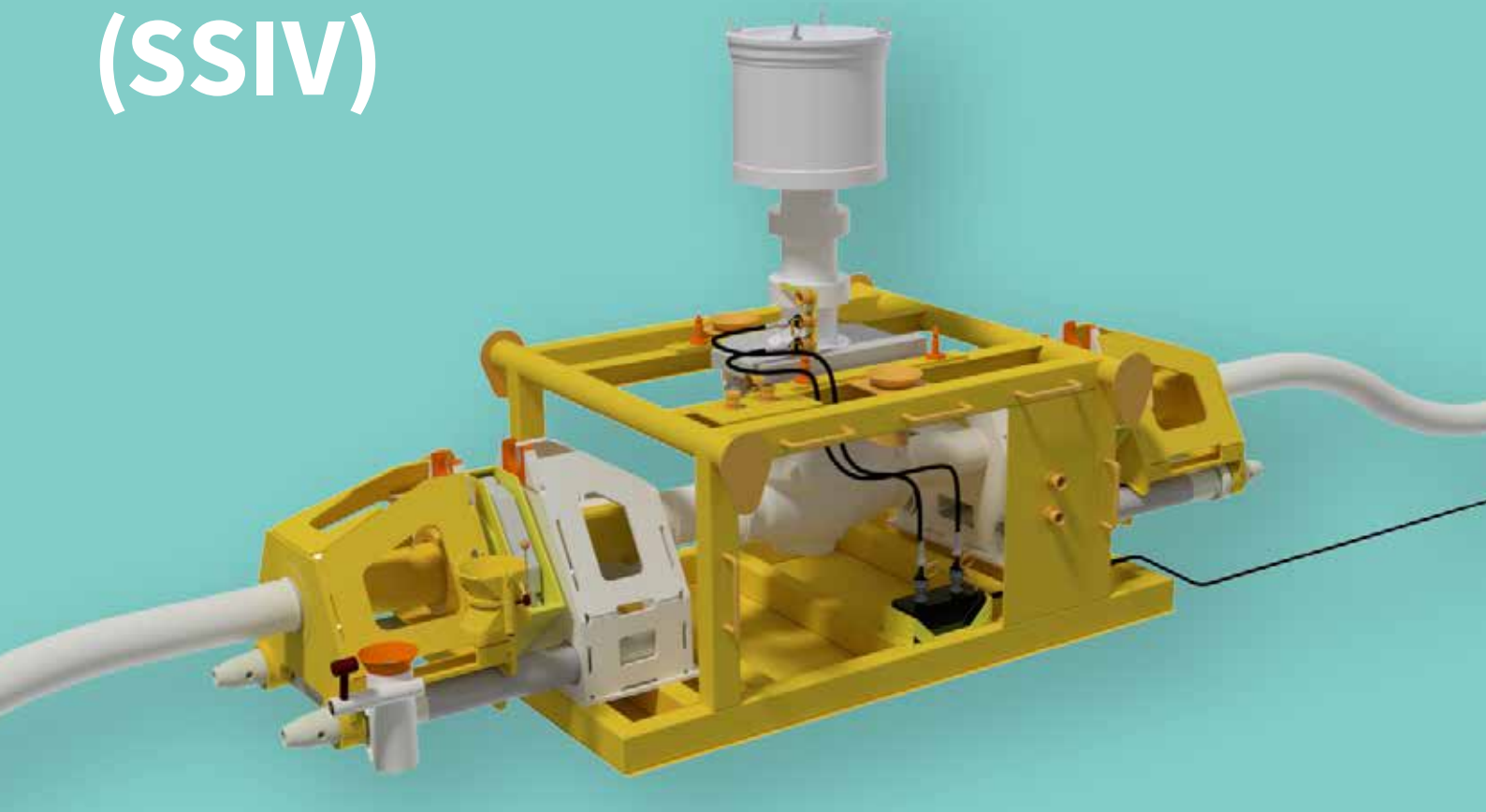


# Subsea insulation valve (SSIV)



Focusing of subsea safety NOV has developed a subsea isolation valve (SSIV). An SSIV creates a safety barrier in case one needs to shut down a part of a flow line.

The main purpose of an SSIV is to protect the platform and its personnel from unintended release of hydrocarbons. The SSIV is designed fail safe, and will close on loss of an active signal from the ESD system. The SSIV can be installed as a standalone module or as an integrated component with, for example a PLEM or a riser base. It may be designed to be retrieved separately or as part of a pipeline or structure. The valve actuator is normally retrievable. The SSIV is typically SIL 2 rated.

- Hydraulic actuated ball valve mounted
- inside a steel structure or directly into the pipeline
- Retrievable as a separate item, or as part of a structure or with the pipeline
- Standalone module or integrated with e.g. riser base or PLEM

- Retrievable actuator with flexible jumpers connected to the umbilical
- Several control configurations available
- Integration with a subsea control module is possible
- ROV panels with parking receptacles
- Valve position indication may be included
- SIL 2 rating according to IEC 61508 and IEC 61511

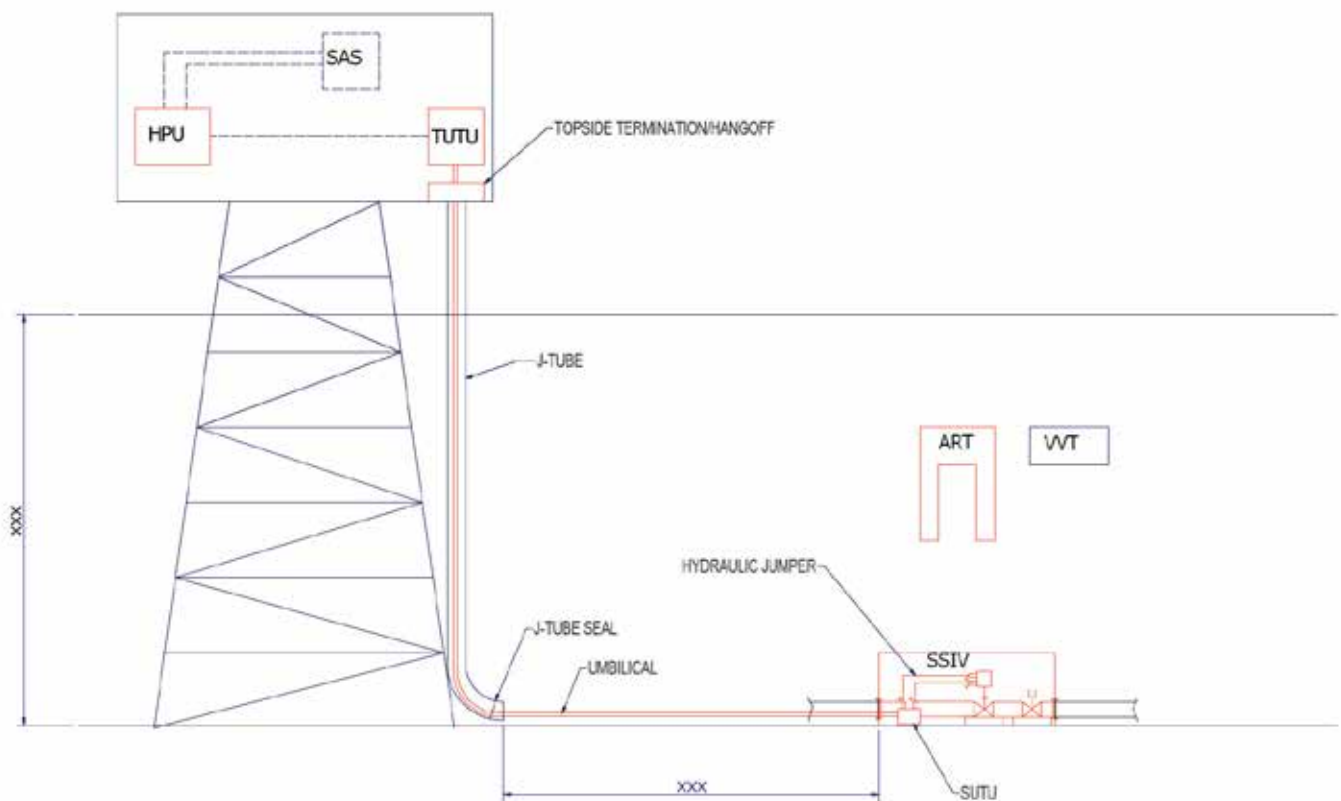
A protection structure is often supplied, to protect the SSIV and its connections, from dropped objects and trawl impact. The protection structure must allow easy access to the SSIV both from sides and from the top.

## Subsea isolation valve (SSIV)

### Key elements

The SSIV is supplied with control and power through an umbilical with electric and hydraulic lines.

- Hydraulic power unit (HPU)
- Safety and automation System (SAS)
- Topside umbilical termination unit (TUTU)
- Subsea umbilical termination unit (SUTU)
- Topside termination hang-off
- Junction boxes for hydraulics and electrics
- J-tube seals
- Umbilical bend stiffener towards J-tube
- Subsea isolation valve (SSIV)
- Actuator replacement tool (ART)
- Valve torque tool (VTT)



The Retrieval and replacement of the actuator may be performed using the Actuator Replacement Tool (ART). The tool comprises a twin set of slotted guide post receptacles designed to run and soft land over the SSIV guideposts prior to aligning over the actuator.

The ART is a mechanical tool with no built in hydraulic or electric functions. All ART mechanical functions are operated using a dedicated ROV controlled torque tool.

Subsea Production Systems develops, produces and markets some of the strongest and most advanced subsea systems. Subsea Production Systems is a Business Unit in National Oilwell Varco (NYSE:NOV) which supplies customer-focused solutions that best meet the quality, productivity, and environmental requirements of the energy industry.

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