

# Mokveld HIPPS

## Mechanical or electronic Safety Instrumented System

### Application

High Integrity Pressure Protection System (HIPPS)

### Final element or fully integrated system

Mokveld's axial on-off valve with Mokveld actuator may be integrated with:

- Logic Solver and sensors (electronic version)
- Mechanical initiators (mechanical version)
- Skid mounting
- Stand-alone without external energy solution

### Scope

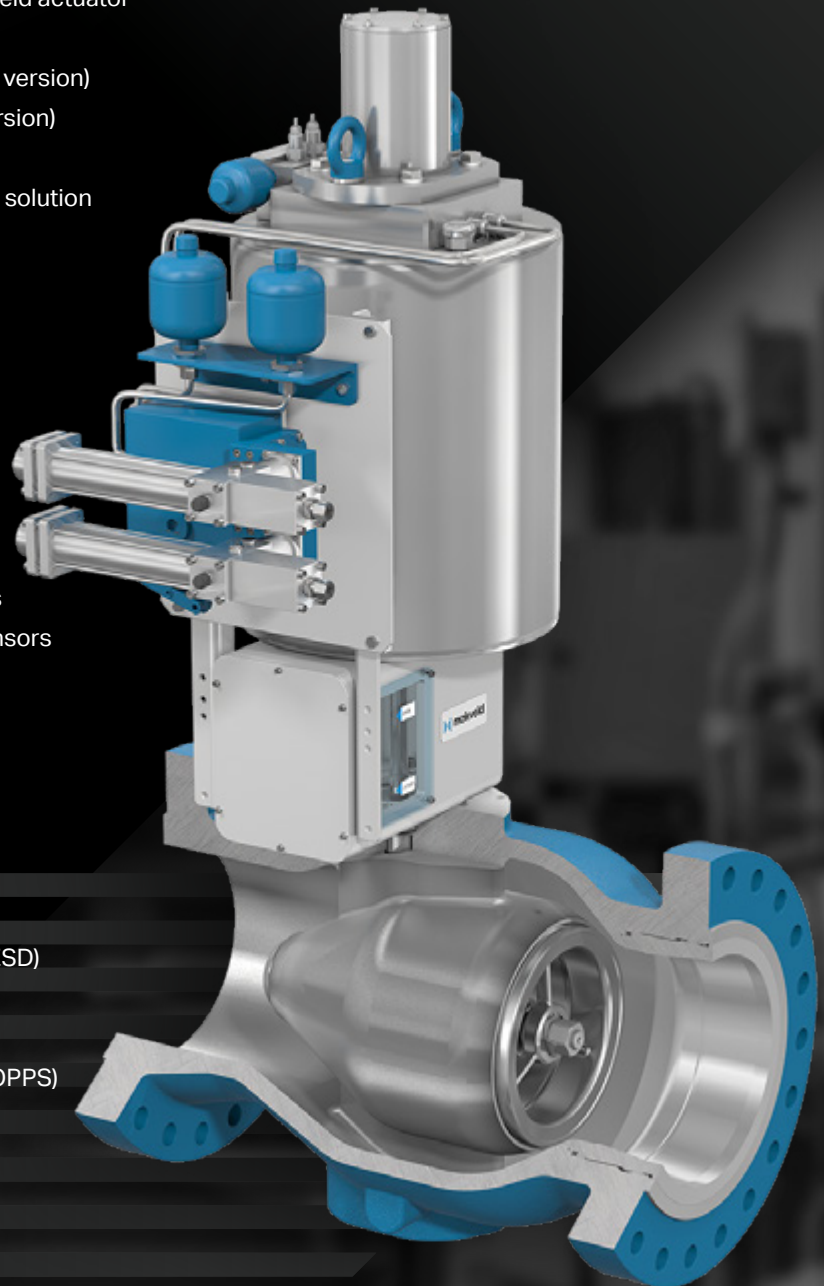
- Sizes: 2" - 48" and larger
- Ratings: ASME 150 - 2500 or API 3000 - 10 000 and more
- Functional Safety Management System (FSM)
- Certified: EN14382 / IEC61508 SC3 Route 2H / IEC61511
- Integration with Mechanical Initiators
- Integration with Logic Solver and sensors
- Integration on skid

### In preference to

- Flare systems
- Venting or relief systems

### Other designations

- Safety shut-down systems (SSD or ESD)
- Safety Instrumented System (SIS)
- Safety Instrumented Function (SIF)
- Over-pressure protection systems (OPPS)



*An integral mechanical HIPPS*

## Mokveld HIPPS at a glance:

### Advantages of HIPPS

HIPPS can protect personnel, environment and equipment in cases where:

- High pressures occur and / or high flow rates are processed.
- The economic viability of a field development needs to be improved.
- Emission are to be reduced or avoided (e.g. toxic fluids).

### What is HIPPS?

A High Integrity Pressure Protection System that closes the source of over-pressure within 2 seconds, with at least the same reliability as a safety relief valve. HIPPS avoids emissions to atmosphere thus providing a 'green' alternative to Flare or vent systems. The Safety Instrumented System (SIS) is designed and built in accordance with the IEC 61508 and IEC 61511 standards or the API14C standard. The HIPPS may be electronic or mechanical and may even be stand-alone without requiring external energy.

### HIPPS (or SIS) is a complete loop consisting of:

- The initiators. These sensors (e.g. pressure, flow) may be electronic or mechanical.
- A logic solver (electronic HIPPS), to process the input from initiators to an output to the final element.
- The final elements, they actually bring the process to a safe state (e.g. valve closure). This is the valve / actuator combination with either solenoids or mechanical initiators.
- Skid mounting, if required.

Within Mokveld, Certified Functional Safety Engineers perform integration of the complete loop.

### Mokveld reliability

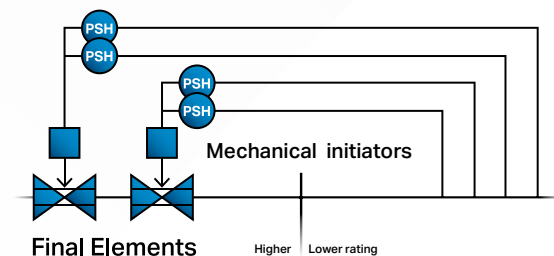
Since the mid-nineties the Mokveld field feed-back database was validated by the Atomic Energy Agency (AEA) and other third parties like the German TÜV Rheinland. As required by IEC61508 and 61511 Mokveld implemented a Functional Safety Management System (FSM), therefore the products are certified SC3. The field proven failure rates for both clean and unclean fluids are all from safety applications with 2 seconds stroking time.

Mokveld designs and manufactures valve and actuator therefore the failure rates cover the combination. The vast experience totals over 50.000 operational years (more than 3.700 valve / actuator combinations).

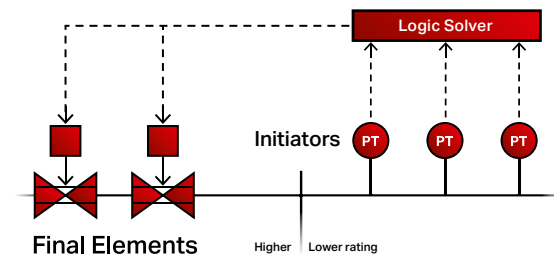
The Mokveld final elements are proven-in-use and can be applied in Route 2H. Certified TÜV Rheinland failure rates are available on [www.certipedia.com](http://www.certipedia.com).

Mokveld may supply SIL3 (or even SIL4) systems with proof test intervals longer than 12 months. SIL3 (or 4) can be achieved without partial stroke testing or other additional electronics. A separate technical datasheet on this subject is available.

### Mechanical HIPPS safety loop



### Electronic HIPPS safety loop



Mokveld is your single point of contact for the supply of an integrated HIPPS. Supplying only the certified valve / actuator combination (the final element) is also an option, for integration into the SIS by yourself or by others.

**Interested in safety? Please contact Mokveld.**