

PCM

Progressive Cavity pumps for Power Generation

Through tests conducted with Cetim, PCM has demonstrated the performance of its pumps in turbine mode and is expanding their application to include power generation.



© PCM

OUR CUSTOMER

Corporate name
PCM

Workforce
800 employees

Business activity
With a global presence in more than 90 countries and over 90 years of expertise, PCM is a recognized leader in providing complex fluid handling solutions—particularly progressive cavity pumps—for the industrial sector, renewable energy, the oil and gas industry, the food and beverage industry, the cosmetics industry, and the pharmaceutical industry.

Repurposing a progressive cavity pump from its original use to generate electricity in turbine mode: this is the challenge PCM set for itself on behalf of one of its clients. To validate the feasibility of this approach and measure the hydraulic and mechanical performance, the manufacturer partnered with Cetim, which designed and operated a dedicated test bench capable of replicating multiphase water-air conditions. “The key challenge was to determine the maximum gas concentration in the liquid at which the turbine could still be driven”, explains Christophe L’Haridon, head of

the Technologies department at PCM. Flow rate, pressure, gas volume fraction, temperature, instrumentation: the facility made it possible to test different configurations and analyse the parameters influencing the pump’s behaviour (geometric variables, displacement, rotational speeds, etc.).

Expanding applications and prospects

Regular exchanges between Cetim and PCM allow for adjustments to the tests during the campaign and help guide the investigations. With a team on site, PCM monitored the progress of the tests and the evolution of the qualification plan.

The results obtained—with energy efficiencies reaching up to 60–70% in turbine mode—confirm viability of the concept and pave the way

for its implementation. “This work has changed the internal perception of the product. It is no longer viewed merely as a pump, but also as a power generation solution”, emphasizes Christophe L’Haridon.

Cetim's asset



Equipped with testing capabilities for a variety of fluidic equipment and a high level of expertise, the center designs and deploys specialized test benches and performs custom instrumented tests to thoroughly analyse equipment behaviour and energy performance under complex conditions.

