machining of parts



Welding of covers for heating chambers



- Hydrostatic test of heating boxes
- Assembly of bearing housings with heating boxes to realise final machining of bores

FINANCIAL ILLUSTRATION

- Investment cost of parts supplied
 - 2 bearing housings + 2 cooling boxes for DE and NDE side \approx 19,000 Euros
- Savings
 - Cost due to production losses in case of failure of spare pump (spare pump to be overhauled too due to its advanced deterioration condition)
 - Cost linked to replacement by new pumps 70,000 Euros
 - Savings due to mechanically welded parts design choice (no patterns costs, decrease of delivery time)

Aberdeen Service Center
P: +44 1224 756 100

Abu Dhabi Service Center
P: +971 02 4081900

Anney Service Center
P: +49 405 220 2401

Baton Rouge Service Center
P: +1 225 778 3310

Battle Creek Service Center
P: +1 269 966 4782

Burlington Service Center
P: +1 905 315 3813

Calgary Service Center
P: +1 800 352 8294

Corpus Christi Center
P: +1 361 371 6519

Downey Service Center
P: +1 562 622 2371

Glasgow Service Center
P: +44 141 637 7141

Jenks Service Center
P: +1 281 217 6359

Odessa Service Center
P: +1 704 808 3780

Penistone Service Center
P: +44 1226 763 311

Singapore Service Center
P: +65 6513 9276

Zhengzhou Service Center
P: +86 371 8665 2391

E: cu.sales@celerosft.com
www.celerosft.com



| SPEED | EXCELLENCE | PARTNERSHIP