



Safe operation on pig launchers / receivers

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Process Interlocking

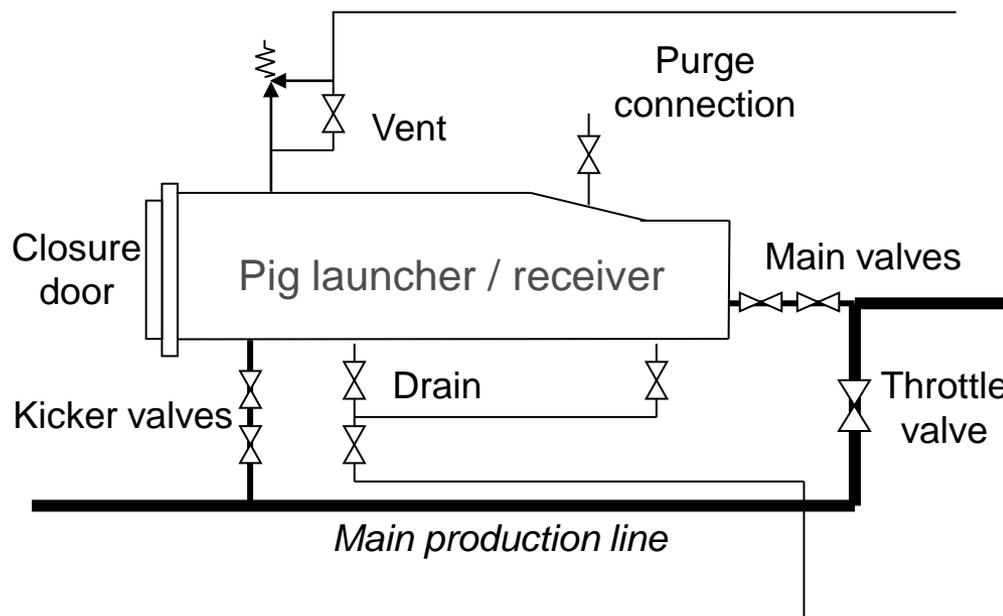
Manual operation on Pig launchers / receivers
is a high risk event



Statically we know that 70% of all recorded incidents in the oil & gas industry world wide are attributable to human error.



Process Interlocking



Risks

- Process interruption
- Isolate from main production
- Depressurize and drain
- Isolated from closed drain / vent
- Free from toxic gas
- Close the door properly before starting procedures



Process Interlocking

Eliminate
human
error!

Mechanical interlocks guide the operator through a pre - determined sequence

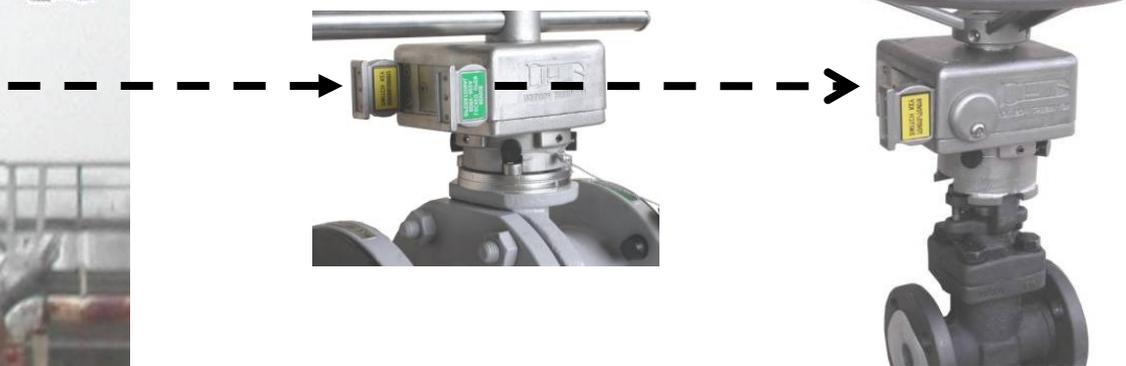




Process Interlocking



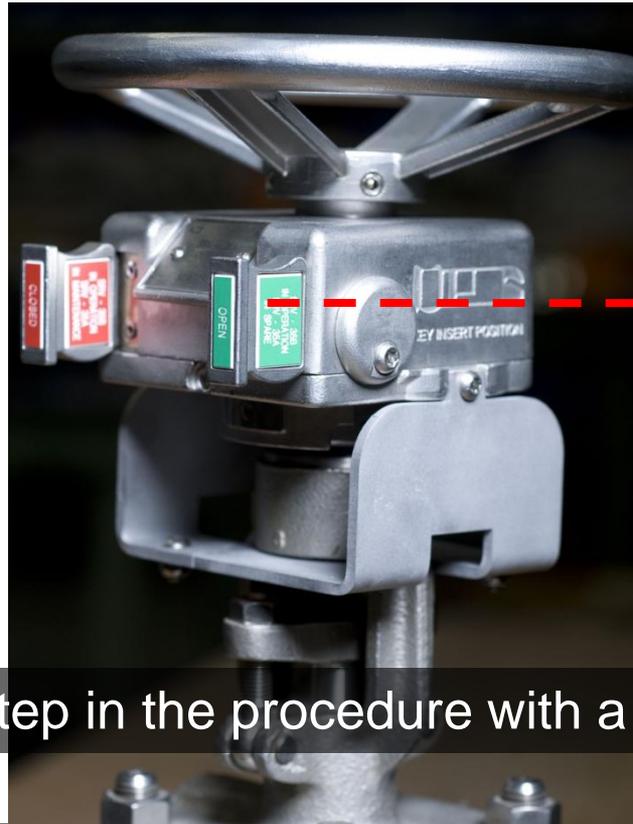
Key transfer principle



Link each step in the procedure with a unique key



Process Interlocking

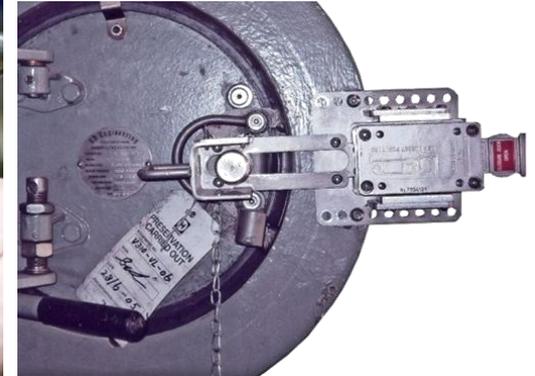
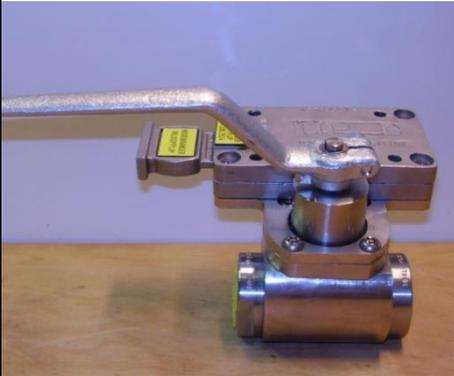


Link each step in the procedure with a unique key



Process Interlocking

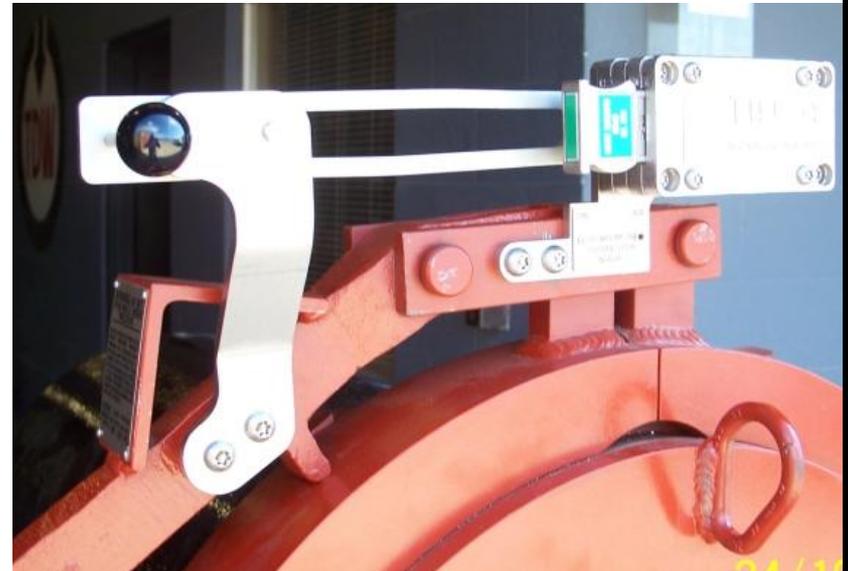
Custom made locks for every step in the sequence





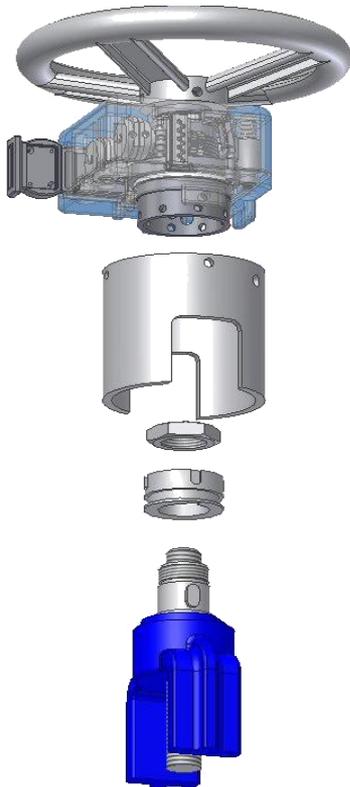
Process Interlocking

Robust and reliable design





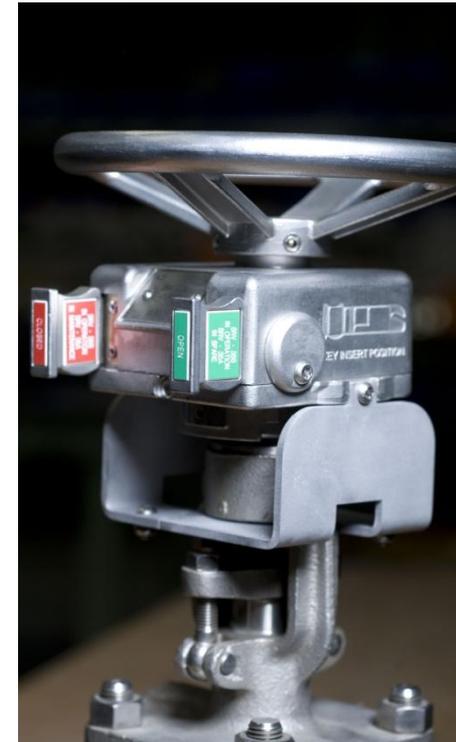
Process Interlocking



A lock is basically a spindle extension

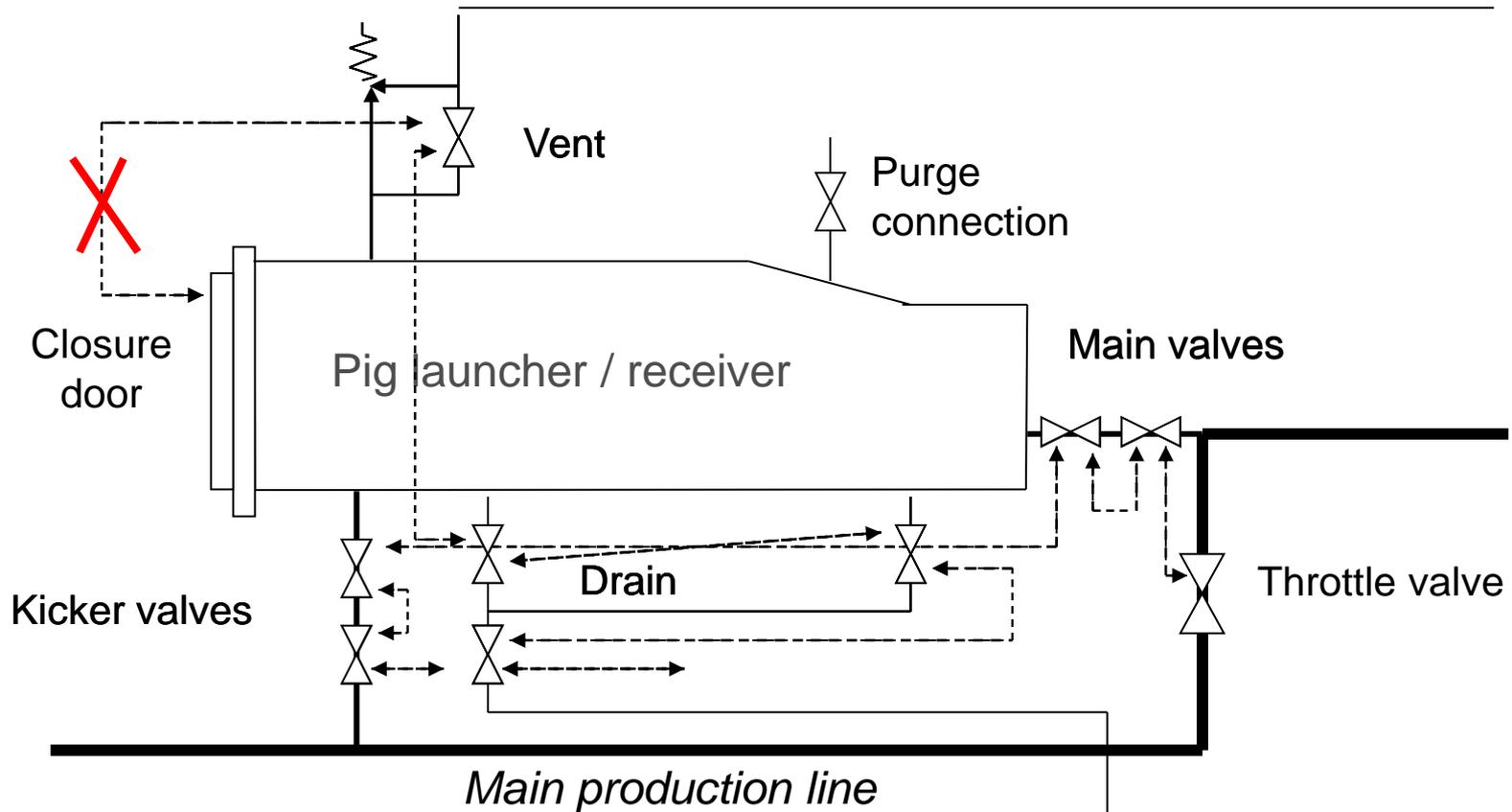
Mounting set is custom made to the valve

Characteristic of the valve remains





Process Interlocking





Process Interlocking



MPCU Mechanical Process Control Unit

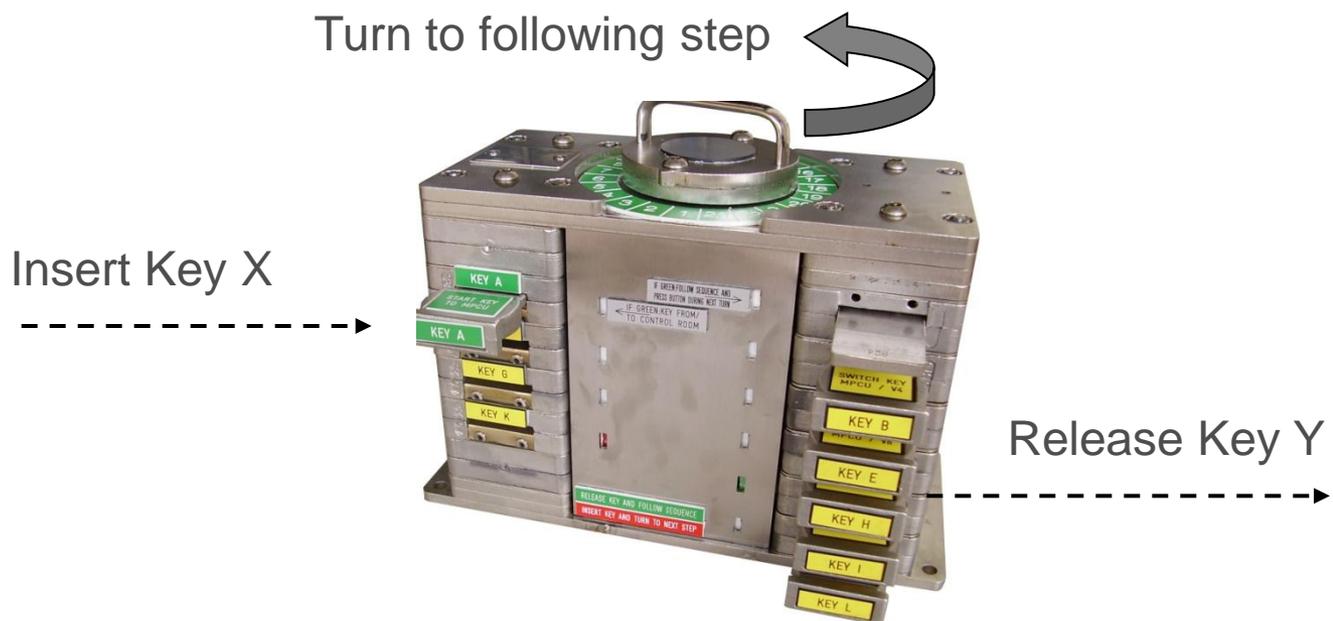
- Non linear sequence
- Repeating steps

Program every step in the sequence



Process Interlocking

MPCU



Program each step mechanically



Process Interlocking



Summary

- Guide the operator through the procedure
- Guarantee safe opening of the door
- Guarantee operator is isolated from the process
- Protect operator from toxic gas
- Prevent production interruption
- Guarantee closing the door



Process Interlocking

Thank you.

Murphy's law:

“If anything can go wrong it will go wrong, it is only a matter of time”