

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	$\geq 10E-02$ to $< 10E-01$	$\geq 10E-06$ to $< 10E-05$
SIL2	$\geq 10E-03$ to $< 10E-02$	$\geq 10E-07$ to $< 10E-06$
SIL3	$\geq 10E-04$ to $< 10E-03$	$\geq 10E-08$ to $< 10E-07$
SIL4	$\geq 10E-05$ to $< 10E-04$	$\geq 10E-09$ to $< 10E-08$