

Many clients are under increasing pressure to shorten the product development cycle while simultaneously increasing quality and reducing cost. Using simulation tools in the SIMULIA portfolio such as Abaqus and Isight enable clients to refine their designs, reducing the amount of physical testing required by using simulation to explore the design space for optimal solutions.

TotalCAE has decades of experience helping clients maximize engineering productivity and speed to market by offering a managed high-performance computing (HPC) cluster optimized to run the SIMULIA portfolio. The IT workload management system is completely managed by TotalCAE so clients can remain focused on engineering new solutions for their customers. Recently, TotalCAE deployed a new managed HPC cluster appliance for Abaqus and Isight for [Swagelok](#), an approximately \$2 billion privately held developer of fluid system products, assemblies, and services for the oil and gas, chemical and petrochemical, semiconductor, and transportation industries.

The use of Abaqus and Isight enables Swagelok to provide customers with optimal fluid system component designs for their applications, and to do so efficiently. “Abaqus gives us an ultra-realistic understanding of the behavior and performance we can expect from the products we are analyzing without having to create prototypes every time,” said Jeff Rubinski, senior principal CAE analyst at Swagelok. “We also use Isight to automate the process of running simulations through a variety of experimental designs. This lets us understand the full design space prior to manufacturing, quickly learning which design iteration will yield the best end-use performance without our engineers having to manually carry out every experimental simulation.”

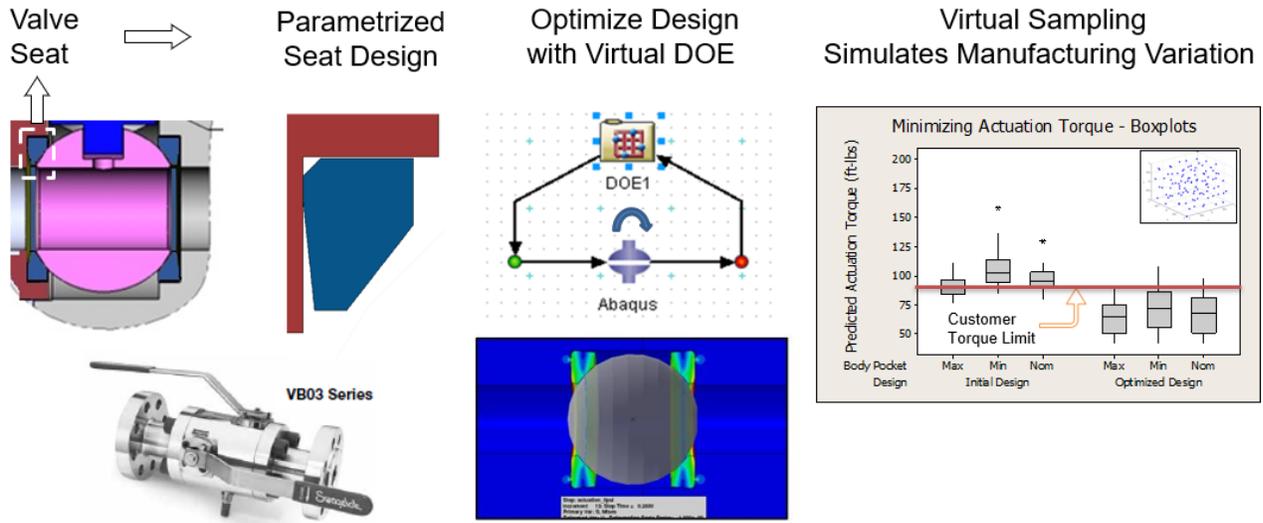
Together, Abaqus and Isight help Swagelok bring products to market quickly that are always physically tested and validated before field implementation. The software gives the CAE team confidence that the solutions they provide to customers will not only work, but are optimized for a target application.

Swagelok works with TotalCAE to ensure Swagelok engineers have the secure, reliable, efficient access to HPC resources they need to conduct their CAE operations effectively. This enables engineers to rapidly and virtually securely run hundreds of simulations overnight, saving time while maintaining a sharp focus on helping customers efficiently solve problems.

“Because we work from remote visualization workstations, we avoid the extended wait times that come with transferring large files,” explained Jeff Rubinski. “Using the HPC cluster, recently upgraded to be 30% faster than our previous generation system, also lets us realize accelerated



Isight-Abaqus workflows. The combined time savings allows us to get our project teams the support they need quickly and allows us to focus on engineering high-quality solutions for a broader range of fluid system challenges.”



Swagelok is leveraging SIMULIA software and the TotalCAE cluster each day to meet the pace of customer needs for innovation, address challenges in the field, and benefit from operational efficiency in the process. That might mean using Isight to find the ideal dimensions for a ball valve seat that maintains a strong seal with minimized actuation torque. Or, it could mean running sensitivity analyses to identify and solve for causes of potential leaks in diaphragm valves. Jeff Rubinski summarized the value of these CAE tools to Swagelok’s customers, saying, “As more and more OEM engineering departments look for simulation-based reliability assessments of the components and subassemblies they choose, we feel well-equipped to meet their needs.”

