High Integrity Pressure Protection System
ELECTRONIC HIPPS Series

QUAM

DESCRIPTION

The QUAM **HIPPS Series** is a **SIL 3 capable System**, designed according to IEC 61508 and IEC 61511 standards, used to protect downstream equipment against overpressure or upset conditions coming from the Upstream.

GENERAL APPLICATION

Electronic HIPPS System considerably reduces overpressure process risks and environmental impacts with lower weight and cost for piping and vessels downstream the system itself. No need to install relief devices.

THE HIPPS

KEY FEATURES

No need to install a by-pass line
QUAM Actuated Gate Valve is designed to be opened against full differential pressure

Independent certification
3rd party SIL3 certificate

Tight Shut-off
Leakage requirements as per Class VI of ANSI/ FCI 70-2

Fugitive Emission
In accordance with ISO 15848-2

Fire Safe Design
Gate valve are tested to API 6FA

Fast Action
Valve stroking time for safe action: less than 2 sec.

Integrated Design
Any part of the safety system is internally designed and manufactured

SYSTEM ARCHITECTURE

QUAM Electronic HIPPS System includes:

Electronic Logic Solver
Electronic Logic Solver detects signals from the Transmitters and closes the final element de-energizing the solenoid valves in order to discharge the power fluid from the cylinder by the quick exhaust valve, this action strokes the main valve to the safety position. The solenoid valves are installed in series with suitable voting logic to achieve SIL3 requirement. Partial stroke test is available for inspection upon request.

Initiators (Pressure Trasmitters)
Pressure transmitters are configured 2oo3 voting logic and are engineered to detect the pipeline pressure and send analogic 4-20 mA signal to Logic Solver

Final Element (Actuated Gate Valve)
The actuated gate valves close the downstream line and is usually configured in 1oo2 voting logic to achieve SIL3 requirement.

BENEFITS

Single Source
For Valve, Actuator & Control System

Better Sealing Feature
Of Slab Gates against Ball or Axial Flow

Overall Dimensions
Smaller than other valve types

Heavy Duty Design
For long life service

Easy & Safe Maintenance

100% ITALIAN MANUFACTURING

SAFETY INTEGRITY LEVEL GUIDE

According to **IEC 61508**, in order to meet **SIL 3** requirements, the system must comply with both probabilistic requirements and architectural constraints.

Safety Integrity Level	PFD (Avg. Probability of Dangerous Failure on Low Demand Mode)	PFH (Avg. Frequency of Dangerous Failure on High Demand Mode)
SIL1	≥10E-02 to <10E-01	≥10E-06 to <10E-05
SIL2	≥10E-03 to <10E-02	≥10E-07 to <10E-06
SIL3	≥10E-04 to <10E-03	≥10E-08 to <10E-07
SIL4	≥10E-05 to <10E-04	≥10E-09 to <10E-08