

# BLACKHALL ENGINEERING

## CASE STUDY

You can see why Blackhall Engineering Ltd is the expert...

Blackhall Engineering Ltd is a world leader in specialist valves and is experienced in servicing demanding markets, such as Oil and Gas, and Cryogenics. Additionally, Blackhall Engineering Ltd own the design and manufacturing rights of Larner -Johnson Flow Control Valves, which are ideally suited to large-scale water-industry requirements.

Blackhall Engineering Ltd's valve reputation is demonstrated by their success in winning an order for four Larner -Johnson valves valued at 1.1 million pounds, for the "Catskills Raw Water Supply Project" - a project that services over 17.5 million people in New York City! To understand the size of these valves, picture a valve that weighs 80 tons and is capable of a flood supply flow sufficient to fill an Olympic-sized swimming pool in just 5 seconds!

Paul Taylor, Design Engineer for Blackhall Engineering Ltd, points out that, "SolidWorks software, supplied by service provider NT CAD/CAM Ltd, not only allowed us to develop the valves for this project but basically won us the order. No other company was able to provide a clear application understanding and valve design through a physical model - generated by SolidWorks - together with rapid prototyping sintering and clear 3D computerised design pictures, like we were. The client wanted an expert, not a salesman: after all, the life cycle for this equipment is around a hundred years."

Like many engineering companies, Blackhall Engineering Ltd's computerised software originated as 2D AutoCAD. Whilst this had obvious advantages over the drawing board a lot of the design process still had to be done by hand. Taylor explains, "The design of large-scale castings still required mathematical formula for considerations like stress analysis; mass; centre of gravity and casting methodology." These calculations could tie up a design engineer for a whole morning; and theatrical allowances of 10 to 15% for safety would mean there was always a margin of error."

Taylor comments, "Designing in 3D SolidWorks, these calculations are done for you. The design time saved is significant; but an even bigger advantage is the ability to provide our lost-wax or investment-casting foundries with a 3D model and accurate critical data. The foundries are able not only to develop casting methodology that will avoid hot tears and chills during the process, but to operate within fixed and accurate pricing." For projects like Catskill Raw Water Supply, this makes the difference between winning and losing the order.

SolidWorks is also helping Blackhall Engineering Ltd's design team meet the industry's toughest challenges: development of sophisticated Auto Re-circulation valves for the Oil and Gas industry. Progress has accelerated since it has been possible to plot and check the interaction and relationship between the many moving parts, ensuring design limits are met and the product will provide long and reliable service.

Blackhall Engineering Ltd has used SolidWorks since 1999 and has relied on the services of NT CAD/CAM Ltd to develop their 3D computerised system and skills. Taylor says, "It is a delight working with NT CAD/CAM Ltd's support team. Facilities like video formatting have captured vital user information which has been skillfully interpreted and resolved. The team at NT CAD/CAM Ltd go that extra mile for us and have even helped with IT solutions to our network, which really was beyond the call of duty. We have plans to introduce a new PDM system and will certainly be asking NT CAD/CAM Ltd for their support."