

One order becomes seven

Customer delighted by retrofit performance

The challenge

Energy providers today are coping with higher demands than ever.

Parts are subjected to unprecedented stress as plants are cycling more often and output is pushed to the maximum.

As a result, a major energy provider in North America was wrestling with repeated control valve issues in its boiler main feed pump recirculation application at a 570MW 2x1 Combined Cycle Power Plant (CCPP).

These were affecting both process control optimization and overall plant performance and reliability. As the plant manager had experience of the "minimal maintenance and exceptional performance" of IMI Critical's valves, in 2019 he contacted IMI CCI for a long-term solution to the control valve problem.



The solution

An IMI CCI team went onsite and found the existing valves' conventional cage technology had just four stages of pressure reduction. This allowed fluid velocities that were more than twice the recommended trim exit velocity of under 100 ft/s, and this was causing cavitation, erosion, and high noise.

A drastic increase in pressure letdown stages was recommended. Using IMI Critical's innovative Retrofit3D solution, which uses additive manufacturing to design trim to be retrofitted in existing valves, a solution was designed that would limit the trim exit velocity to 60 ft/s and keep the noise level below 75dBA.

Two years after the multi-stage DRAG® Disk Stack, plug assembly and seat ring were installed, and the client reports excellent valve performance. This has led the client to commission seven more valve trim retrofits, with more to come.



Re-engineered retrofit3d trim and the original manufactured trim



Trim installation into existing valve at customer site

“ The high pressure hi/lo feedwater valve has been performing very well

- Plant Manager

“It operates very smoothly, transitions well and is sized right, now that we're using the full stroke. The valves on the condensate to the fuel gas heaters always cavitated very badly and now they are very quiet.”

The new trim has reduced planned maintenance at the plant. “We used to rebuild [the recirculation valves] every year as planned maintenance (PM). We have only inspected the IMI CCI trim in the last two years and they look new still, with no sign of wear or cavitation.”

There have been substantial cost savings too.

“ We were spending ~\$150-200k on valve trim and soft goods annually, not including labour and crane services. There are seven sets of Retrofit 3D trims in service now. We will inspect the Retrofit3D trim in each new application at 1-2- and 4-year cycles until we can set a preventive maintenance frequency.

- Plant Manager

Great Value from Great Valves

By taking advantage of IMI Critical's Retrofit3D solution technology, our customers are able to:



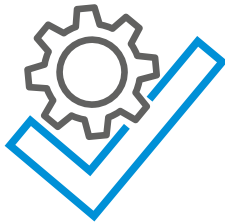
Save money

Retrofit3D is a cost-effective solution, avoiding expensive installation costs such as engineering, pipe cutting, welding, pressure testing, and QA testing.



Move quickly

As a drop-in solution, Retrofit3D takes away the time-consuming activities of replacing an entire valve. Furthermore, using additive manufacturing technology, Retrofit3D allows quick turnaround, so you don't have to plan months ahead.



Improve TCO

Lower maintenance, improved efficiency, and better trim performance along with a reduced need to plan and stock spares, provides a better cost of ownership.

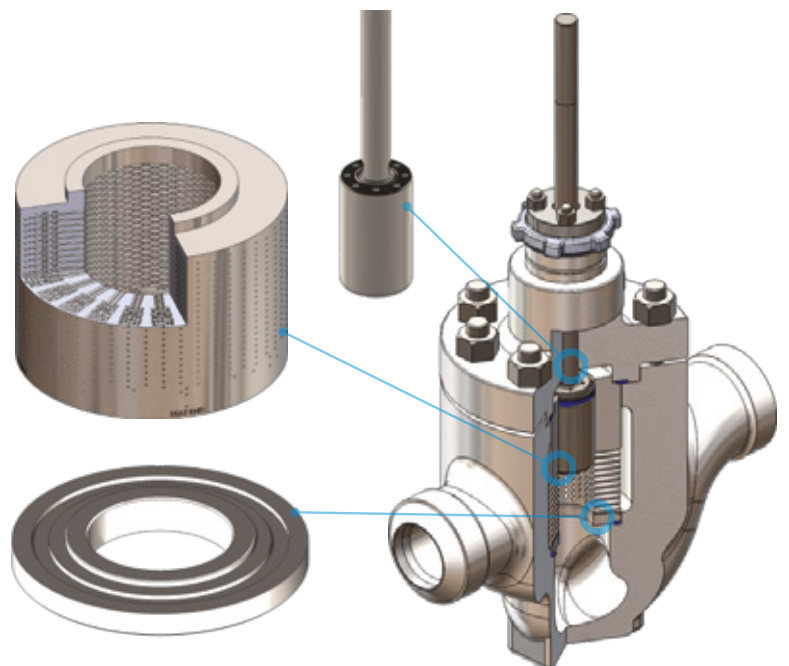


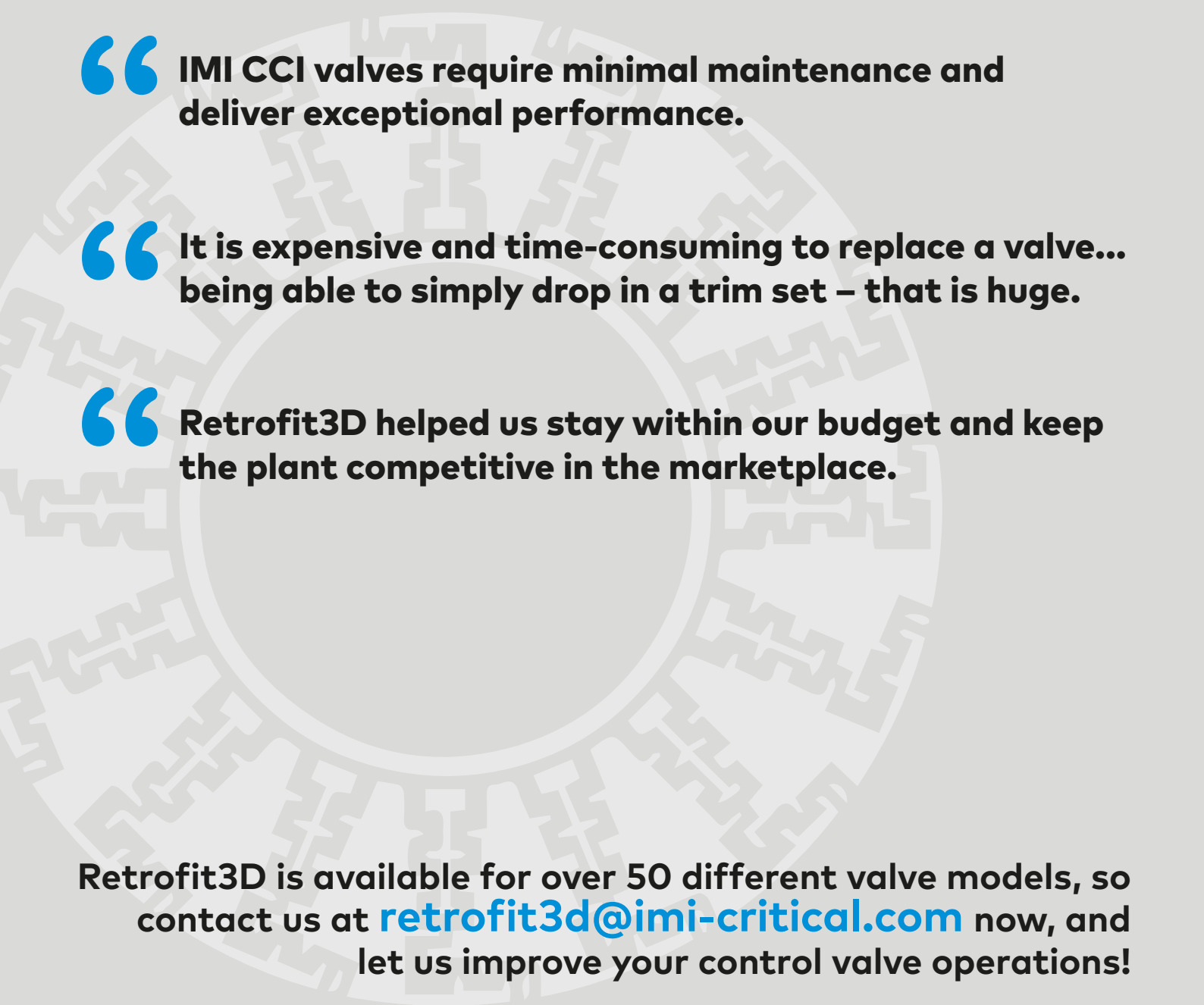
Increase efficiencies and reliability

The retrofitted valves deliver greater process control, higher performance levels, and stronger reliability for the energy plant.

Example Trim

IMI Critical's Retrofit3D solution and DRAG® Disk Stack technology allow plants to seamlessly upgrade their valves to cope with significant changes to process conditions.



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- “ IMI CCI valves require minimal maintenance and deliver exceptional performance.
- “ It is expensive and time-consuming to replace a valve... being able to simply drop in a trim set – that is huge.
- “ Retrofit3D helped us stay within our budget and keep the plant competitive in the marketplace.

Retrofit3D is available for over 50 different valve models, so contact us at retrofit3d@imi-critical.com now, and let us improve your control valve operations!