

# subsea axial control valve

## qualification summary sheet

<b>Type designation</b>	Control valve
<b>Model</b>	RZD-OW-RCX-TC 8" API 5000
<b>Scope</b>	Subsea qualification for service in: <ul style="list-style-type: none"><li>• Ormen Lange subsea compression</li><li>• Åsgard Minimum Flow subsea compression</li></ul>
<b>Qualification steps</b>	<ul style="list-style-type: none"><li>• FMECA</li><li>• Qualification of new components</li><li>• API 6A PR2 test</li><li>• Endurance test</li><li>• Hyperbaric test</li><li>• Safety Assessment</li></ul>



*valve endurance testing*



*integration test with Ifokus electrical actuator*

## Mokveld subsea axial control valves have completed the following qualification program:

- **FMECA** In order to establish all failure modes, DNV, Ifokus, Aker, Statoil and Mokveld performed a Failure Mode, Effects and Criticality Analysis. The FMECA was done for anti-surge valves and for regular control valves.
- **Component qualification** The seal arrangement and the volume compensator are components that are specially designed for the subsea control valve. Both items have been tested thoroughly before they were used.
- **API 6A PR2 test** After assembly and verification the API 6A PR2 test was done. Testing valve at the pressure and temperature extremes. Proving the quality level of the design.
- **Endurance test** In order to simulate a lifetime of operation the subsea valve has been subjected to an accelerated endurance test. During this test 500.000 (!) strokes have been made at all possible combinations of operating temperatures and internal as well as external pressures. The endurance test was passed with Zero Leakage to the environment.
- **Hyperbaric test** Hyperbaric testing has been completed. A 12000 stroke test was performed at 165 bar external test pressure, simulating 1.5 times the project water depth.
- **Safety assessment** Safety calculations based on the FMECA result in SIL 2 compliance for low demand or continuous operation in a 1oo1 configuration.
- **Production tests** For each delivery production tests are applicable, the standard test program includes a.o: material testing, dimensional verification, NDE, operating thrust measurement, hydrostatic pressure and leakage testing.

For more detailed information, please contact Mokveld.