



# Reducing Repeat Failures on a Critical Vertical Sump Pump

## Lubrication system modification improves reliability and reduces repair frequency

AVTPUMP was engaged by an existing customer to carry out the urgent overhaul of a vertical sump pump supplying water to a critical steel production process.

The pump would normally be removed as part of an annual service programme, but increasing motor current and suspected bearing wear meant the asset required earlier intervention. With only one other pump available, a further failure could have brought steel production to a halt.

### THE CHALLENGE

The pump was experiencing high motor current and repeated reliability issues linked to its cutlass bearing arrangement.

The existing bearing lubrication relied on process water being fed from the pump volute through a dedicated pipe. Scale ingress had blocked this route, preventing lubrication from reaching the bearings.

As a result, the bearings began to run dry, causing significant wear, shaft contact and near seizure of the pump. This increased the load on the motor, leading to high current draw and repeated tripping.



### OUR APPROACH

The pump was collected from site and returned to the AVTPUMP workshop for a full strip-down and inspection.

Rather than simply replacing the worn components, our engineers reviewed the existing lubrication arrangement to understand why the same failure mode had occurred on previous repairs.

The assessment confirmed that continued reliance on the original process-water feed presented an ongoing risk, particularly where scale could restrict or completely block the lubrication route.



*“The lubrication upgrade has proved extremely beneficial. Repair frequency has dropped dramatically, making this a reliable and cost-effective improvement for the site.”*  
**Customer Representative**

### OUR FINDINGS

Inspection identified severe wear to the cutlass bearings, with scale contamination preventing the required lubricating flow.

The resulting dry running had caused the bearings to pick up on the shaft and brought the pump close to seizure. This explained the high motor current and operational trips reported on site.

The repeated nature of the issue showed that replacing worn parts alone would not provide a lasting solution.

### THE SOLUTION

AVTPUMP completed a full overhaul, including the installation of a new shaft, shaft sleeves and bearings.

The lubrication pipework was then modified to include an independent external water connection from the top of the pump frame. This allowed a clean mains water supply to be introduced directly to the bearings while the pump was operating, removing reliance on the scale-prone process-water feed.

New pipework and valves were installed to support the revised arrangement before the pump was rebuilt and returned to site.

### THE RESULT

The modified lubrication system proved successful, significantly reducing the frequency of pump failures and associated downtime.

Following the improvement, the same upgrade was carried out on the sister pump to provide a consistent and more reliable arrangement across both assets.

By addressing the underlying lubrication issue rather than repeating a like-for-like repair, AVTPUMP delivered a practical, cost-effective improvement that increased reliability on a production-critical application.

### AT A GLANCE

|              |                                                                                                                                                                                                                                                        |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Industry:    | Energy & Power                                                                                                                                                                                                                                         |
| Application: | Water supply to steel production line                                                                                                                                                                                                                  |
| Equipment:   | Vertical sump pump                                                                                                                                                                                                                                     |
| Services:    | Urgent pump repair & overhaul <ul style="list-style-type: none"><li>» Failure investigation</li><li>» Lubrication system modification</li><li>» Replacement of shaft, sleeves and bearings</li><li>» Installation of new pipework and valves</li></ul> |
| Key Issue:   | Scale blockage causing bearing starvation & near seizure                                                                                                                                                                                               |
| Outcome:     | Reduced repairs, improved reliability and upgrade replicated on sister pump                                                                                                                                                                            |

Need help?

Contact our experts

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