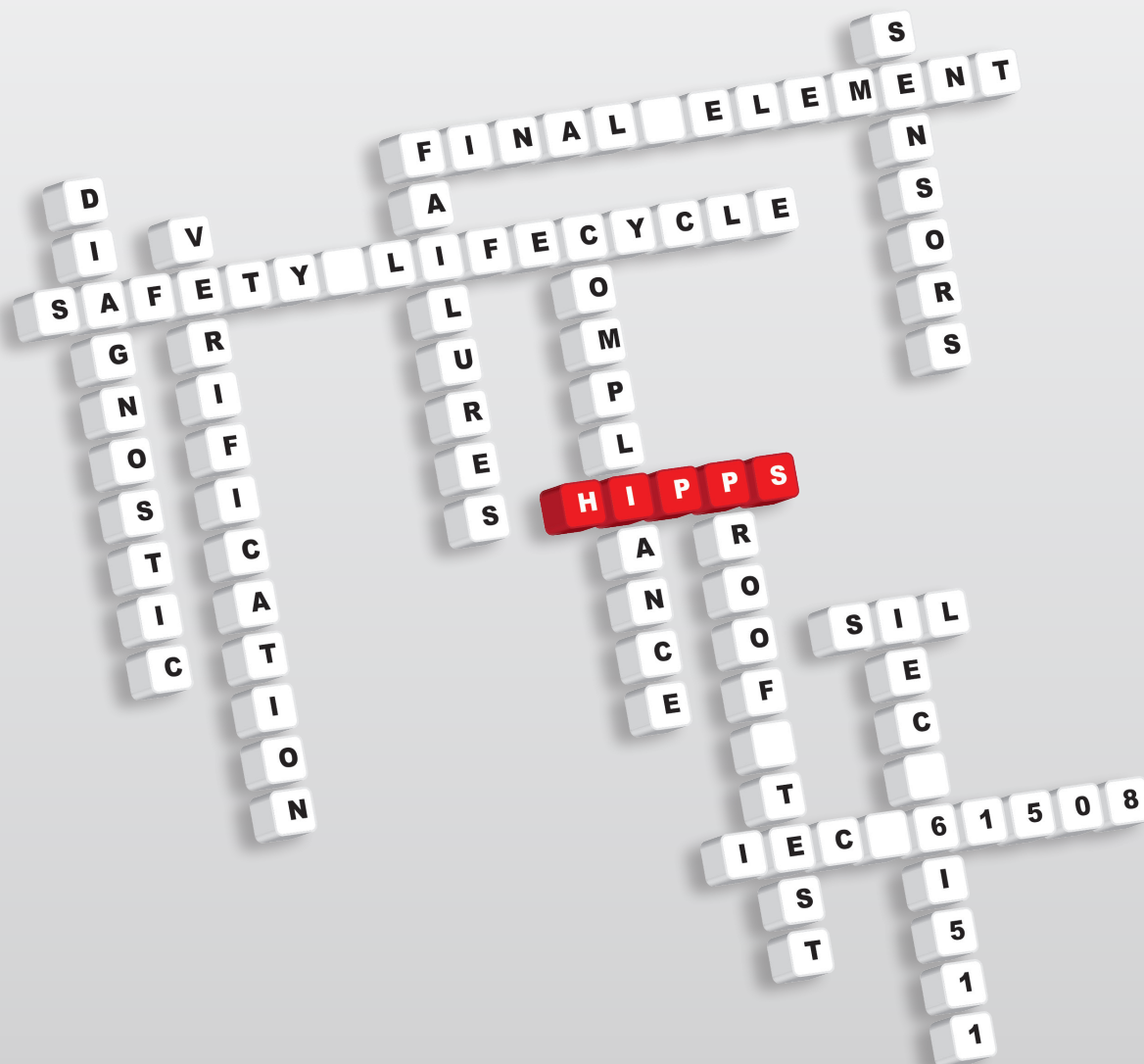
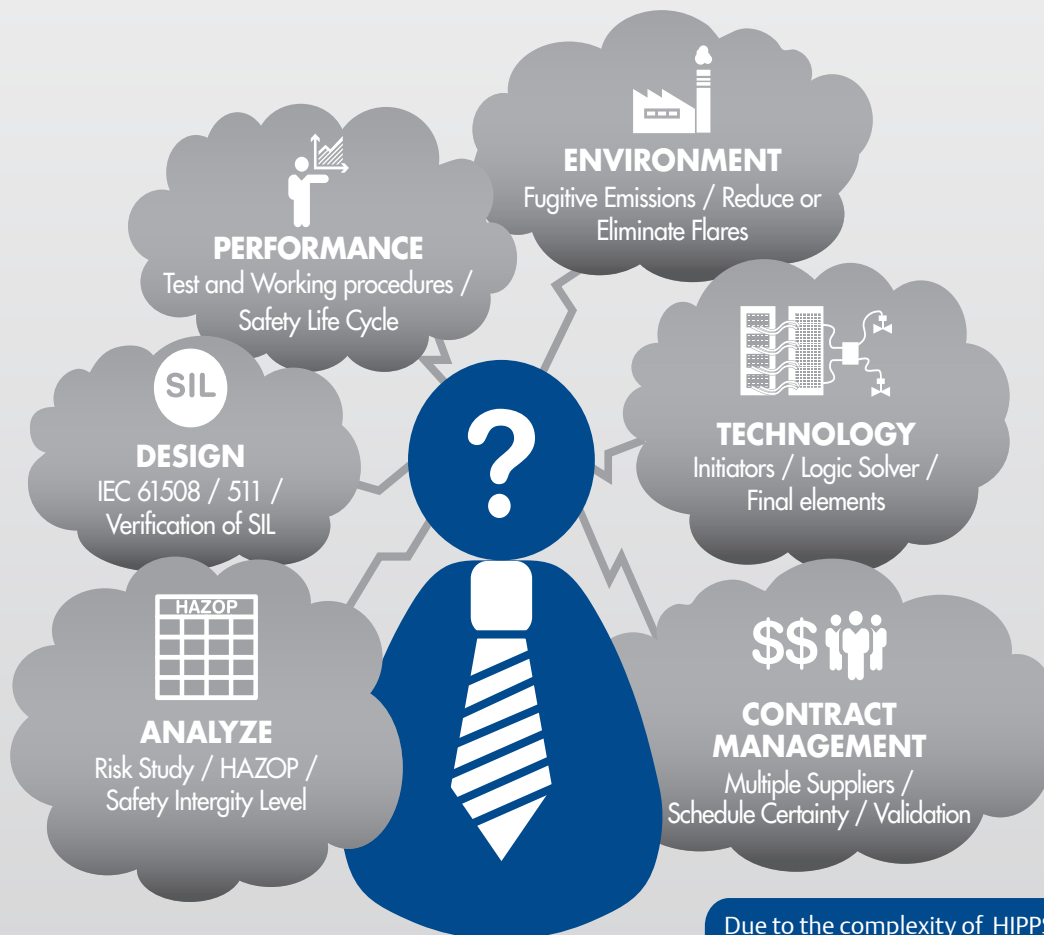


# A Complete Solution For HIPPS



# Are You Also Facing These Challenges For Your HIPPS?



Due to the complexity of HIPPS, compared with conventional pressure relief systems, operators fear losing control during scheduled test. This often results in tests being incomplete or not carried out at all, impacting the required safety level of the system. A solution with proof test procedures and automated PST will ensure this is handled correctly.

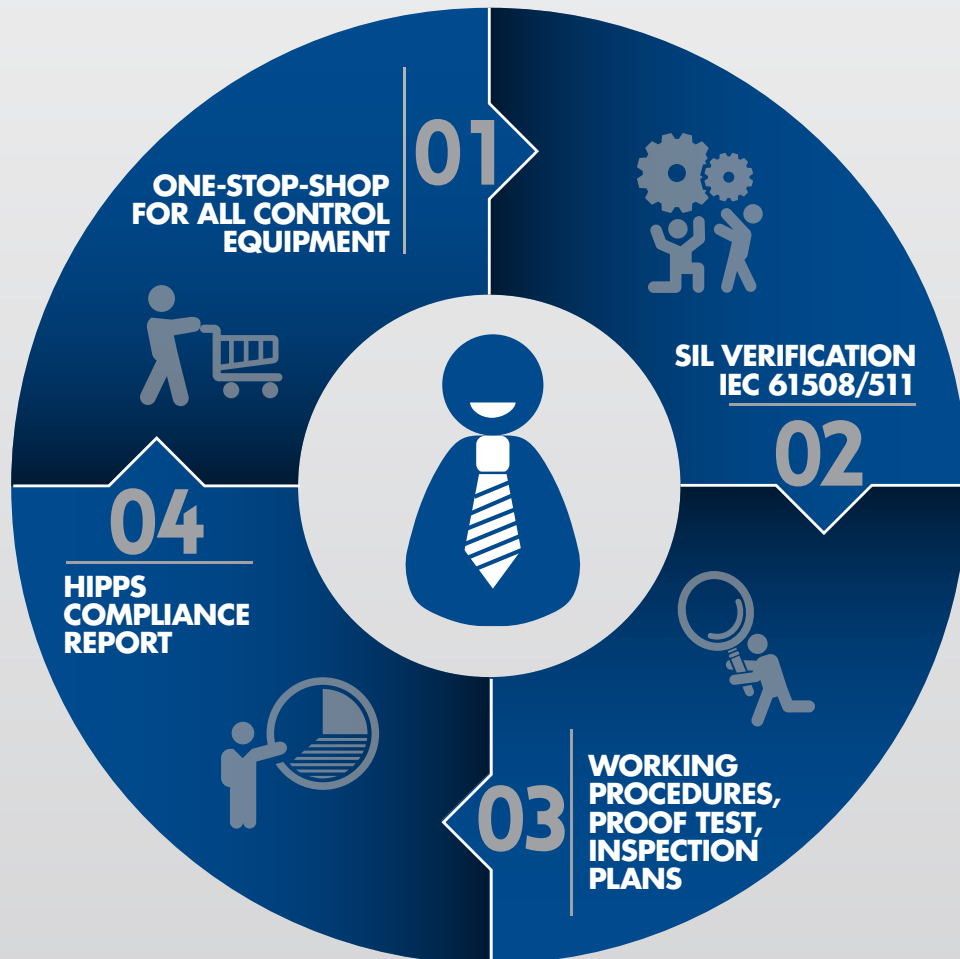


There are many different challenges analyzing, designing, building, and testing of a HIPPS. One of the main challenges is the lack of standards outlining design parameters, resulting in a high level of interaction between end users, engineering and contractors during the analysis and design phase.

Looking at the equipment available on the market today, it is not difficult to source the different components needed for a HIPPS. The challenge is more in the validation and verification

of the system to ensure it fully meets the requirements outlined in the Safety Requirements Specification (SRS) and that the SIL level is maintained throughout the safety lifetime of the installation.

# The Emerson Solution Closes The Loop And Ensures The Safety Lifecycle



What if you were able to simplify the control and at the same time increase the Diagnostic Coverage and avoiding spurious trips?



Emerson has a one-stop-shop solution for HIPPS, addressing all the issues faced designing, building, installing and operating a HIPPS. The solution comprised of Virgo valves, Bettis actuators, Fisher FIELDVUE™ DVC6200 SIS digital valve controller, ASCO solenoids, AMS Suite, DeltaV SIS logic solvers, Rosemount pressure transmitters and a proven ball or butterfly valve for the final element of the solution.

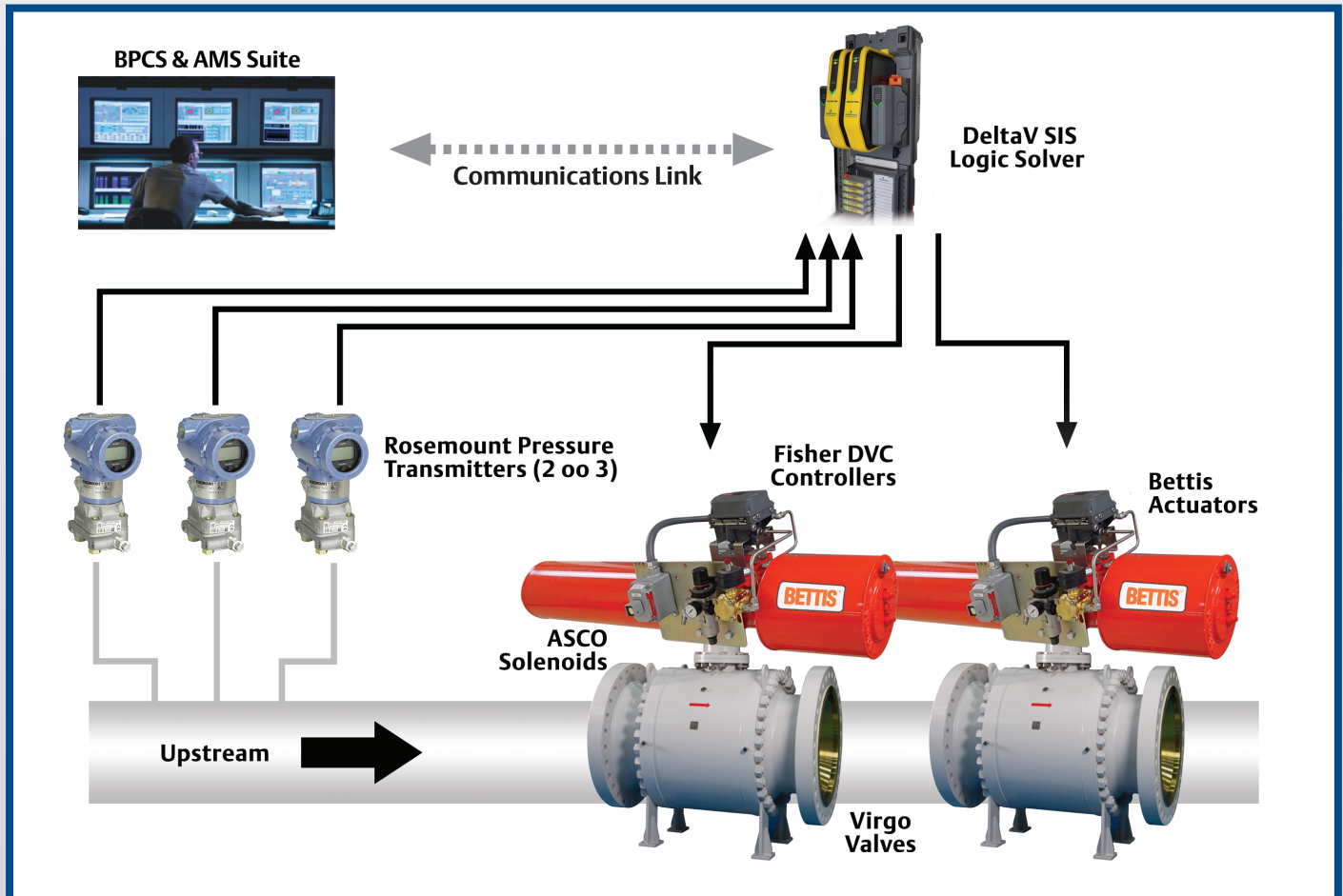
The solution not only provides quality Emerson control equipment with adequate certified failure data for all components, it also includes verification of the Safety

Integrity Level and proof test, working procedures and inspection plans for the operator, to ensure the required safety is maintained throughout the safety life cycle.

The solution will ensure requirements set by the end user are met, avoid any conflicts during validation, which might potentially delay start ups.

# Understanding High Integrity Pressure Protection Systems (HIPPS)

## Emerson One-Stop-Shop for HIPPS Solutions



HIPPS is a part of the Safety Instrumented System (SIS) and designed to prevent overpressure by shutting off the source and capturing the pressure in the upstream side of the system, thus providing a barrier between the High Pressure and Low Pressure sides of the process plant. The tight shutoff will prevent loss of the containment and eliminate fugitive emissions. HIPPS is seen as the “last line of defense”.

A typical HIPPS will include 2 or 3 final elements in series and is often required to shutdown within 2-3 seconds for gas and 6-8 seconds for liquids, depending on the pipeline pressure, flow rate and the diameter and class of the pipeline.

The initiator of the shut down sequence (peak pressure surge) will be detected by a pressure sensing system. In this case 3 sensors are connected to the logic solver, which is configured to vote with a 2oo3 logic (2 out of 3). If the predefined parameters for pressure are exceeded, the Logic Solver will shut down the final elements and the process.

The 2oo3 configuration is usually preferred for HIPPS, as it provides availability as well as reliability for the system.

# An All-Emerson Solution With Best-In-Class Products

Emerson provides a “true” solution by utilizing well-known and proven safety products for our solution, configured and verified by certified Safety Consultants.

## Bettis Actuators

Long-term reliability and speed of operation are important aspects of HIPPS. Bettis actuators are fully capable of meeting the fast closing speeds required in this application in addition to its compatibility with a wide range of devices for any application and, ability to operate in the harshest conditions for many years, with maximum reliability.

Learn more about Bettis actuators at:  
[www.emersonprocess.com/bettis](http://www.emersonprocess.com/bettis)



## Virgo Valves

The valve serves as the critical core of the HIPPS solution, requiring a robust design to meet the most trying SIL 3 HIPPS specifications. Virgo trunnion and triple offset valves are all SIL 3 certified and can meet a variety of material, size and pressure requirements to operate quickly and reliably in demanding applications.

Achieve the results you need with the best valve for your application: [www.virgo-valves.com](http://www.virgo-valves.com)



## AMS Suite and ValveLink

AMS Device Manager configures, calibrates, and diagnoses safety instruments and valves to ensure they will perform effectively when needed. The AMS ValveLink SNAP-ON application performs valuable valve diagnostics and automatically records all Partial Stroke Test results.

Know that your safety equipment is in working condition:  
[www.emersonprocess.com/ams](http://www.emersonprocess.com/ams)

AMS Suite

## ASCO Solenoid Valves

Solenoid valves operating in remote locations for HIPPS applications require reliable low-power operation and the ability to endure voltage surges. ASCO solenoid valves can deliver higher performance ratings for less power. This means less maintenance and power consumption for remote applications and increased reliability all-around.

Know the best solenoids for you application. Visit:  
[www.ascovalve.com/products](http://www.ascovalve.com/products)



## Fisher FIELDVUE Digital Valve Controllers

HIPPS requires Digital Valve Controllers that can withstand vibrations while providing alerts, trends and diagnostics for more extensive parameterization and tuning. When overpressure conditions are met, the system needs to operate the valve actuators quickly and FIELDVUE DVC6200 SIS digital valve controller can accomplish this for any HIPPS application in a patented linkage-less, non-contacting, explosionproof package. Perfect for almost all HIPPS applications as high vibration over time, will damage the linkages of most switches.

Learn the benefits of using FIELDVUE digital valve controllers at:  
[www.emersonprocess.com/fisher](http://www.emersonprocess.com/fisher)



## DeltaV SIS Process Safety System

Faults, sensor readings and performance issues need to be monitored to reliably protect your assets. In HIPPS applications, this is of critical importance. When critical pressure spikes occur, sensors, logic solvers and final control elements need to perform on demand and the safety system integrates everything to keep it running safely. The system is certified for use in Safety Integrity Level (SIL) 3 applications without restriction.

Improve your operations today.  
Visit the link below for more information:  
[www.deltavsis.com](http://www.deltavsis.com)



## Rosemount Pressure Transmitters

The ability to accurately measure pressure reliably is critical in HIPPS applications. When overpressure occurs, your system must know quickly in order to engage the pressure protection system in time to protect your downstream equipment. The 3051S can detect plugged impulse line via SMART diagnostic (using HART), allowing DeltaV SIS to take appropriate action and increasing the Diagnostic Coverage of the HIPPS.

Pressure, level and flow applications are all covered by Rosemount Pressure Transmitters. Gain better process insight, reduced process variability and reduced maintenance and downtime in a package that meets and exceeds regulatory demands.

Know the best Rosemount measurement devices for your application:  
[www.emersonprocess.com/rosemount](http://www.emersonprocess.com/rosemount)



## Emerson Safety Solution Specialists

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