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CURTISS-WRIGHT

Valve Group

iPRSM®

Intelligent Pressure Relief System Management Solution

Farris Engineering Services

“iPRSM® provides a safer plant… protecting people, equipment, communities and the environment.”

iPRSM for Today’s Industries

Process safety management compliance is essential for today’s process facilities. Every facility strives for a safe operation that meets all government, industry, and corporate safety standards. But managing compliance can be a complex, time-consuming effort.

iPRSM® is a unique solution for the design, audit and documentation of both new and existing pressure relief systems. A patented, web-based software solution, iPRSM provides a comprehensive approach to the management of pressure relief systems for safety compliance. iPRSM utilizes the best engineering practices and principles, including:

- The management and documentation of compliance activities related through operating data
- The validation of ongoing compliance with standards such as API, ASME, ISO, OSHA as well as internal company standards

For all aspects of pressure safety management, iPRSM harnesses the power of the internet to facilitate corporate wide standardization in complex workflow processes. Using a facility’s operating data and engineering diagrams, iPRSM will:

- accurately identify overpressure risks in equipment and systems
- model potential overpressure risks resulting from engineering or code changes
- track and document changes as they are made to the system
- maintain compliance with internal and regulatory codes and standards

iPRSM is a globally accessible platform that manages all pressure protection system data. iPRSM facilitates the evaluation of protected systems, systematically identifying problems and providing plant management with the critical tasks needed for over pressure protection compliance. The analysis capability acts as an effective Management of Change system for ongoing compliance. All reports and documentation necessary for regulatory purposes, at any organizational level, can be produced from iPRSM.

iPRSM improves equipment and plant reliability, minimizing down time and production losses related to overpressure events. iPRSM reduces the risks and costs related to non-compliance, a truly evergreen solution. And it provides ongoing cost savings due to efficiencies gained in recording and tracking process data. Using iPRSM’s technology ensures a safer plant, protecting people, equipment, communities and the environment.

Protected System Overview

iPRSM provides Pressure Relief Management functionality for every level of the organization.

Corporate Level

- Corporate Engineering Standards
- Industry Engineering Documents
- Access to Active Plants
- Assign User Security Functions
- Print Plant Level Reports
- Corporate-Wide Document Repository Access

Corporate Main Page

Plant Level

- Plant Site-Specific Engineering Standards
- Plant Level Documents
- Access to all Unit Data
- Browse all Unit Equipment
- Print Plant Level Reports

Plant / Site #1 | **Plant / Site #2**

Unit Level

- Unit Level Engineering Standards
- Unit P&ID
- Unit Protected Systems
- Document Repository
- View/Browse/Search Equipment or Protected Systems
- Store/Link External Documents (P&ID's, Unit Heat and Material Balance)

Unit A | **Unit B** | **Unit C**

Protected Systems Level

- Identify Protected System
- Link Associated Equipment
- Document Repository
- Clone a Protected System
  to evaluate mitigation strategies
- Impact Analysis
  to evaluate code changes
- Equipment Deficiency Report

Protected System A

Piping & Fittings

Inlet/outlet piping and fittings are entered for a complete hydraulic evaluation.

Relief Equipment

Define Pressure Relief Devices:

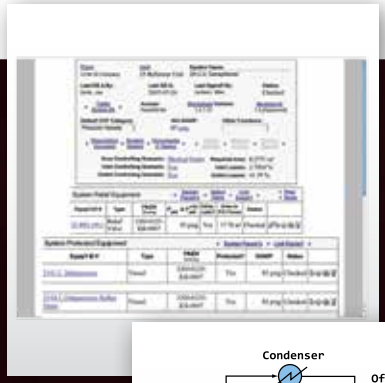
- Pressure Relief Valve
- Rupture Disk
- Conservation Vent
- Rupture Pin
- Safety Relief Valve

Associated Documents are stored or linked:

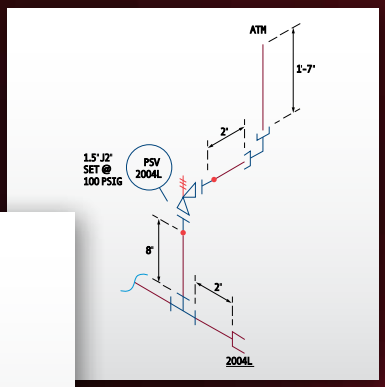
a. Valve Spec Sheet
b. Valve Maintenance
c. ISO Drawing
d. Other

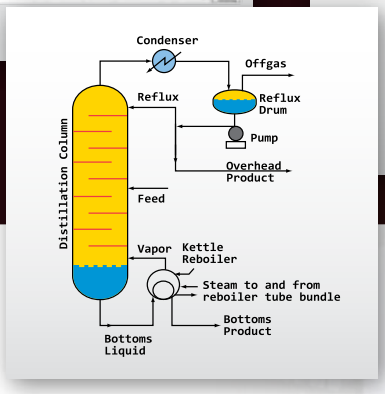
Discharge Location Identified

Screenshot: iPRSM Protected System Overview



Screenshot: ISO Drawing, piping and fitting





Screenshot: Protected System A

"iPRSM delivers the information needed to address pressure relief issues during the design of a totally new process or to manage pressure relief in existing systems."

iPRSM®

Protected Equipment

Define Protected Equipment:

- Air Cooler
- Compressor
- Distillation Column
- Fired Boiler
- Fired Heater
- Heat Exchanger S/S
- Heat Exchanger T/S
- LP Tank
- Pipe
- Pump
- Turbine – Steam
- Vessel

Overpressure Sources

Identify OVP scenarios based on equipment that contributes pressure, flow, and temperature. Overpressure sources are linked to the protected system.

Process changes can be evaluated prior to implementation.

Ancillary Equipment

Changes to ancillary equipment not directly connected to an OVP can influence an OVP with another protected system. iPRSM identifies such ancillary equipment and evaluates changes to them.

Thermo Package

Comprehensive thermophysical properties package with access to 5500 pure components, flash, and an integrated oil assay package.

- Compositions
- Stream Compounds
- Flashes
- Pseudo Components/ Custom Compound
- Import Custom Properties

Overpressure Scenarios

Identify the applicable scenario for a process. Document scenarios that are not relevant.

- Blocked Outlet
- Abnormal Heat Input
- Exchanger Tube Rupture
- Control Valve Failure
- Reflux Failure
- Fire
- Cooling Failure
- Power Failure
- Instrument Air Failure
- Inadvertent Air Failure
- Mechanical Equipment Failure
- Series Fractionation
- Thermal
- Loss of Quench
- Chemical Reaction
- Steam Out
- Other

Associated User Notes, Time-Stamped & Signed

Key Features

1. Regulatory authorities are constantly updating codes and standards. iPRSM has the unique ability to run site wide “impact analysis”, modeling the resultant effects of the changes in codes and standards prior to acceptance.

2. Highly customizable platform allows the user to select relief scenarios, internal engineering standards and methodologies such as Omega, DI, HEI and HEM, ensuring consistent and accurate results.

3. Functions as a centralized document repository for all data related to pressure relief systems, including process, plant, design, equipment, inspection, maintenance and historic data. External data can be easily uploaded into the database. Access to information at all levels of an organization can be tailored in iPRSM.

4. Ideal tool for management of change (MOC) protocol, including documentation of a digital signature and record of changes. The MOC feature makes iPRSM a true evergreen technology and allows facilities to be in constant compliance.

5. Platform allows for a company’s subject matter experts (SME’s) to collaborate simultaneously, anywhere in the world.

6. Complete header/flare vapor disposal system analysis and an integrated thermophysical properties package – for calculating complex relief scenarios where steady state conditions are not adequate.

7. Inlet and outlet piping hydraulics calculations for all scenarios ensures consistent compliance. In addition, iPRSM tracks and stores asset management data, and schedules equipment maintenance.

Engineering Services

Farris Engineering Services provides expert technical support for iPRSM worldwide. Our technical support team is experienced in a wide range of process facilities, including the oil & gas, petrochemical, pharmaceutical, and nuclear & fossil power industries. iPRSM technical support is available by phone or email 24/7.

In addition to iPRSM technical support, our FES team can support your facility with a variety of engineering services, including:

- Pressure relief system design and audit services
- Integration of iPRSM into your PSM program
- Training on pressure relief theory and iPRSM operation

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