



Engineering  
**GREAT** Solutions

## IMI CCI solves erosion problem on recirculation application

### The challenge

A power plant's operating pressure and efficiency are highly dependent upon the performance of its feedwater pumps. Each feedwater pump must be protected from low flow operation and loss of net positive suction head (NPSH), which are conditions that typically occur at plant startup and shutdown. Insufficient NPSH creates a cavitation phenomenon in the pump causing damage in the pump. Protection against this damage is gained by recirculating a minimum amount of flow to the pump inlet via the boiler feed pump recirculation valve. This would require the recirculation valve to experience high pressure drop, low flow and have a risk of cavitation.

A plant in India was facing severe trim damage with a competitor's installed recirculation valve. Trim damage was evident

within three months of operation, causing significant leakage in the valve. The issue was persistent despite repeated replacements of the trim components. The customer was facing excessive electricity consumption since the electric pump needed to pump the additional water leakage from the valve.

### The solution

IMI CCI already had numerous severe service valves installed at the plant on other applications, consistently exceeding customer expectations. This confidence in IMI CCI products resulted in the customer calling on the IMI CCI team to identify a solution for their recirculation valve problem. A review of the actual process conditions, rates of failures, and trim exit velocity calculations resulted in IMI CCI offering the 100DR solution for the application. The

100DR valve eliminates trim and body erosion through DRAG® technology, limiting trim exit velocity and the high thrust pneumatic piston actuator allows for tight shutoff. The DRAG® disk stack's discreet tortuous flow paths are designed to limit the trim exit velocities to 70 feet per second or less as per ISA guidelines. Further, the 100DR design features a pressurised seat plug design offering MSS-SP-61 tight shutoff, equivalent to a block valve in closed position to eliminate any valve leakage.

The customer purchased six IMI CCI valves to replace the competitor valves installed in the affected units. The installed IMI CCI valves have reduced the auxiliary power consumption of the electric pumps, increased pump efficiency and reduced the total cost of ownership of the system for the customer.

### Sales Contacts

> **Americas**  
imiccsales.americas@imi-critical.com  
> **Asia-Pacific**  
imiccsales.APAC@imi-critical.com

> **China**  
imiccsales.china@imi-critical.com  
> **Europe**  
imiccsales.europe@imi-critical.com  
> **India**  
imiccsales.india@imi-critical.com

> **Middle East and Africa**  
imiccsales.MEA@imi-critical.com  
> **Other**  
imicci.sales@imi-critical.com