

NUCLEAR POWER ENGINEERED SOLUTIONS FOR DEMANDING ENVIRONMENTS®



Inside the world's most demanding applications, you'll find trusted engineered solutions from Technetics Group improving safety and optimizing performance through innovative manufacturing and responsive technical expertise. Your markets are Our markets.

From the center of a nuclear reactor pressure vessel to the deepest recesses of a jet engine propelling 250 tons of steel across the sky, Technetics Group is your globally trusted source for sealing and component technologies that are custom-designed to meet your critical requirements and extreme applications.

WE THRIVE ON CHALLENGE

We're experts at designing solutions for applications in the world's most demanding environments. Our products support industries that are vital to the well being of people all over the world, including nuclear power generation, aerospace, semiconductors, oil and gas, pharmaceuticals, medical applications and industrial turbines. In these markets, details are essential to safety and reliability. That is why we remain dedicated to providing the utmost dependability and customized solutions from inception through installation, inspection and service.



Design and testing are conducted in our unique, world-class laboratory, maestral, operating since 1969 in conjunction with the CEA (French Atomic Energy Commission). From reactor pressure vessel seal design to the resurfacing of grooves in mature reactors, we have the right solution for each critical environment.

Technetics Group, the industry leader, delivers sealing expertise and innovation safely and reliably throughout the nuclear life cycle.

At Technetics Group, our sealing and component solutions are custom engineered to your precise specifications. Our engineers work with you, adhering to your component designs with peerless attention to detail. Technetics Group has unsurpassed experience creating solutions for new nuclear power plants, existing nuclear power plants, spent fuel casks, fission reactors, enrichment plants and national laboratories.

OUR CREDENTIALS INCLUDE:

- Over 50 years as a global leader in nuclear RPV seal design and manufacturing
- Seal design for all major spent fuel transportation and storage casks
- Being at the forefront of all new reactor pressure vessel seal designs
- Individual seal design and recommendations for newly built PWR and BWR units

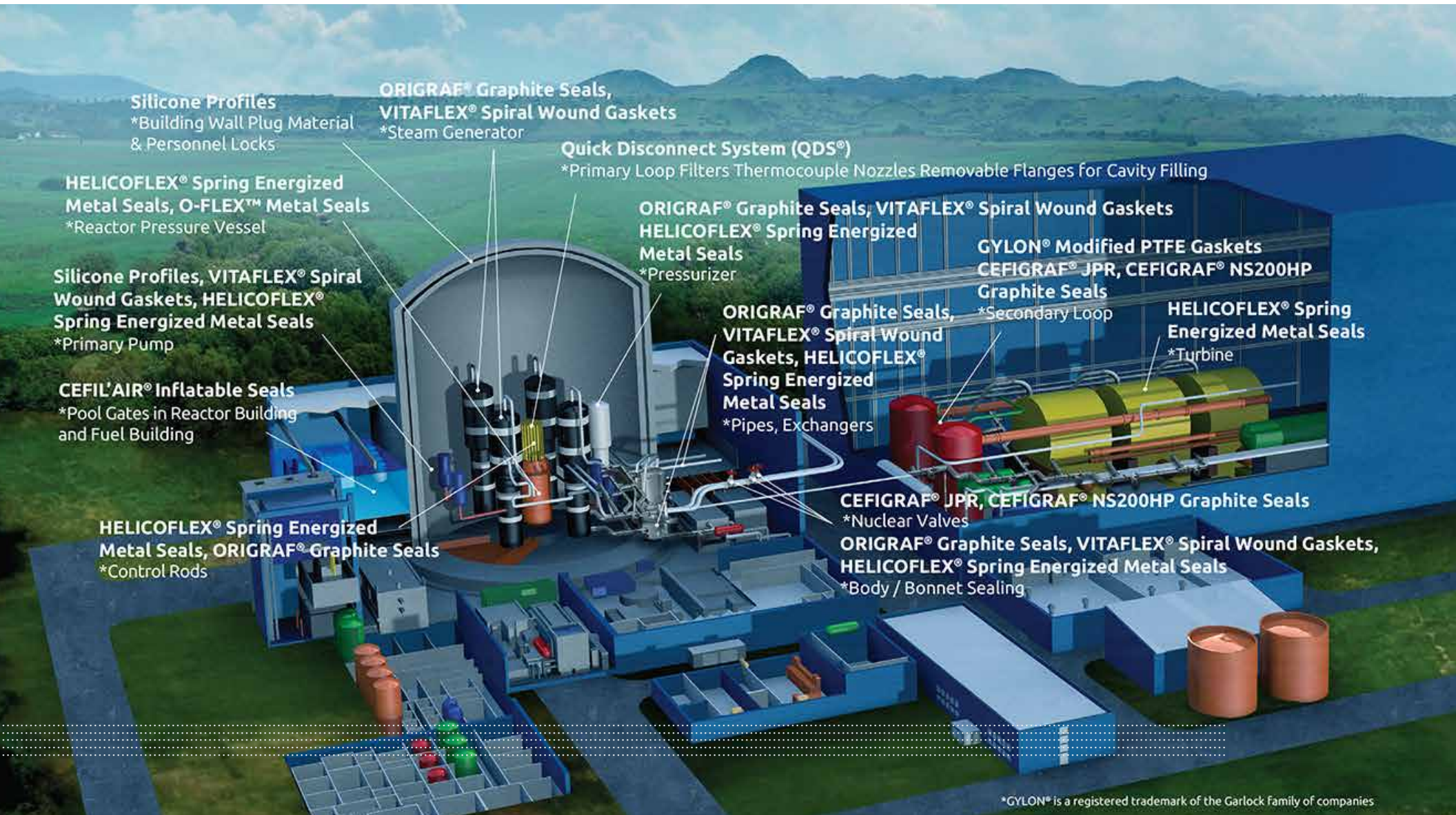


QA SYSTEM ASSESSMENT

ISO 9001
Title 10 CFR 50 Appendix B
ANSI / ASME N45.2
Favorable audits by NUPIC Members
ANSI / ASME NQA-1
KTA 1401

SUPERIOR SERVICE AND SUPPORT

Your relationship with Technetics Group does not simply end with the sale of a product. We work with you, on site, to ensure you receive the highest level of satisfaction, including installation, inspection, laser scan and repairing of mating surfaces on RPV closure head grooves and nuclear pressure vessel flanges.



Technetics Group offers a powerful lineup of seals, including our trusted O-FLEX™ and HELICOFLEX® metal seals, ORIGRAF® graphite seals, and CEFIL’AIR® inflatable seals, custom-engineered specifically for your nuclear power application.



O-FLEX™ METAL SEALS

Technetics Group O-FLEX™ seals offer optimum strength, spring back and resistance to radiation and corrosion.



HELICOFLEX® SPRING ENERGIZED METAL SEALS

HELICOFLEX® spring-energized seals are high-performance, flexible metal seals that have exceptional compression and elastic recovery properties.



C-FLEX™ METAL SEALS

Our C-FLEX™ metal C-rings are based on the elastic deformation of a metal “C” substrate which, during the compression cycle, gives a contact point on each sealing surface.

NUCLEAR APPLICATIONS INCLUDE

- Reactor Pressure Vessels*
- Steam Generation*
- Primary Pumps*
- Pool Gates*
- Nuclear Valves*
- Secondary Loops*
- Turbines*
- Control Rods*
- Fuel Enrichment*
- Pellet Processing*
- Transfer Casks*
- Transportation Casks*



QUICK DISCONNECT SYSTEM (QDS®)

The Quick Disconnect System (QDS®) can be assembled and disassembled quickly while offering space saving features.



ORIGRAF® GRAPHITE SEALS



Unlike flexible graphite cut gaskets, the compression of the ORIGRAF® die-formed seal is limited by a mechanical stop: groove or inner and/or outer ring.



CEFIL’AIR® INFLATABLE SEALS

CEFIL’AIR® inflatable seals satisfy the highest demands of temperatures from -100°C to + 250/280°C, as well as pressures from 10⁻¹ to 10⁻³ mm Hg to several bar, in the presence of varied atmospheres or fluids.

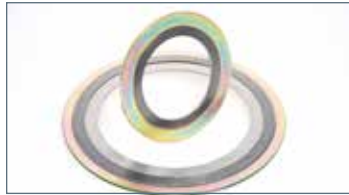
CUSTOM COMPONENTS AND VALUE ADDED SERVICES

Technetics Group offers many solutions including elastomer seals, spiral wound gaskets, graphite seals, machined metal seals as well as value added on-site services.



ELASTOMER SEALS

Our elastomer seals are extruded or moulded in a wide range of elastomers and have an extremely high resistance to ageing and radiations.



VITAFLEX® GASKETS PMUC

VITAFLEX® gaskets are spiral-wound as per all existing standards as well as special designs. We offer VITAFLEX® BPA, low stress technology, and VITAFLEX® with controlled curve for specific applications.



CEFIGRAF® GRAPHITE PMUC

CEFIGRAF® graphite (JPR or NS200HP) has high temperature and pressure resistance and is easy to handle due to the rigidity of its reinforcement.



MACHINED METAL SEALS

Our custom machined metal seals come in materials such as Inconel 718, Inconel 909, Aluminum and Copper. These seals perform well in extremely corrosive and radioactive environments.

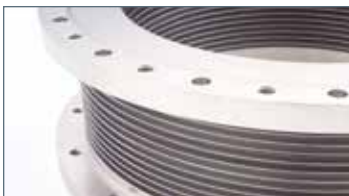


PREST/ON-SITE SERVICES

We offer a complete range of on-site solutions, including flange integrity management, technical assistance, and on-site machining.

ADDITIONAL CAPABILITIES

In addition to our metal and elastomer sealing solutions, Technetics Group offers additional capabilities for nuclear applications, including custom metal bellows, burst discs, accumulators and packings.



BELLOWS & ASSEMBLIES

Our bellows and assemblies come in a large range of materials and have features that include low magnetic permeability, low outgassing rate, and corrosion resistant.



BURST DISCS

Burst discs achieve a leak tightness of $<1.00 \times 10^{-9}$ sccs, considerably better than pressure relief valves alone. They are suited for extreme conditions such as hard vacuum, high pressure, cryogenic and high temperatures.



ACCUMULATORS

We offer both bellows accumulators as composite-overwrapped accumulators, which provide high reliability and low maintenance costs even under the most extreme environments.



GYLON® PMUC

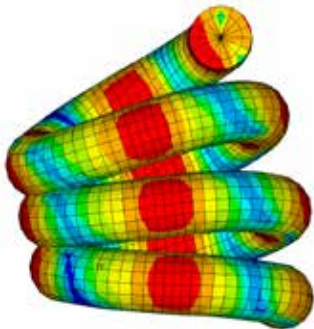
This gasketing product, made of modified PTFE material, has very high chemical resistance coupled with reduced creep relaxation and cold flow problems.

maestral: the laboratory that uses science to serve sealing.

maestral offers a multi-scale scientific approach combining tests, characterization and simulation in order to develop sealing solutions that meet present and future needs. **maestral** brings together the strengths of Technetics Group, leader in the field of high-performance industrial sealing and CEA (French Atomic Energy and Alternative Energy Agency), a major player in research and innovative developments for energy technologies.

maestral's expertise is the result of a successful collaboration, since 1969, between CEA and Technetics Group. Our skill is constantly growing as a result of the real-life cases we study and our experts have the ability to quickly assess situations in order to offer suitable R&D programs and solutions. **maestral** technicians are experienced and certified to COFREND (French Confederation for Non-destructive Testing) II, Leak Testing.

maestral has the latest generation test and characterisation equipment, amply instrumented, offering the ability to quickly and thoroughly analyze the behavior of seals.



Simulation does not replace tests on mock-ups but it allows the latter as well as experimental artifacts to be reduced. Simulation is an effective tool for designing and optimizing sealing systems by checking their performance in all circumstances, in order to resolve clients' problems. Today, prediction abilities of models are advanced enough to extrapolate life-size results when the size of the mock-ups or the duration of the tests makes them impossible in real conditions. Our modelers have particular expertise in the mechanics of very non-linear behavior, such as large deformations, creep, complex contacts with flanges and friction.

maestral is committed to actively developing numerical simulation tools and resources, applied to sealing.

In order to develop product lines or for special applications, **maestral** designs and develops specific benches or mock-ups reproducing actual operating conditions. To do so, it calls on the advanced analytical skills of CEA and on the manufacturing and research abilities of Technetics Group.



For more information on how Technetics Group affects the nuclear power industry, visit technetics.com/nuclear.

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