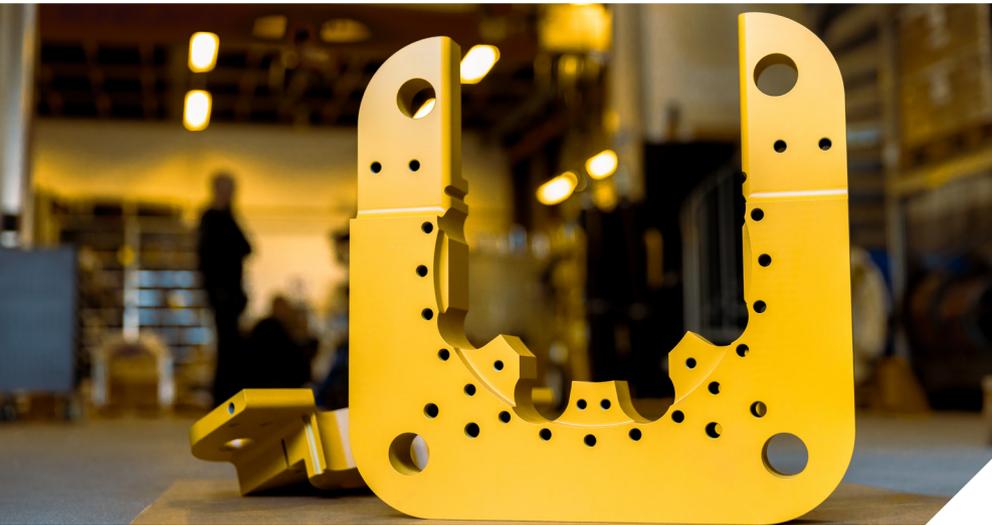


## CASE STUDY

# AOGV Saves Time in Planned Maintenance Stop on an Offshore Oil & Gas Process Plant



MAINTENANCE SHUTDOWNS ON OIL AND GAS PLATFORMS AND PROCESS PLANTS ARE NECESSARY ON A REGULAR BASIS, BUT PROVE COSTLY DUE TO THE RESULTING DELAY IN PRODUCTION. AN FPSO OPERATOR CHOSE TO SAVE MAINTENANCE TIME AND INCREASE PRODUCTION VIA DEPLOYMENT OF THE AOGV ISOLATION TECHNOLOGY.

WHILE BUILT-IN ISOLATION POINTS CAN REQUIRE THE BLOW DOWN AND FLUSHING OF LARGE INVENTORY VOLUMES, THE AOGV CAN BE USED TO BRING THE ISOLATION POINTS CLOSER TO THE POINT OF INTEREST, AS WELL AS FACILITATING AIR GAPPING OR POSITIVE ISOLATION IN PRESSURISED LOCATIONS.

### THE SITUATION

Offshore pressure vessels need regular maintenance; this is frequently performed during shutdowns as most are critical to plant production. In this case, three vessels on the FPSO needed attention, the two first-stage separators and the flare knock out drum.

To optimise the performance of inlet separators, the FPSO required internal parts replacement. Taking place during a scheduled maintenance shutdown, component replacement required personnel to enter the confined space of the separators, thus requiring emptying, cleaning, and degassing.

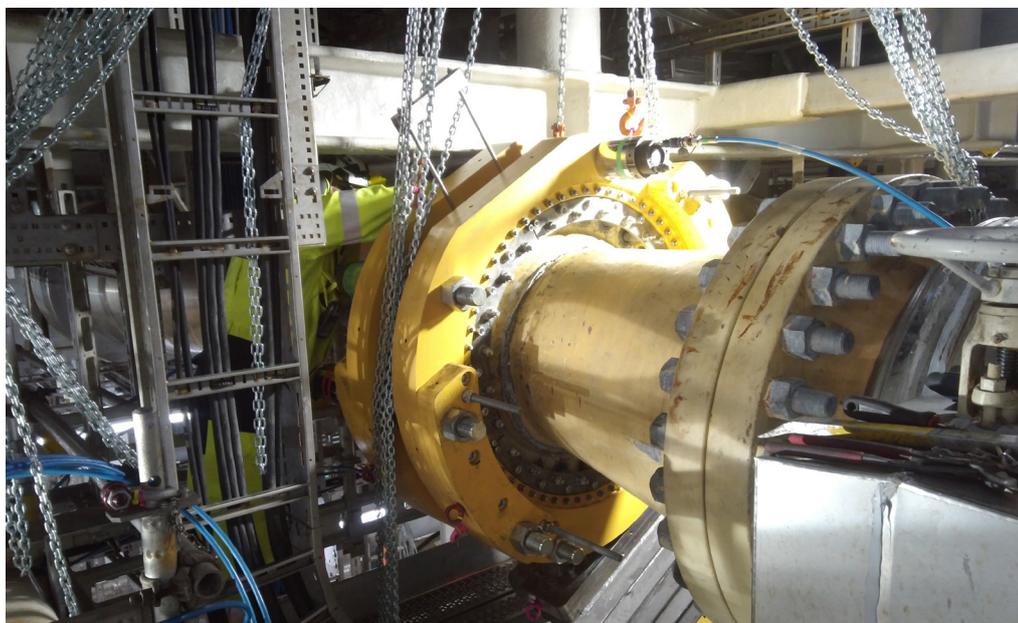
In this case, the required isolation of the separators from the rest of the system, including the riser, was not possible. The standard solution to this is to use the flare system to bleed off all relevant systems after

### CHALLENGES

- No valves or means to isolate out required equipment
- Oil & Gas (HC) in system
- Tasks depending on achieving partial isolation of the system
- Perform a safe isolation operation on large flanges (24")

### RESULTS

- Saved 5-7 days of delayed production
- Shortened maintenance period
- Completed safely and on schedule



*Installation in progress*

which, the flare system can be gas freed. To ensure the entire system was free of gas, the shutdown period required for preparation time alone would be extended by three - five days.

#### **OPTIMISING TIME OFFSHORE**

Working towards the same time-saving objective, an additional workscope took place concurrently, allowing for efficient maintenance of the knock out drum. By providing positive isolation for the knockout drum from the rest of the flare system, the AOGV cut the length of shutdown by approximately two additional days by reducing the level of preparation work required

#### **THE AOGV - MECHANICAL ISOLATION TOOL**

IK-Group's patented AOGV is a mechanical isolation tool which can be temporarily assembled on any pair of flanges in a pressurised process system. The tool is used to replace gaskets, install, and retrieve blind spades to facilitate intrusive maintenance. The blind spade or a combination of several spades in different locations can replace the function of valves and provide positive isolation for vessels, valves, or parts of a process plant. Bleeding or purging through the blind spade can also be facilitated.

The AOGV design meets the requirements as per EU Pressure Equipment Directive (PED) (2014/68/EU) and EN 13445 - Unfired Pressure Vessels

#### **PLANING AND PREPARING**

The AOGV was included from earliest planning phase to reduce the shutdown length to a minimum. For the separator work a short timeframe meant that two AOGVs of the same size were deployed – one on each of the parallel systems.

The IK Group's on-site survey with measurements and 3D scanning, ensured perfect fit between AOGVs and flange. The two 24in locations had previously been used for AOGV operations with great success, whereas obstacles on the 4" flange required the AOGV integrity clamp to be redesigned for fit.

A full training cycle for the IK-Group crew was held prior to mobilisation, the same crew that prepared the equipment performed the operation providing continuity and ensuring effective and safe operations.

#### **SITE OPERATION**

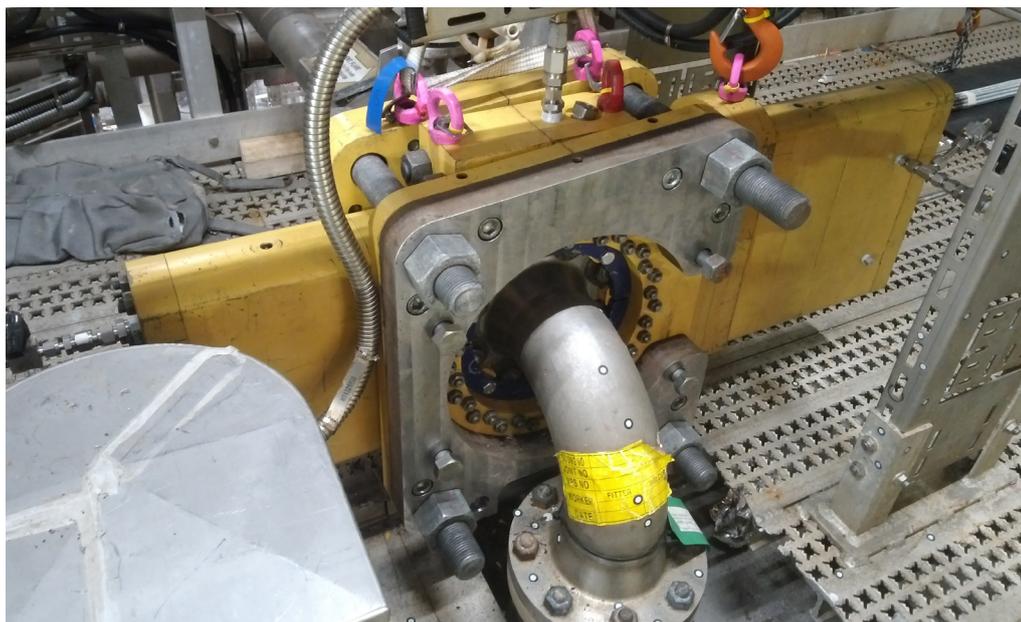
To isolate the separators the two 24" AOGVs were mounted, and pressure tested on the actual flanges before plant shutdown. When production stopped, isolation spades were set to isolate out the required area.

The AOGVs remained mounted on the flanges throughout the shutdown to enable a fast retrieval of the isolation spades as soon as the maintenance stop was completed. Both flange pairs received new seals and flange bolts prior to rigging down the AOGVs and the FPSO was already back in production whilst AOGVs were dismantled.

Once all systems were gas freed the flare system was ready for maintenance. The 4" 300# AOGV was installed and it removed a spectacle blind and installed a blind spade on a flare line to perform a safe entry and inspection of the knockout drum. After the inspection, the spade was removed, and a spacer ring with gaskets were installed, via use of the AOGV. Once the flange pair was restored to its original state the flare system was ready for the FPSO to resume production.

## RESULTS

-  • **Saved customer 5 - 7 days of delayed production**
-  • **Shortened the maintenance period involving approximately 200 people**
-  • **Safe: No incidents**
-  • **Successfully completed the scope on schedule**



*AOGV in situation*