DASSAULT SYSTEMES

SOLIDWORKS

FLOVEL VALVES PVT. LTD.

ADVANCING VALVE DEVELOPMENT AND PERFORMANCE WITH SOLIDWORKS SOLUTIONS

With SOLIDWORKS design, simulation, and product data management (PDM) solutions, Flovel Valves has accelerated product development while simultaneously improving performance, enabling the valve manufacturer to triple its product offering.

FLOVEL

Challenge:
Shorten design cycles and improve valve performance by incorporating finite element analysis (FEA) studies as part of the initial design.

Solution:
Implement SOLIDWORKS design, SOLIDWORKS Premium design and analysis, and SOLIDWORKS PDM Professional product data management software.

Benefits:
- Cut development cycles by 75 percent
- Tripled product offering
- Resolved notable field failure
- Automated product development workflows

Flovel Valves Pvt. Ltd. has specialized in the design and manufacture of check valves—also known as nonreturn valves—since 1984. Based in Gujarat, India, the company produces single-disc, dual-plate, and nozzle check valves used in the petrochemical, refinery, water-cooling, and oil and gas production industries to prevent the backflow of liquids and gases. Flovel's investments in technology, research, and development have come to fruition with the company's continued growth in the dual-plate and non-slam check valve segments.

Until recently, Flovel used AutoCAD® 2D design tools to develop its products and relied on outside consultants to conduct finite element analysis (FEA) studies to validate valve designs. However, that approach lengthened development cycles and compromised Flovel's control of product quality, according to Design and Engineering Head Vivek Thakar.

"The main reason that we wanted to move to a 3D design platform is that we needed to do FEA analysis early in the development cycle," Thakar explains. "Stress and deflection analyses are required to ensure that our valve designs perform as intended. In the past, we handed designs off to an analysis consultant, but the purpose of those FEA studies was to validate final designs. Our main goal is to improve the quality of our products because high quality is especially important for successfully competing in the oil and gas industry. We believed that by doing analysis as part of initial design, we would be able to shorten design cycles while simultaneously improving the quality of our valves."

After evaluating possible 3D systems, Flovel chose SOLIDWORKS® solutions, implementing SOLIDWORKS Premium design and analysis, and SOLIDWORKS PDM Professional (also known as SOLIDWORKS Enterprise PDM or EPDM) product data management software. The valve manufacturer selected SOLIDWORKS because it is easy to use and provides integrated FEA capabilities directly from inside the 3D modeling environment, an important requirement for leveraging simulation tools early in the development cycle.

"With SOLIDWORKS Premium software, we have the ability to conduct linear static stress and deflection analysis—to evaluate the strength and performance of valve doors—as we design," Thakar stresses. "This has enabled us to improve the performance of our products."

ACCELERATING DEVELOPMENT, TRIPLING PRODUCT OFFERING

Since implementing SOLIDWORKS design, analysis, and data management solutions in 2014, Flovel Valves has cut development cycles by 75 percent, allowing the valve manufacturer to triple its product offering from 100 to 300 valve designs annually. "By moving from 2D tools to the SOLIDWORKS 3D environment, we can create a complete set of valve drawings—including FEA results—in just 15 days versus the two months that it would take to design the same part in 2D," Thakar says.

"Some of the productivity gains that we have realized from moving to SOLIDWORKS come from bringing analysis capabilities in-house and conducting FEA studies as part of design instead of after the fact," Thakar continues. "The automated workflows, file sharing, and revision controls provided by SOLIDWORKS EPDM have also helped us to accelerate development."

"Some of the productivity gains that we have realized from moving to SOLIDWORKS come from bringing analysis capabilities in-house and conducting FEA studies as part of design instead of after the fact. The automated workflows, file sharing, and revision controls provided by SOLIDWORKS EPDM have also helped us to accelerate development."

— Vivek Thakar, Design and Engineering Head

IMPROVING PRODUCTS, RESOLVING FIELD FAILURES

Using SOLIDWORKS design and simulation tools, Flovel Valves has not only improved the performance of new valve designs, the company has also reworked many of its existing designs to boost performance and resolved one notable field failure. "Our 24-inch valve was not working well in the field, so we ran some FEA studies and determined that we needed to incorporate a center rib in the design, add material in some areas, and shift material in other areas," Thakar notes.

"Using the simulation capabilities of SOLIDWORKS Premium software provided the design insights that we needed to address this particular field failure as well as evaluate and optimize other valve designs," Thakar adds. "We work with tight tolerances and complex geometry, which was difficult to handle in 2D. SOLIDWORKS improves design visualization and simulation, giving us the information we need to improve valve performance."

BOOSTING CUSTOMER CONFIDENCE

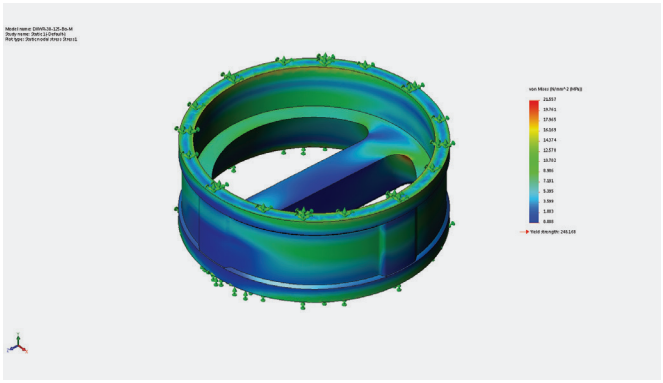
In addition to providing Flovel engineers with the assurance that their valve designs will perform as intended, the simulation capabilities in SOLIDWORKS have boosted customer confidence in the valve manufacturer's products. The company shares the 3D analysis results that it generates with SOLIDWORKS with its customers to demonstrate and communicate design behavior.

"Our customers are very impressed with the amount of detail included in the SOLIDWORKS Simulation Report," Thakar points out. "Sharing our analysis results with customers in 3D gives them greater confidence in our products and shows that they are able to rely on our valves for critically important applications."

Focus on Flovel Valves Pvt. Ltd.
VAR: Engineering Technique, Vadodara, Gujarat, India

Headquarters: 1201, GIDC
Vitthal Udyognagar - 388 121
Anand, Gujarat
India
Phone: +91 2692 236187

For more information
www.flovelvalves.com



Using SOLIDWORKS Premium simulation tools, Flovel Valves has resolved issues associated with at least one field failure and improved the performance of new products dramatically.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3D**EXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 190,000 customers of all sizes in all industries in more than 140 countries. For more information, visit **www.3ds.com**.

3DEXPERIENCE®

DASSAULT SYSTEMES | The **3D**EXPERIENCE® Company

Americas
Dassault Systèmes
175 Wyman Street
Waltham, Massachusetts
02451-1223
USA

Europe/Middle East/Africa
Dassault Systèmes
10, rue Marcel Dassault
CS 40501
78946 Vélizy-Villacoublay Cedex
France

Asia-Pacific
Dassault Systèmes K.K.
ThinkPark Tower
2-1-1 Osaki, Shinagawa-ku,
Tokyo 141-6020
Japan