High Integrity Pressure Protection System

MECHANICAL HIPPS Series

DESCRIPTION

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

THE HIPPS

GENERAL APPLICATION

Mechanical High Integrity Pressure Protection System is a **self-contained** equipment suitable for applications where no external power sources are available

KEY FEATURES

No need to install a by-pass line
QUAM 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

No external power requirements
QUAM HIPPS system is a self contained unit

SYSTEM ARCHITECTURE

QUAM Electronic HIPPS System includes:

Hydraulic Logic Solver
The Logic Solver processes signals from the sensors and closes the final element by removing the hydraulic pilot from the hydraulic relays.

Initiators (Pressure Pilots)
The pressure-sensing device detects the pipeline pressure and reacts to a high-level signal. Depending on customer's/end user's requirements, pressure pilots are configured 2oo3 voting logic or 1oo2 voting logic.

Final Element (Actuated Gate Valve)
The actuated gate valve closes the pipeline 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