

CASE STUDY

NEW 3D MODELLING AND MANUFACTURING TECHNIQUES CUT PUMP COMPONENT LEAD TIMES BY UP TO 50%

- Laser scanning maps components accurately on site
- D model-to-manufacture streamlines parts production
- 50% lead time reduction compared to traditional methods



ClydeUnion Pumps re-engineered discharge cover

CHALLENGE

A customer in the Middle East asked Clyde Union Pumps, a Celeros Flow Technology company, to provide a rapid response re-engineering service on a range of components for three third party BB4 type boiler feed pumps at a conventional power station. These included shafts and pressure boundary components.

The customer also wanted the components to be manufactured from superior materials with design improvements incorporated where possible. Customer-approved quality documentation was also required, including quality plans, non-destructive testing and hydro-test certification.



Existing discharge cover

CLYDEUNION®
PUMPS

Industry: Power – conventional

Region: Middle East

Category: Re-engineering

API Type: BB4

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 drop-in replacement of two original Bryron Jackson pumps 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

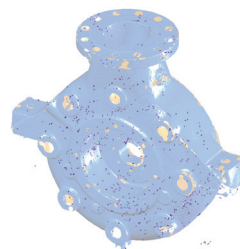
To reduce downtime, one of the pumps was stripped at site and the components were visually and dimensionally inspected by a ClydeUnion Pump expert. The pump was then scanned using a state-of-the-art portable 3D laser scanner to produce a mesh STL surface in real time.

CAD software was used to convert the mesh files into full manufacturing models. Each component was then reviewed, with any design improvements incorporated into the models and new manufacturing drawings produced. Engineering reports, evaluation of component condition, operating history and required improvements were produced, together with quality plans, for approval by the customer.

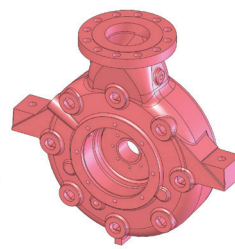
OUTCOMES

The application of modern scanning, modelling and manufacturing techniques has delivered significant cost savings, with lead times reduced by more than 50% in some

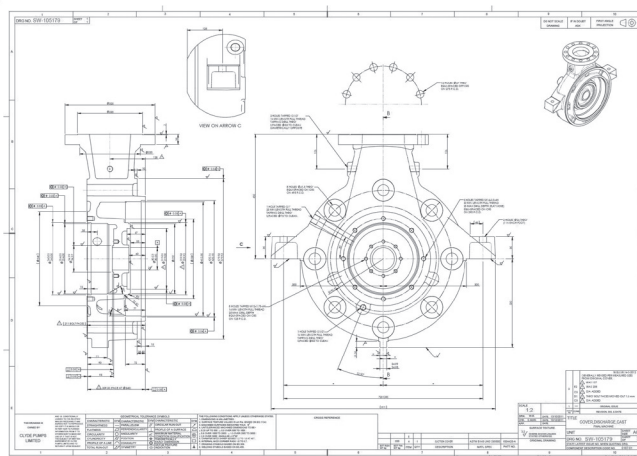
instances, compared to traditional methods. The documentation and quality system provides assurance to the customer that the components supplied feature both improved design and superior materials specification, which helps to improve productivity and reduce maintenance requirements.



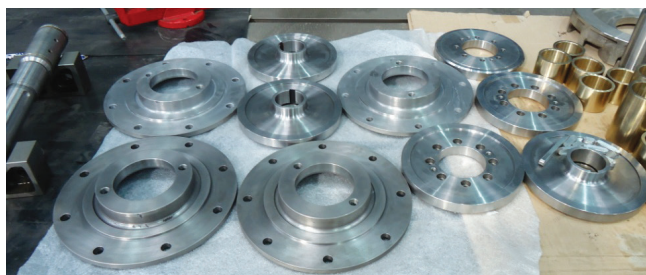
STL surface mesh



3D CAD model



Drawings produced from model



Supplied shaft and miscellaneous turned parts

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