

# ***Severn Trent installs reliable oil-free screw blowers from Atlas Copco in six water treatment plants***

*Severn Trent Water has chosen to install reliable and energy efficient ZS oil-free rotary screw blowers from Atlas Copco at six of its water treatment plants in the UK. This forms part of a major infrastructure refurbishment programme, including upgrades to its Rapid Gravity Filters (RGF) processes installations that require low pressure air for sand de-scouring duties.*

[Zoom in](#)

The latest phase of the project has seen ZS blowers installed at the Little Eaton Water Treatment Works in Derbyshire, which supplies safe, clean drinking water to the growing community in the city's North-West area. Over time, it became clear that the site's RGF process required a significant overhaul in order to improve operational efficiency, which would require the replacement of its existing blower installation.

[Zoom in](#)

*Severn Trent Little Eaton waste water facility*

Taking up less land than other treatment processes, a combination of Rapid Gravity Filters and disinfection has become the most widely used method of purifying a drinking water supply. The process involves water pre-treatment in flocculation tanks to bulk up impurities and particle size. Following this, the untreated water is passed through several layers of coarse grained sand and anthracite to trap all particulates. The saturated filters are then backwashed several times a day to clean the media with a combination of treated water and low pressure air to de-scour the sand filters. Such a continuous process requires a dependable, uninterrupted supply of oil-free compressed air at 0.5 bar and relies heavily on the efficiency of low pressure blowers to maintain the required flow rate and pressure.

[Zoom in](#)

*oil-free rotary screw blowers installed at Severn Trent Water waste water facility in Little Eaton, Derbyshire*

As one of the main contractors for Severn Trent's infrastructure upgrade project, civil engineering company MWH Treatment Ltd took on responsibility for the entire Little Eaton refurbishment programme. When it came time to make a decision on replacing the site's existing blowers, MWH turned to authorised Atlas Copco distributor Cooper Freer to specify, deliver and install two ZS 75+VEA-C-600 low pressure blowers, together with all associated stainless steel pipework. The blowers were subsequently positioned on a high level external site adjacent to the RGF galleries.

The ZS blower units comprise a complete, fully integrated package based on a simple internal principle: precision timing gears maintain minute clearances between two intermeshing dry screw elements that never touch. No lubrication is required in the compression space and special seals stop any rotor bearing oil from entering the compression chamber. Intake air is compressed between the rotors and their housing and 100 per cent oil-free, pulsation-free air is delivered at an output rate of up to 3325 m<sup>3</sup>h dependent upon process demand.

ZS rotary screw blowers are commonly available with integrated VSD control. However, the new blowers at Little Eaton were supplied as variable speed units linked to the plant's own existing inverter control system.

Commenting on the successful installation progress, MWH project manager Kelvin Smith said:

*“Atlas Copco's distributor, Cooper Freer were very pro-active at the design phase in accommodating quite a few changes at an early point in the progress of this project. The blowers arrived on time and were successfully installed on the high ground level site. We found that they were always on hand to discuss any issue arising from design and installation and were very safety conscious during the construction stage resulting in a very successful project completion.”*

*Kelvin Smith, MWH Project Manager, Severn Trent Water*

Stephen James, Severn Trent Water's project manager for the upgrade at Little Eaton, stressed the importance of the ZS blowers in guaranteeing the supply of clean drinking water:

*“Not only do the blowers enable a smoother flow in the filter de-scouring process, they also provide the peace of mind in providing 100 per cent oil-free air to reduce the risk of contamination to the drinking water supply.”*

*Stephen James, Project Manager at Severn Trent Water*

Severn Trent Water chose MWH as one of the design and construct contractors for its AMP6 framework. MWH will work alongside Severn Trent Water's own staff to manage the operation, supporting the delivery of its programme of work throughout AMP6; which runs until March 2020.

Apart from Little Eaton, Cooper Freer has installed four Atlas Copco 90 kW ZS variable speed blowers to replace all the existing lobe blower technology at Severn Trent Water's Worcester treatment plant.