Reliability matters

Process interlocking Valve positioning Partial stroke testing Valve operation

NETHERLOCKS
safety systems

The integration of electronic components into mechanical valve interlocking solutions improves efficiency and safety

Frank Gielissen
Sales Director

NETHERLOCKS
safety systems

http://www.netherlocks.com/pigging-accident/

NETHERLOCKS
safety systems

Mechanical interlocks avoid human error...

> Particularly useful for operations that are generally recognized as highly dangerous, **such as pigging**
> Valve interlocks guarantee strict adherence to procedure and thus avoid human error
> Cost effective and create extremely high safety levels

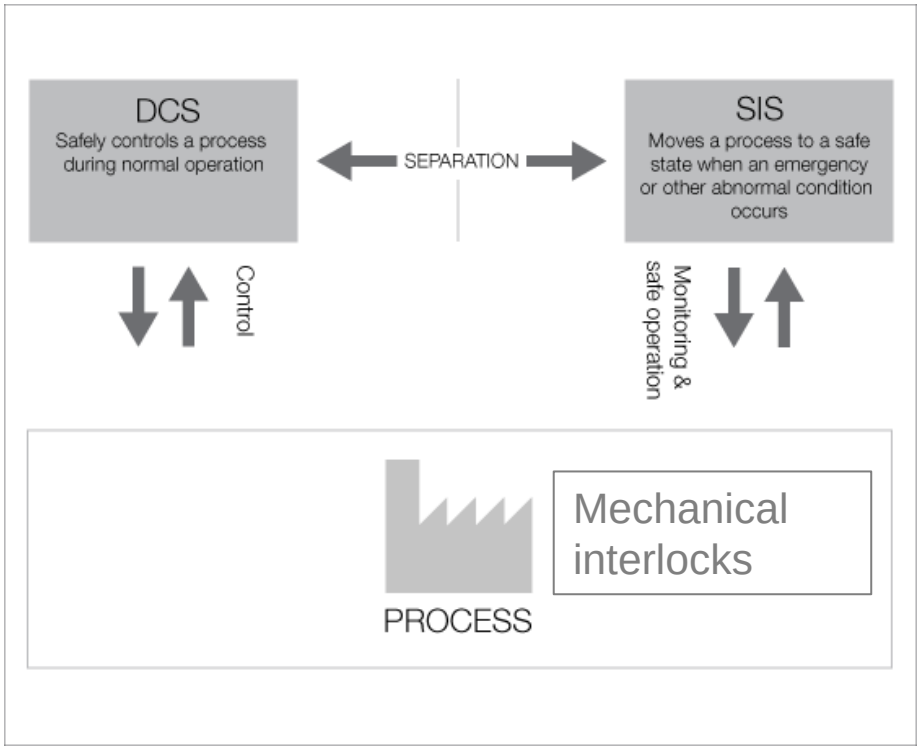
NETHERLOCKS
safety systems

Mechanical interlocks avoid human error...

> **Independent** and **stand-alone** safety systems
> Static safety systems

NETHERLOCKS safety systems

Traditional style plant control

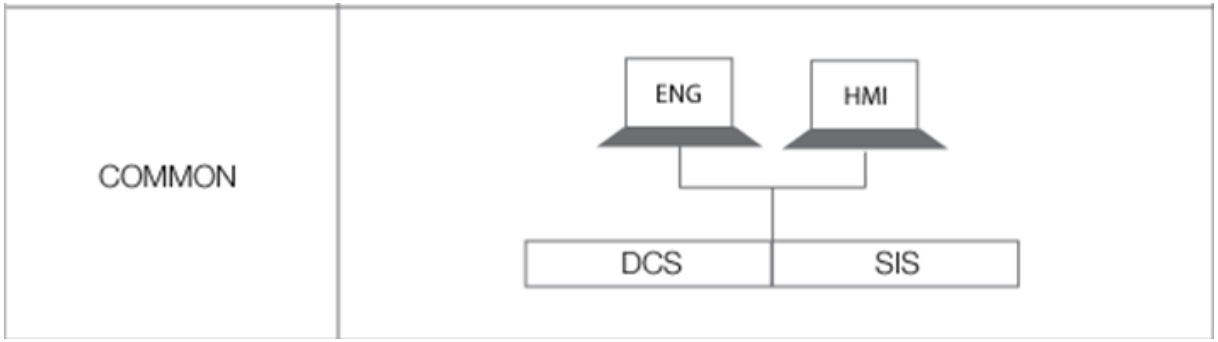


> Each system has its own operator interfaces, engineering workstations, etc…
> Mechanical interlocks are used to guide an operator through a procedure

NETHERLOCKS safety systems

‘New style’ plant control

> allows combining process control and safety instrumented functions within a **common automation infrastructure** and mechanical interlocking should be included



NETHERLOCKS safety systems

Combining the best of two worlds

- New breed of interlocking products that focus on the use of electro-mechanical and PLC controlled cabinets
  - Sequence becomes dynamic by incorporating safety variables such as vessel / pipeline pressure and H2S levels
  - Integrate authorization levels (local or remote)
  - Communicating detailed instructions
  - Interfacing launching and receiving procedure into one system
  - Selection of various sequence options
  - Real time status info
  - Logging of complete procedures

NETHERLOCKS safety systems

Control panel

Safety parameters

Authorization

Field operation

Control room

Control panel

DCS / PLC

Status information

Communication tools

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An Intelligent Interlock System in practice: Nord Stream

> Launching or receiving was determined from the control room (Switzerland)

NETHERLOCKS
safety systems

The integration of electronic components into mechanical valve interlocking solutions

> Improves efficiency
> Increases safety
> Increases flexibility
> Provides clear information

NETHERLOCKS
safety systems

Thank you.