

Innovative solutions for sustainable and durable rotating applications

Application

Fluid:	Propane (R290)
Pressure:	55 / 10 bar(a)
Temperature:	130 / 50°C
Speed:	10,000 rpm
Shaft diameter:	47 / 40 mm

Challenge

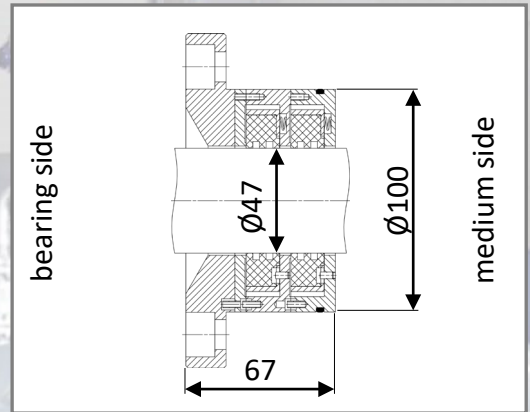
Sealing of a propane turbine for an organic rankine cycle (ORC) utilizing geothermal energy.

Route Cause

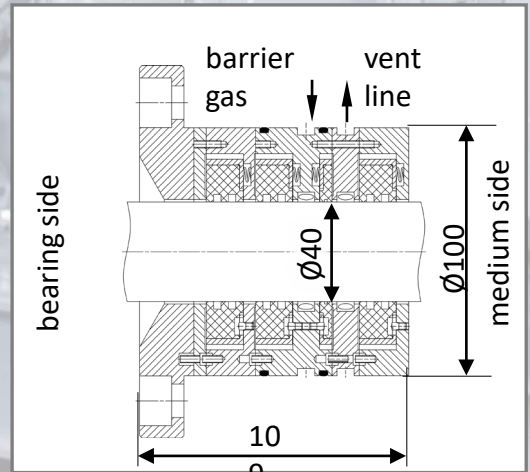
In respect to rotor dynamics the distance between the two bearings of an axial turbine needs to be as small as possible. Thus, sealings with a short axial length are necessary. Simultaneously the sealing performance needs to be kept high.

Solution

Two SDS100 floating ring seals were used. The carbon rings with a titanium bandage have an extended axial length allowing multiple pressure breaker grooves. Thus, an overall reduced axial length in comparison to standard floating ring seals can be achieved. Additionally, the titanium bandage enables the control of the gap width during varying process conditions. The drive side shaft seal comprises a barrier gas and a ventilation port to prevent leakage to the environment.



SDS100-O-2-47 without ports for internal sealing of the shaft



Shaft seal SDS100s-AS-4-40 for drive side with barrier gas and ventilation port

FIELD CASE

Shaft Seals for a Propane Turbine

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