A Complete Solution For HIPPS
Are You Also Facing These Challenges For Your HIPPS?

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.

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

**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

**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

**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
Emerson Safety Solution Specialists

**Bettis**
19200 Northwest Freeway
Houston TX 77065
USA
Phone: +1 281 477 4100
Phone: +1 281 224 8588
(After Hours)
Fax: +1 281 477 2801
Specialist: Carsten Thoegersen
carsten.thoegerson@emerson.com

**DeltaV SIS**
1100 W. Louis Henna Blvd.
Building One
Round Rock TX 78681-7430
USA
Phone: +1 800 833 8314
Specialist: Tadeu Batista
tadeu.batista@emerson.com

**Fisher**
301 South 1st Avenue
Marshalltown IA 50158
USA
Phone: +1 641 754 3011
Phone: +1 641 754 2001
(After Hours)
Fax: +1 641 754 2830
Specialist: Afton Coleman
afton.coledman@emerson.com

**Virgo**
6005 Roaderdale Road
Houston TX 77072
USA
Phone: +1 281 933 3100
Fax: +1 281 933 3110
Specialist: Rajendra Deokar
rajendra.deokar@emerson.com

To get more detailed contact information by product and world area, scan QR.

Emerson Process Management World Area Configuration Centers (WACC) offer sales support, service, inventory and commissioning to our global customers interested in automated valve solutions. Choose the WACC or sales office nearest you:

**NORTH & SOUTH AMERICA**
19200 Northwest Freeway
Houston TX 77065
USA
T +1 281 477 4100
F +1 281 477 2809
Av. Hollingsworth
325 Ipiranga Sorocaba
SP 18087-105
Brazil
T +55 15 3238 3788
F +55 15 3228 3300

**ASIA PACIFIC**
No. 9 Gul Road
#01-02 Singapore 629361
T +65 6501 4600
F +65 6268 0028
No. 1 Lai Yuan Road
Wuqing Development Area
Tianjin 301700
P. R. China
T +86 22 8212 3300
F +86 22 8212 3308

**MIDDLE EAST & AFRICA**
P. O. Box 17033
Dubai
United Arab Emirates
T +971 4 811 8100
F +971 4 886 5465
No. 1 Lai Yuan Road
Jubail 31961
Saudi Arabia
T +966 3 340 8650
F +966 3 340 8790

24 Angus Crescent
Longmeadow Business Estate East
P.O. Box 6908 Greenstone
1616 Modderfontein Extension 5
South Africa
T +27 11 451 3700
F +27 11 451 3800

**EUROPE**
Berényi u. 72- 100
Videoton Industry Park
Building #230
Székesfehérvár 8000
Hungary
T +36 22 53 09 50
F +36 22 54 37 00

For complete list of sales and manufacturing sites, please visit www.emersonprocess.com/valveautomationlocations or contact us at info.valveautomation@emerson.com

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