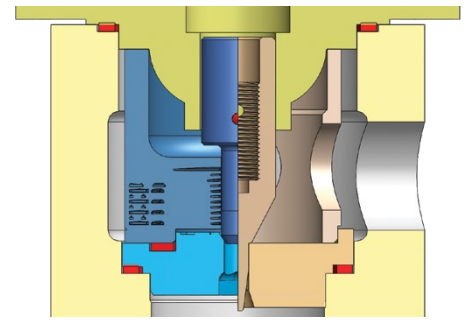


## Retrofit3D – Conversion kit for your problem valves

Today's energy landscape demands control valves with increased reliability, improved performance and easy maintenance. Valve replacements utilising like-for-like technology has been the traditional approach to addressing valve problems. However, the additional complexity that comes with full valve replacements in the field makes the total cost of solving the problem much more than the cost of the hardware itself. If the valves are welded inline there is also substantial additional costs through engineering, scheduling, cutting and re-welding valves, and post-weld inspection.

Retrofit3D has been developed to eliminate problems in control valves without the need to replace the entire valve. Essentially, Retrofit3D is an engineered trim solution customized to each specific application and process that fits into the existing valve body without the need to change the body and top works. The guiding principles of their design remain the same as those of DRAG® technology, which is to provide a tailored solution addressing the root cause of the issues. The multi-stage, multi-path DRAG® trim directs fluid through a tortuous trim to incrementally reduce the differential pressure. The DRAG® trim limits velocity head at the trim to eliminate erosion, vibration, and noise problems associated with the valve.



IMI CCI design (left) vs conventional design (right)

Hundreds of control valves have been retrofitted successfully to solve operating and high maintenance problems. The goal in all our retrofits is to eliminate the customers' control valve problems by applying the guidelines of kinetic energy control defined in *ISA Practical Guidelines for Measurement and Control – Control Valves*. Our retrofit solutions have been applied to applications with liquids, gases, and in a variety of flow conditions.

With the Retrofit3D solution, IMI CCI now has the option to replace just your cage or the complete trim set with the DRAG® velocity control solution. IMI CCI is able to accurately evaluate and solve your control valve related challenges resulting in a measurable return on investment for our customers.

## Common customer problems

- Cavitation damage
- Erosion
- Noise
- Vibration
- Controllability
- High turn down

## Benefits from properly applied Retrofit3D solution

- **Lower cost** - Many of the components in the cost of installation, such as engineering, cutting pipes, welding, pressure testing, and QA are eliminated.
- **Low risk** – Since pressure boundary conditions or actuation is not changed, the risk to the end user is also lower. It's a replacement of only the internal trim components!
- **Lower downtime** – As the installation does not require cutting of the pipe, rewelding etc, the turnaround time for installation is within hours.
- **Lower total cost of ownership** - Lower maintenance and improved efficiency due to better trim performance.

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