



## Comprehensive, Modern Solution for Fitness-for-Service & Asset Integrity

Discover a streamlined, cloud-based approach by integrating a wide variety of comprehensive engineering solutions and fitness-for-service (FFS) calculations with advanced analytical tools. PlantManager SAGE® supports operational efficiency, regulatory compliance, and safety standards.

PlantManager SAGE incorporates the latest API 579-1/ASME FFS-1 standards and leverages the functionality of SagePlus™ and IntelliJoint® to deliver new and alternative analytical procedures with accurate FFS assessments and results.

### BENEFITS



#### Operational Efficiency

Pinpoint potential issues before they occur. Save time, reduce unplanned outages, and focus resources where they are needed most.



#### Optimize Cost Control

Perform comprehensive assessments to evaluate asset integrity under real-world operating conditions and extend the lifecycle of in-service equipment.



#### Multi-Disciplinary Collaboration

Unify maintenance, inspection, and operational teams with a centralized platform. Achieve faster, informed decision-making.

### Mechanical Engineering Modules

Choose the combination of mechanical engineering modules that best suit your project or facility goals. Please note that the Design Code and FFS modules are prerequisites for all subscribers.

#### Design Code - prerequisite for all subscribers

This collection offers design capabilities for pressure vessels, components, piping, tanks, and fired heaters.

#### Fitness-for-Service (FFS) - prerequisite for all subscribers

Provide the tools for conducting basic and comprehensive FFS analyses for new and in-service equipment, according to API 579-1/ASME FFS-1.

#### Supplemental Design

Additional design capabilities for standard structural steel shapes and wind load determination.

#### Specialty FFS

Conduct Level 3 FFS assessments, plus advanced fracture analysis, creep, and crack-like flaws.

#### Materials

Access the most comprehensive list of materials, physical, and strength properties.

#### Detailed Stress Analysis

Improve structural reliability with stress analysis of shells, nozzles, pipes, and elbows.

#### Fluids & Heat Transfer

Improve structural reliability with stress analysis of shells, nozzles, pipes, and elbows.

### Choose the Right Software for Informed Engineering Decisions

Every facility has unique FFS assessment requirements. Select the engineering solution that provides the tools and level of analysis that will support facility-specific needs for informed run, repair, or replace decisions.

**Level 1 & Level 2 FFS:** Equity Software® has more than 40 webtools that use step-by-step workflow calculators for FFS, fatigue analysis, and other design or in-service engineering evaluations. This flexible, cloud-native option is ideal for short-term projects.

**Level 3 & Advanced Analysis:** Designed for comprehensive asset integrity management, PlantManager SAGE includes advanced analysis tools that improve predictive capabilities, enabling engineers to address potential issues before they become critical, resulting in reduced downtime and maintenance costs.

#### Finite Element Analysis

Integrating finite element analysis (FEA) into a FFS assessment doesn't need to be expensive or time-consuming. The FEA webtool automates the entire Level 3 assessment workflow, making detailed FFS evaluations as accessible as traditional Level 2 methods. There are tools for nozzles, pipeline dents, aboveground storage tanks, and local thin areas.

#### Hot Tapping & In-Service Welding

Assess the suitability of hot tap welding procedures or repair welds by evaluating the risk of burn-through and cold cracking due to rapid cooling. This cloud-based welding simulation tool assists in predicting peak wall temperature, maximum cooling rate, and the shortest cooling rate around the weld region. HotTap helps to solve a complex set of welding challenges.

#### Bolted Flanges & Joints

Lower maintenance costs and improve safety with IntelliJoint. The built-in analysis tools help users compare performance of gasket styles or manufacturers to enhance the safety and reliability of existing flanged joints, while also optimizing designs for new equipment. Use IntelliJoint to improve performance and prevent unplanned failures.

#### Piping Stress

Help prevent potential failures by improving the structural integrity of piping systems and supporting structures. SIMFLEX-IV, a piping stress analysis software, integrates advanced static and dynamic piping stress analysis into the FFS workflow, enabling the assessment of sustained, occasional, and displacement stresses at every data point throughout a piping system.