

Helping Ensure Power Generation for Sweden

Technetics Group Provides Nuclear Sealing Safety



Nuclear Sealing Solutions Held to a Higher Standard

Connected to the Sweden power grid in 1980, [Oskarshamn 3 \(OKG3\)](#) is a boiling water reactor (BWR) located 30 kilometers north of the city of Oskarshamn. Annually providing approximately 10% of the electricity needs of Sweden, OKG3 supplied more than 10,000 GWh of electricity in 2021 — a trend that's mostly increasing yearly.

OKG3 places safety, maintenance, and preparation at the core of its nuclear power plant operations. In September 2022, the [International Atomic Energy Agency \(IAEA\)](#) completed a long-term operational safety review of OKG3 and found good practices and performances that were shared globally within the nuclear industry — posing them as an industry leader.

Of the inspection, the IAEA team leader and Nuclear Safety Officer, [Martin Marchena](#), said, “The team observed that OKG is implementing preparations for safe Long-Term Operations (LTO) in a timely manner and the staff at the plant are professional, open and receptive to suggestions for improvement.”

Where oversights and mistakes can have serious, widespread consequences, the nuclear industry is held to a higher standard of operation than others.

Partnering with a trusted supplier that is an industry expert with customization capabilities is essential to ensuring minimal system failures.

Meeting Boiling Water Reactor Requirements with a Custom 260” RPV O-FLEX Metal O-Ring

Inside a [commercial \(BWR\)](#), unused steam is exhausted to a condenser, which is then condensed into water.

The core reactor vessel, which serves heat to start the process, contains fuel assemblies that are cooled by light water.

To withstand the light water's absorption of neutrons, the system uses [enriched uranium](#)

— nearly 140 tonnes — as its nuclear fuel. The entire BWR contains between 370-800 fuel assemblies, and within these assemblies, a nuclear reactor pressure vessel (RPV) closure head seal is required for ultimate control and minimal leakage.

Clearly, this is a highly technical and specific industrial process that requires an equally tough and reliable seal. The custom-designed 260” [RPV O-FLEX metal O-ring spare seals](#) are made from high-strength Alloy 718 tubing — offering maximum strength, spring back, and resistance to radiation and corrosion — that is coiled, cut, and welded to size.

The base tubing is plated with pure (99.95%) silver, making this combo of elastic core (tubing) and a deformable plastic layer (silver) the most durable seal for RPVs.



Technetics Proud Partner in Helping OKG3 Supply Power Generation to Sweden

Working with OKG3 since 2021, Technetics will develop multiple custom 260” RPV O-FLEX metal O-ring spare seals by the 2023 year-end. We enthusiastically worked with OKG3 to ensure the utmost integrity and fine-tuning of all documentation, including providing multiple revisions of raw material and operational cost development quotes as changes arose.

By taking steps to purchase customized spare O-rings for its reactor vessel, OKG3 is continuing its commitment to safety and precautions. We’re proud to be an essential player in helping provide Oskarshamn 3 — and Sweden — with reliable power generation..

Technetics: Your Critical Solution Partner for the Nuclear Industry

Technetics adheres to your component designs with engineers that work closely with you from intake to installation to ensure the highest level of satisfaction. Our nuclear industry clients know they’re in good hands with our [50 years of expertise](#) as a global leader in RPV seal design and manufacturing.

No matter the [nuclear critical solution](#) you require, we want to help you achieve enhanced performance and improved safety. [Contact us today to get started!](#)

