IK-GROUP

"If only this Flange had an Isolation valve..."

Kenneth Laatveit
Business Development and Sales Manager

Challenge Accepted

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IK is a Leading Supplier of Specialist Products and Services for Pipe and Pipelines, SubSea & Topside

“We take pride in being an innovative solution provider for the worldwide oil and gas industry.”

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“If only this Flange had an Isolation valve…”

- 30 years experience
- Isolating the pipe/pipeline over a 8in- class 1500 flange pair. (Purpose: Valve maintenance)
- Splitting the flange pair under full pressure (150 bar)
- Remove the gasket
- Insert a blind spade
- Reverse the operation and hand over to client.
- Design Verification
- Business Drivers
- Typical Site Execution

More than 30 Years experience

- Special pipe clamps subsea and top side
  - ✓ Sealing and Structural
- Sealing on flange circumference
- Mechanical plugs
- Calculations – EN (PED) / ASME
- Barrier philosophy – verification steps
- Handling of mechanical loads in piping system
- Dynamic seals – Rods / Bolts
- Bolting technology

AOGV

add on gate valve

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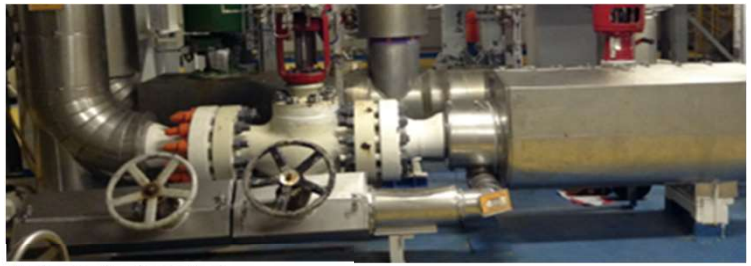
“If only this Flange had an Isolation valve…”

No conventional isolation methods were feasible in this isolation case to facilitate valve repair and the alternative was shutting down a significant part of the processing capacity on an NCS offshore platform.

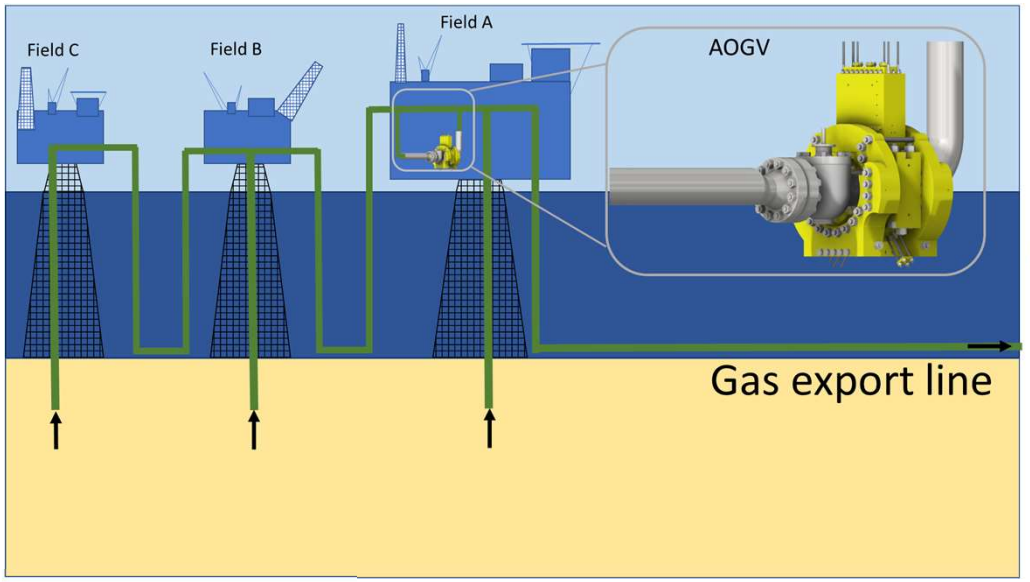
The AOGV was chosen as the best option and installed/operated in August/September 2018.

Isolating the pipe/pipeline over a 8in- class 1500 flange pair.

- International operator, NCS
- 8" Class 1500
- 150 bar pressure
- 3 fields can remain in live production during operation
- Gas export system segregation
- AOGV replaces over 50 blinds



Valve to be isolated



Overview of process

Splitting the flange pair under full pressure (150 bar)

- Dynamic and Static sealing arrangements
- Pressuretesting of seals
- Monitoring all caveties and between seals
- AOIC (Ad On Integrity Clamp) – to hold back the forces
- Change out bolt with mech plugs
- Splitting the flange approx. 25mm

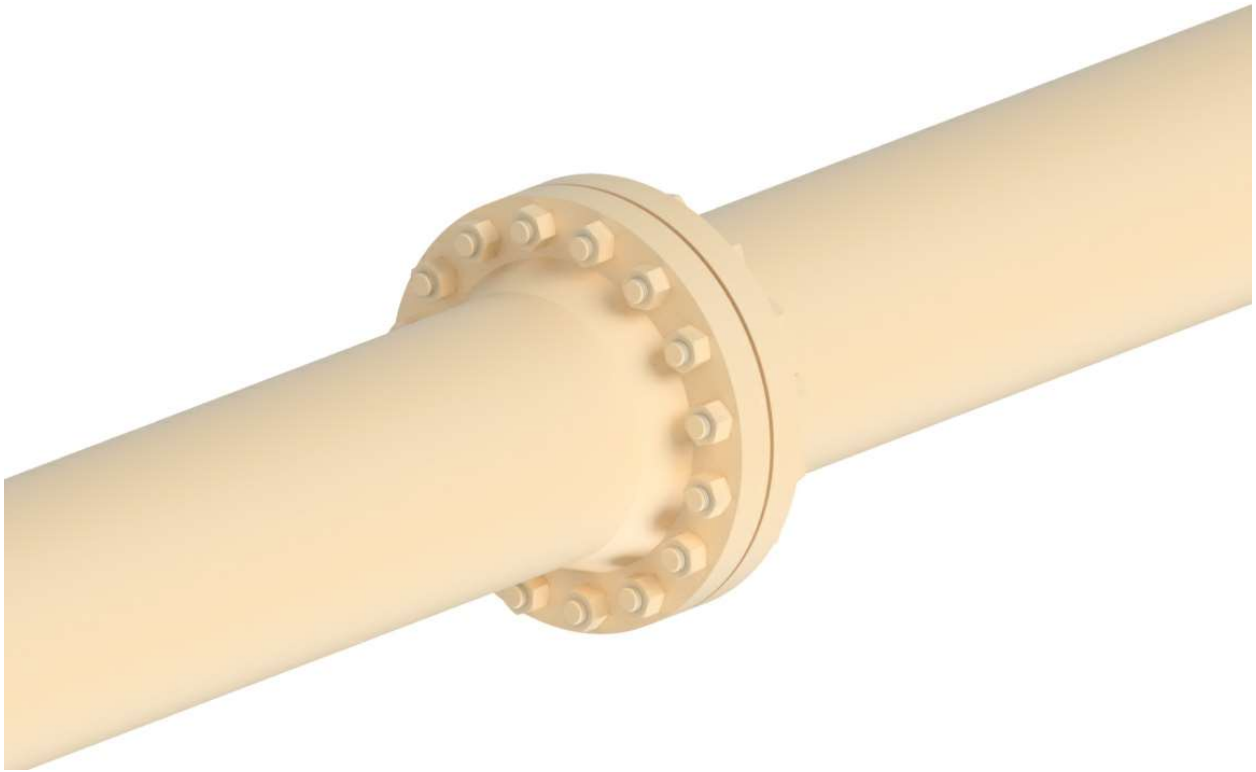
AOGV operation ongoing

Leak test 165 bar

AOGV Animation

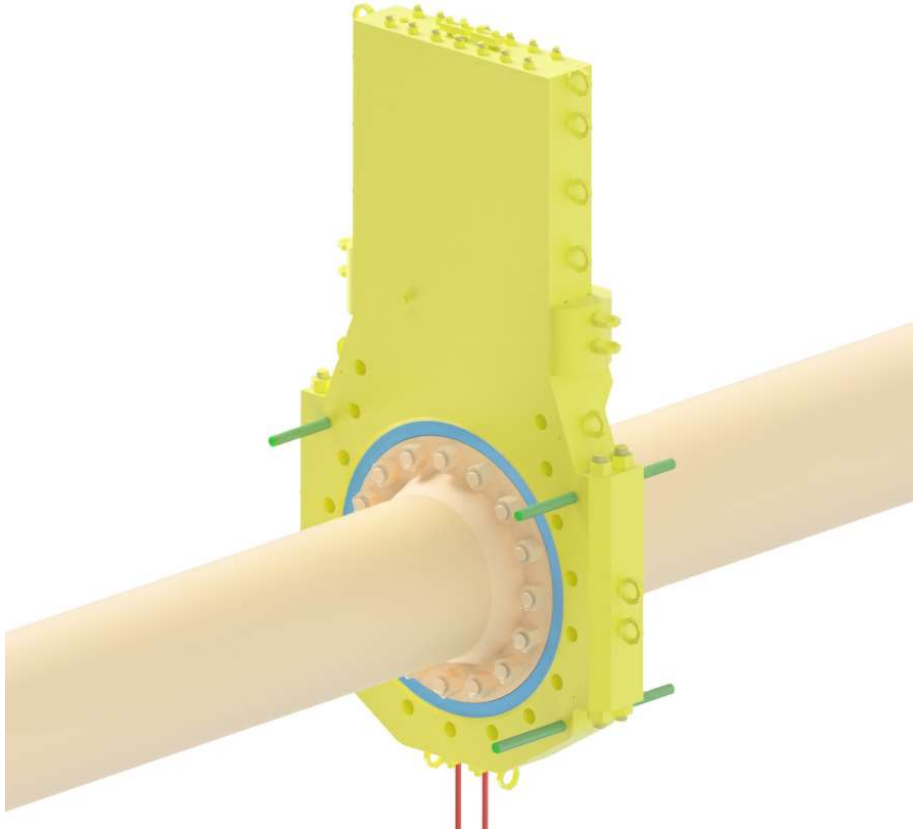
- AOGV

AOGV – Pipe



AOGV – Dynamic seals installed

AOGV – Top and bottom halves installed



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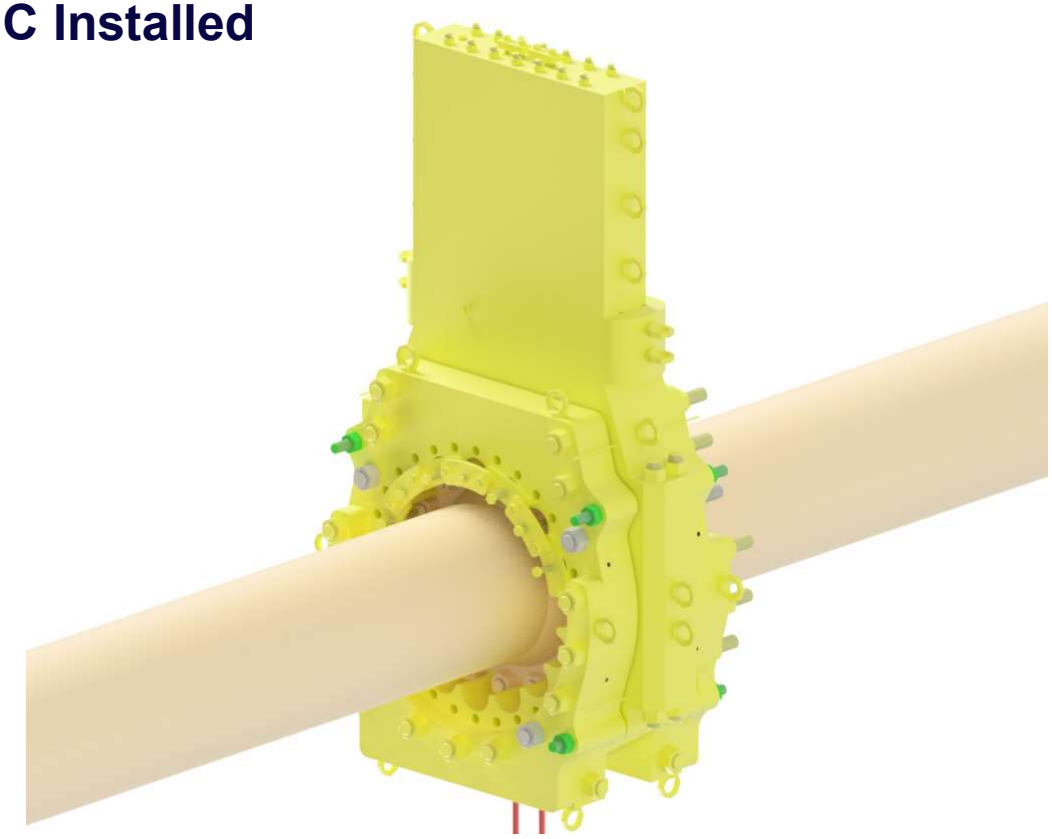
AOGV – AOIC Installed



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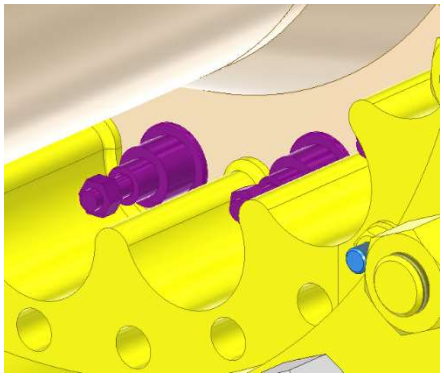
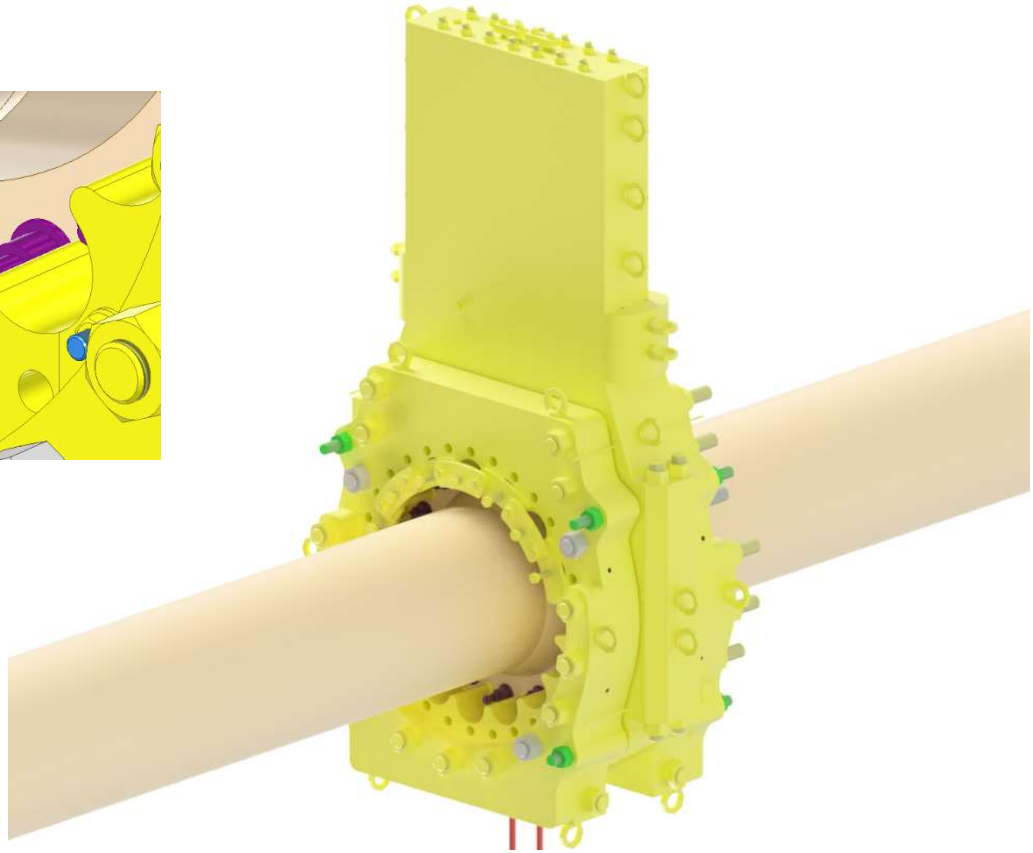
AOGV – Plugs in





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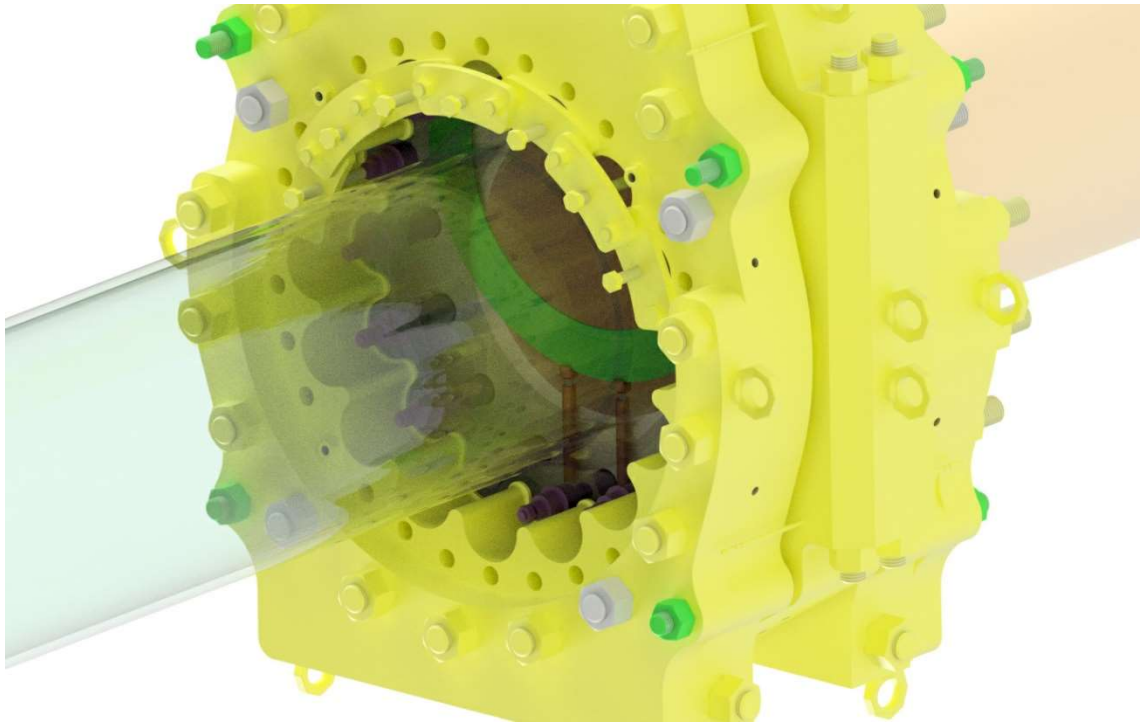
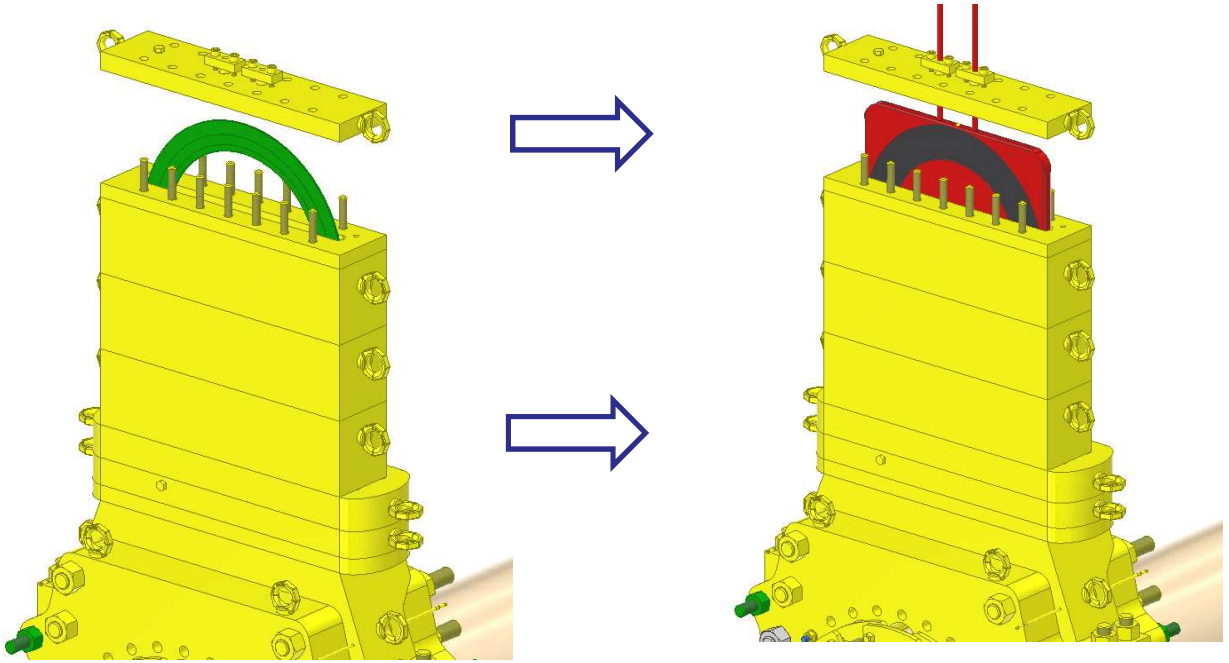
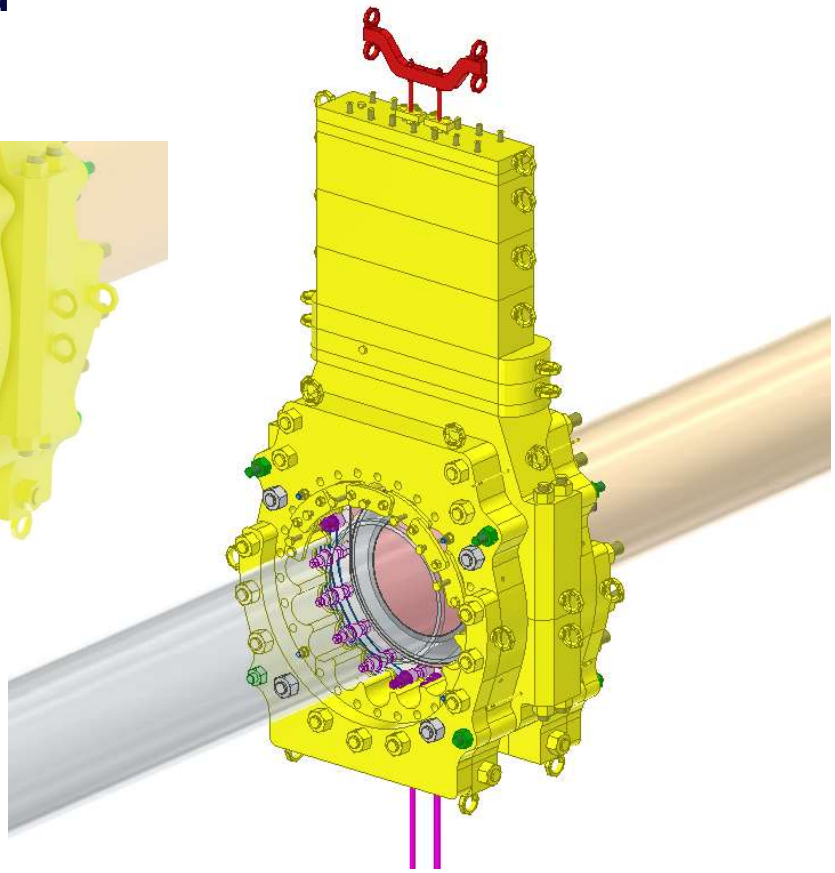
AOGV – Flange split, gasket being pushed



AOGV – Lid opened to remove gasket and install spade



AOGV – Spade inserted



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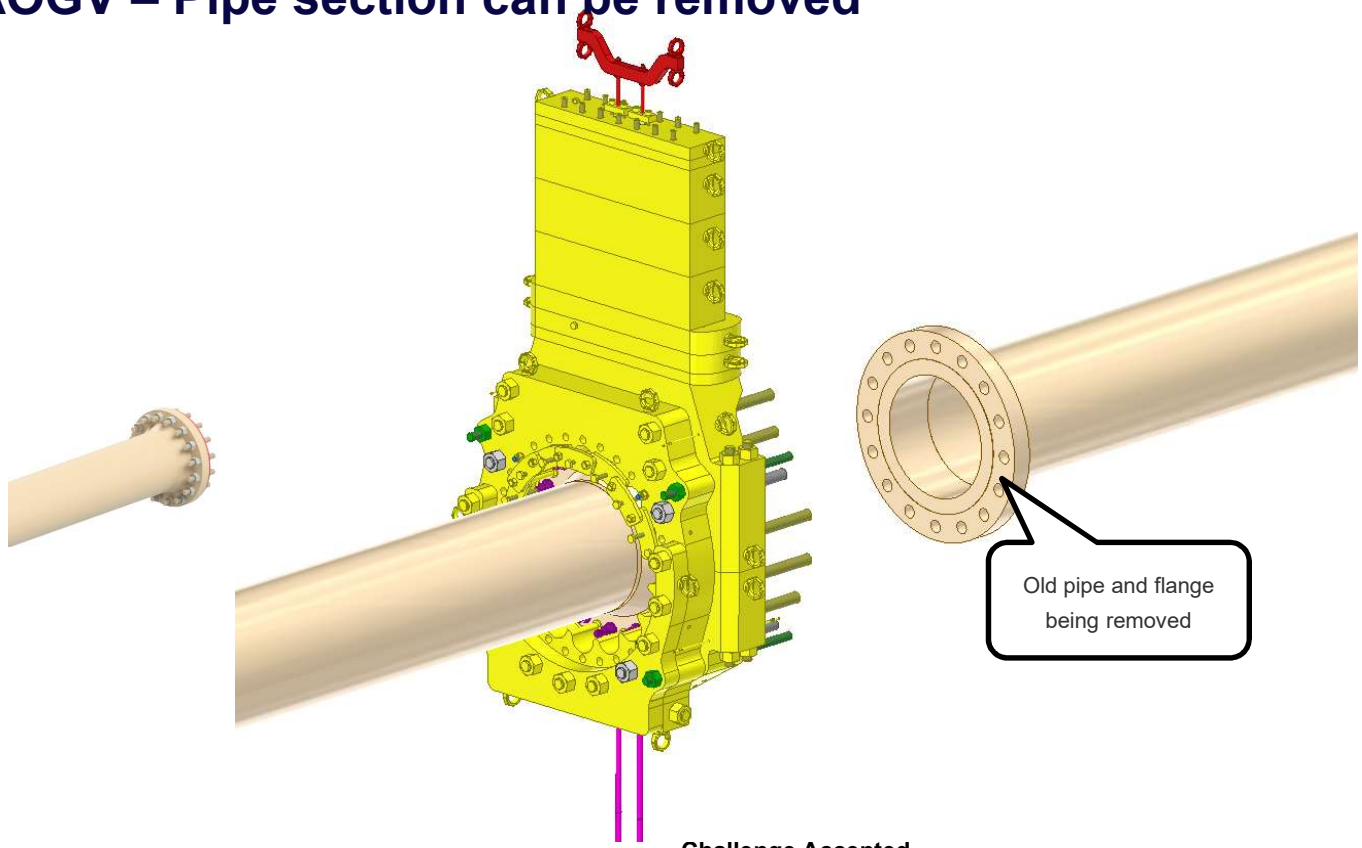
AOGV – Pipe section can be removed



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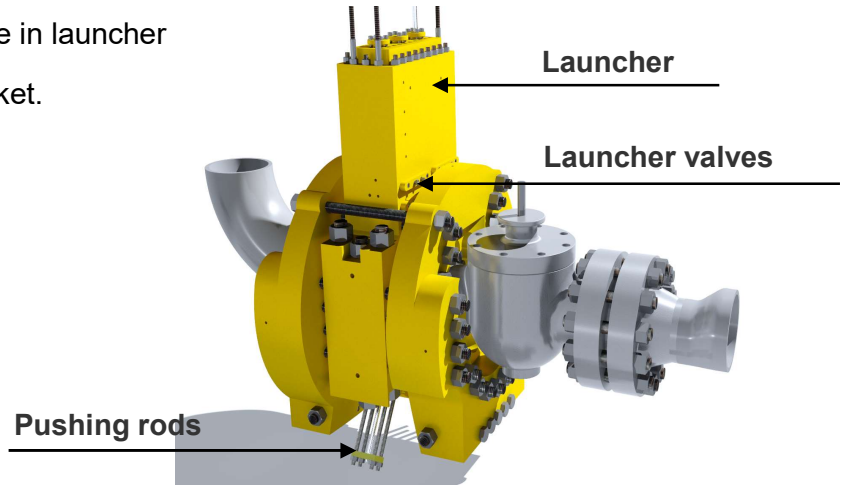
Remove the gasket

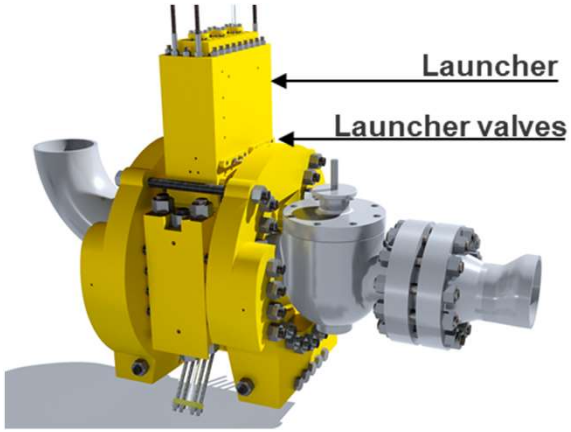
- Pushing rods from below.
- Push gasket into launcher
- Close launcher valves
- Bleed of pressure in launcher
- Remove the gasket.



Gasket removed from live 150 HC Gas system

Insert a blind spade

- Insert a blind spade through the launcher
- Open the launcher valves
- Insert the spade between the flanges
- Compress the flanges



Spade removed after end operation

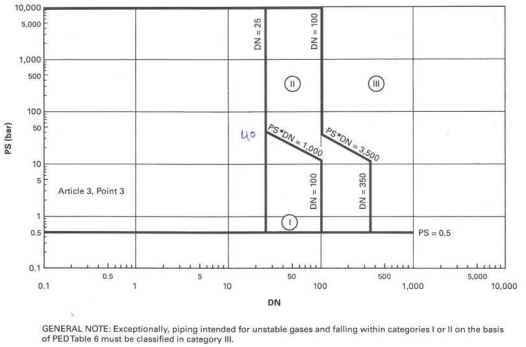
Reverse the operation and hand over to client.

- Remove the spade throughout the launcher
- Insert a new gasket
- Compress the flanges
- Insert new flange bolts and torque to client specifications
- Remove the AOGV
- Hand over to client

Recomissioned system post AOGV operation

Design verification – high pressure

- Standard – PED EN 13445
- Calculations (f. ex Kiwa)
- FEM / FEA - Finite Element Analysis
- Notified Body – (f.ex DnV GL)
- CE Marked



GENERAL NOTE: Exceptionally, piping intended for unstable gases and falling within categories I or II on the basis of PED Table 6 must be classified in category III.

TABLE IV-1-6 PIPING CONTAINING A DANGEROUS GAS

DNV·GL

Certificate No:
PEDG000007M

EU CERTIFICATE OF CONFORMITY

This is to certify:

That the product(s) **Pressure Accessory**

with name and/or type designation(s)
8" 1500# AOGV (Add On Gate Valve); S/N: 3030713-01

Manufactured by
IK-Norway AS
Stavanger, Norway

has been assessed with respect to the conformity assessment procedure described in Annex III Module G of Directive 2014/68/EU on Pressure Equipment, and found to comply with the requirements in Annex I – Essential Safety Requirements of the Directive.

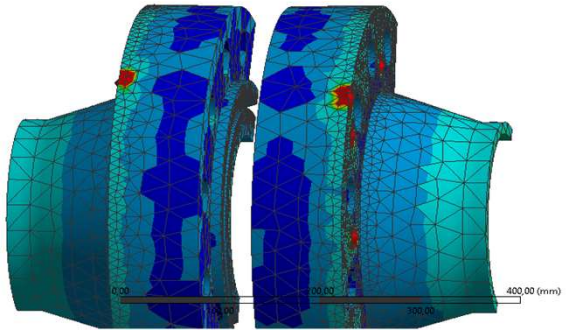
Further details are given overleaf

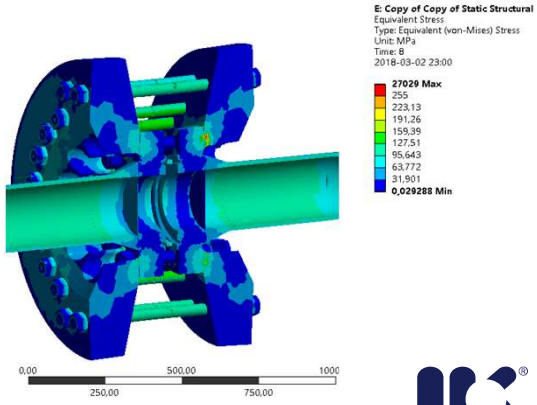
Issued at **Høvik** on **2018-08-03**

for the Notified Body 0575
DNV GL AS
Digitally Signed By: Ragavendhra Rao, Vishnumurthi
Location: DNV GL Høvik, Norway
on behalf of

Marianne Spæren Marveng
Head of Notified Body

NORSK AKKREDITERING INSP 060





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Business Drivers

- Move scope out of TAR
  - Increased production through simplified isolation
- Isolate individual process train, valves or heat exchangers
- Increased up time by reducing drainage, venting, purging & flushing
- Strategy change for shut down and maintenance work
- Longer shut down intervals

Partnership review

Typical site execution

- 3 – 6 days Arrival of equipment and personnel on site rigging and preparation, interface meetings, installation of AOGV
- 1 day Split flanges, remove gasket, insert spade and verify isolation
- X days Perform maintenance work / purpose of isolation (Operator / incumbent contractor)
- 1 day Retract spade, insert gasket, recommission system
- 2-3 days Disassemble tool, pack and demob

Summerize

- The purpose of the tool is to enable safe isolations and to reduce extent and duration of production shutdowns. The tool is field proven for Several Major Oil Companies.

- Plants have large volumes which require substantial preparation and start up activities in relation to performing maintenance operations. The isolation tool can shorten shut down periods significantly thereby reducing cost.

Summerize cont.

- Typical applications may include replacement/repair of valves and piping, isolate heat exchangers for chemical cleaning or replacing leaking flange gasket with new gaskets and bolts.

- The tool can be installed on any size pair of flanges at the maintenance location and significantly reduces the need for drainage, venting purging and flushing.

- A field proven tool for live process isolation has been demonstrates as a safe and cost saving technology. The technology is patented and is significantly different from existing methods of line stopping.


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Questions?

www.ik-worldwide.com, for more info.

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