

PRESS INFORMATION

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FOR FILTRATION SCREEN FROM MONTHS TO WEEKS.**





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Deritend Wolverhampton has helped prevent downtime at a Severn Trent Water treatment plant by offering a repair service that cut the delivery time of a step filtration screen from 3 months to 3 weeks. By replacing the mechanical drive system from designated stock and being able to fabricate intricate new screen components, Deritend avoided manufacturer lead times and the cost of new spares. As a result, Severn Trent was able to get the water treatment plant back operating at full capacity with the minimum of delay.

As part of the maintenance contract between the two companies, Severn Trent Water contacted Deritend Wolverhampton in September last year, with a view to repairing one of the main inlet filtration screens at its Mansfield Treatment works. One of the two worm gearboxes used to drive the moving frame over the step-type filter had suffered an unpredictable failure, resulting in bent shafts and misalignment of the screening elements. The design is based on two interlocking screens made up of hundreds of stainless steel sheets (laminar) with 45° steps cut into the outer facing edges. A cam-based drive system jogs the upper filter frame in an circular motion, moving half of the laminars up and over the fixed screen positioned in the main body of the filter, pushing any solid waste up the series of steps to the top of the screen for extraction.

‘When the gearbox failed the key-way shaft soon followed, causing the screen plates to move out of position, bending the holding frames and damaging the laminars’, explains Jamie Wesley, Contracts Manager at Wolverhampton.

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'We removed the large 2m x 2m x 3m filter from the Mansfield site and brought it back to our Wolverhampton branch for assessment, and sent a report to the client. Following our recommendation, the client decided that it was quicker and more cost effective for us to repair the unit and fabricate the parts needed from the manufacturer. The failure also happened during a period of unsettled weather and the treatment plant needed to be operating at full capacity as soon as possible in case the remaining filter could not process an increased volume of sewerage water.'

The replacement drive system was available immediately from the designated stock held at the Wolverhampton branch, and consisted of a new WEG high efficiency motor mounted in-line between two Flender worm gearboxes. NSK Self-Lube shaft mounted bearings and a set of clutch bearings were also specified for the replacement cam system, and new shafts were manufactured in-house to complete the mechanical repairs.

The damaged screen frame, plates and laminars presented a more complicated problem and replacement parts were subject to a 3-month lead time from the manufacturer. Deritend engineers carried out the repairs to the filter body, straightening and machining the framework; in-house, however replacing the thin and delicate laminars required laser cutting from high-grade stainless steel sheeting. This highly skilled fabrication was carried out by one of Deritend's partners and delivered well within the 4-week timescale for completion of the project.

Due to the urgency of the job, the repaired unit was delivered and installed under the guidance of Severn Trent engineers early one Saturday morning. The Deritend service effectively reduced what was a 3 month lead time for a filter with new components fitted to a 3 week turnaround from the collection of the repaired unit to final installation.

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