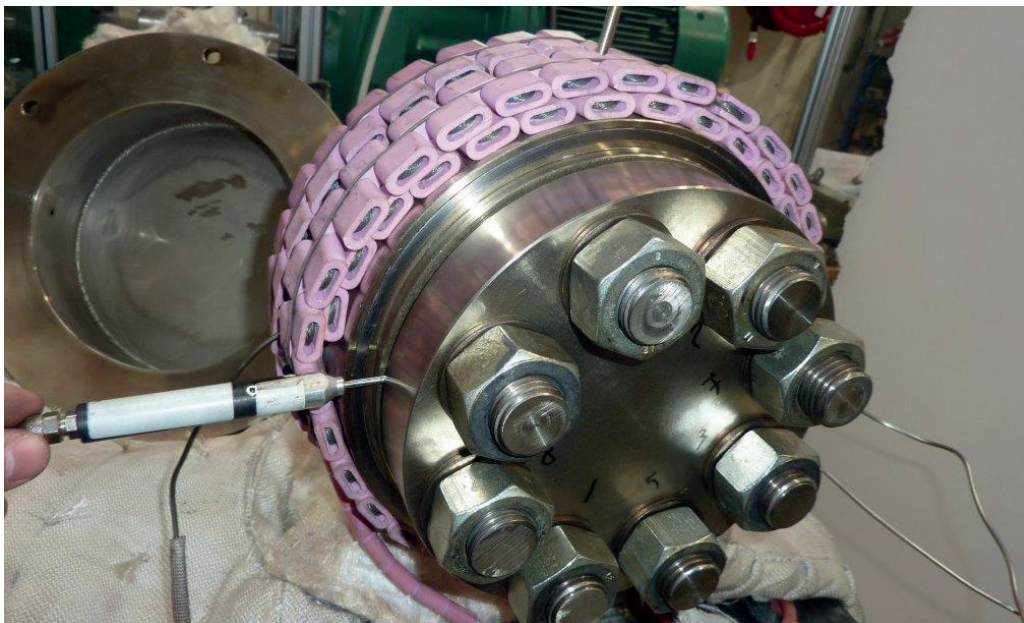


EDF

Replacing steel with graphite

EDF decided to assess the leak tightness performance of graphite seals on a series of thermocouples. A feasibility study was carried out, together with tests used to define technical criteria which meet the requirements of this application.



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OUR CUSTOMER

Corporate name
EDF

Turnover
72.9 billion euros

Workforce
158,200 employees around
the world

Activity
The group incorporates all
power generation, commerce
and grid trades.

Monitoring the temperature of the fuel tank of a nuclear reactor is critical. A series of thermocouples notably transfers the values measured at the core of the tank to the operating system of the power plant for this purpose. Leakage from this series crossing the tank lid is prevented by a metal joint. To improve effectiveness and simplify installation and maintenance operations while improving the availability of equipment, EDF decided to assess the performance of an anti-leakage system based on graphite seals. «We contacted Cetim based on the advice of colleagues. Our aim was to

narrow down requirements meeting our needs as closely as possible and to consolidate specifications,» explained Pierre Ille, project manager at the Maintenance operations division - Tank group for EDF.

Twenty tests carried out

Cetim experts started by carrying out an in-depth study to collect all technical information on the ability to seal graphite materials. As they could not access the actual seals and parts, they designed a test unit representative of a series of thermocouples and sealing components in order to assess the sealing ability of several types of graphite

seals in various tightening and operating situations in actual operating conditions (pressure of 150 bar and temperature of 300°C). Around twenty tests were carried out to validate the use of graphite seals and define optimal installation characteristics. «Cetim allowed us to clearly identify our requirements. We learnt a lot on the design, abilities and use of graphite, thanks to Cetim. Their engineers proved highly reactive and satisfied our expectations within a short period» concluded Romain Grossemy, operational super-visor at the Spare parts and Logistics division of EDF. A graphite-based sealing system is currently being qualified based on the results of this study.

Getim's asset

Cetim can carry out a comprehensive study of the leak tightness characteristics of



materials for an application, including the design and production

of component prototypes and the test unit.