

RELY ON EXCELLENCE

Reliable and low-maintenance supply for dry gas seals in the rainforest

RoTechBooster supports remote controlled compressor operation

A Petrobras energy group pipeline runs through the rainforest in the Brazilian Amazon region. Located between Urucú and Manaus are two compressor stations which boost pipeline gas pressure.



Compressor stations are only reachable by a complex route along the Amazon River or by helicopter. The compressors at the stations require unmanned seal gas supply and control to remotely start them reliably.

The natural gas is extracted from a gas field in Urucú. From there, the pipeline runs over 663 kilometers to the city of Manaus. Gas customers are a refinery and power plants. The compressors are activated mainly when energy peaks need to be covered.

Challenging logistics

Both compressor stations are each equipped with two compressors. Each of the shafts are equipped with two dry gas seals. After the stations were commissioned in 2009, the seals were initially supplied with nitrogen from tanks during the starts and stops. This consumed a complete set of nitrogen tanks per start-up process. As a result, the operator Petrobras Transporte S. A. (short: Transpetro), was continuously forced to deliver filled tanks by river and haul away the empty tanks. The compressors start up about once a week, especially during the summer when the demand for electricity to operate air conditioning systems increases sharply.

The operator therefore decided to fill the tanks with nitrogen from a truck and a small compressor in the vehicle. But because there are no roads, it was also very expensive and time-consuming to take the truck by river to the compressor stations. In addition, this resource intensive process obstructed the remote control of the compressor station from Rio de Janeiro.



A complete RoTechBooster skid before delivery

CASE STUDY

- **Reference:** Compressor stations "Coari" and "Juaruna" (Amazon region, Brazil)
- **Client:** Petrobras Transporte S.A.
- **Industry:** Oil & Gas
- **Challenge:** The remote rainforest location makes seal gas supply via tanks too time-consuming and expensive.
- **EagleBurgmann services:** Consultation, engineering and implementation; for a reliable solution allowing easier remote control
- **Technical solution:** Ready-to-install RoTechBooster skids

A bird's eye view of the compressor station "Coari"



Converting the seal supply

This was an unacceptable permanent solution. The operator therefore looked for a system that would reduce the cost and effort of supplying the seal in the long term. In 2012 the decision was made to install a RoTechBooster from EagleBurgmann.

A reliable solution

The seals are supplied with product gas from the compressor while the system is in operation. The product gas is then removed on the pressure side of the compressor where it is cleaned by filter and flushed into the seals. When the compressor runs slowly or comes to a standstill, there is no differential pressure between the compressor outlet and the seal installation cavity. In these phases, the RoTechBooster starts up and pumps gas from the compressor through the filter to the seal.

This prevents polluted product gas from penetrating the installation space and contaminating and damaging the sealing surfaces.

The RoTechBooster system is compact and easy to install. One unit supplies one compressor.



The RoTechBooster has proven itself

Trouble-free for years

Unlike piston compressors, the RoTechBooster requires virtually no maintenance, making it ideal for compressors that are remotely controlled and located in inaccessible areas. The supply systems have been running smoothly in both compressor stations since June 2013. EagleBurgmann and Transpetro agreed on the first service after five years.

Eco-friendly and highly efficient

The magnetic coupling of the RoTechBooster is a further argument for its use, as it hermetically seals the booster shaft. No climate-damaging methane escapes into the atmosphere and is not wasted unnecessarily. The operating principle is simple and requires no additional accessories. Also, the special magnetic coupling generates 95 % less eddy current losses than a conventional magnetic coupling, which reduces heat generation in the coupling and decreases power consumption.

Advantages of RoTechBoosters

The RoTechBooster ensures abundant, reliable, and consistent seal gas flow, through fluctuating operating conditions; thus, clean and dry gas is supplied to the gas seal in every situation.

- Simple to set-up, easy to operate
- High reliability and availability
- Unlimited continuous operation
- Avoid seal failures
- Low maintenance costs
- Energy efficient
- Eliminates the concern of unreliable external seal gas source



A RoTechBooster skid installed on-site in the compressor station

Engineering, supply system and installation

For this project, EagleBurgmann supplied the engineering as well as the complete RoTechBooster skids and installed them on-site.

A skid consists of the RoTechBooster, filters, pressure and flow transmitters, valves and a frequency converter. All components are connected to a programmable logic controller.

EagleBurgmann optimized the electronic control system so that it feeds just as much gas to the seals as is necessary for reliable operation. The speed of the RoTechBooster motor, and consequently the amount of gas flow, is determined by the control system via the frequency converter.



Result

Changing over to the EagleBurgmann seal supply system has paid off for Petrobras Transporte. The compressors are easily controlled from Rio de Janeiro and the high cost associated with nitrogen was eliminated. In fact, the supply system upgrade costs were recovered in less than eight months.



Further information on RoTechBooster

EagleBurgmann – at the leading edge of industrial sealing technology

Our products are used wherever safety and reliability count: in the industries of oil & gas, refineries, petrochemicals, chemicals, pharmaceuticals, food, energy, water and many more. About 6,000 employees contribute their ideas, solutions and dedication every day to ensure that customers around the globe can rely on our seals. With our modular TotalSealCare Service, we emphasize our strong customer orientation and offer custom-tailored services for every need. **Rely on excellence.**

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