

Modernization of Sterilization Facilities

Increase Capacity to Cover the Growing Market Demand

Individual solutions for plant modernization to increase the capacity and optimize the dose distribution for the coverage of the growing global demand for sterilization with gamma irradiation

Challenge

The demand for sterile products is continuously growing. However, the capacity of the irradiation facilities is limited. Due to the advanced plant age, the availability of the facilities is additionally limited due to the growing maintenance need for automation and conveyor technology and decreasing spare part supply. For an economic and safe system operation in the long term modernizations are required to enable higher flexibility and faster process times for an increased throughput by innovative automation and conveyor technology. By recalculating the dose distribution, the source loading is optimized, whereby a higher dose rate and shorter irradiation periods are achieved.

Solution

As a specialist for nuclear energy and plant construction, we possess a wide knowledge in design, layout and modernization of complex facilities with irradiation sources.

Dose-distribution calculations

- Guarantee of the complete sterilization of the products
- Simulation calculations to optimize the dose distribution and the loading of the source

Automation technology

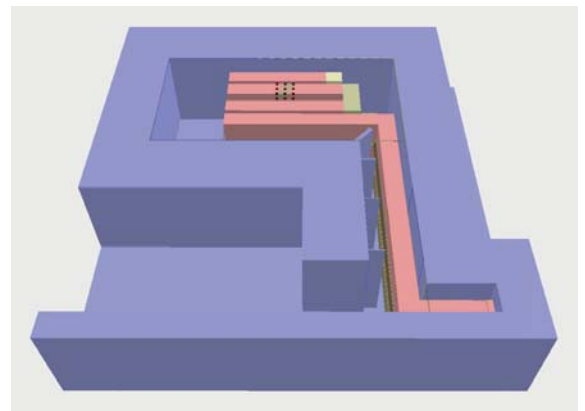
- Individual solutions, fitted to the respective requirements and circumstances of the existing plant
- Reliable components

Conveyor technology

- Increase of the throughput by optimizing the installation arrangement and innovative transport solutions
- Higher availability through robust and radiation resistant components

Safety

- Radiation protection and shielding calculations
- Design and handling of the radiation source
- Plant safety
- Staff training
- Support in licensing processes



Design, engineering and implementation of integrated concepts for automation solutions, conveyor technology and dose rate and radiation protection calculations

Customer benefits

You will profit from our comprehensive know-how in automation technology for nuclear facilities:

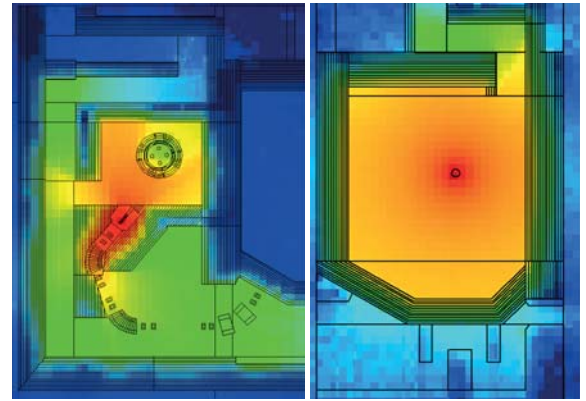
- Increase in throughput due to optimized processes and innovative technology
- Fast and flexible on-site service by specialists
- Optimal radiation protection concept and dose rate calculations
- Increased availability through robust instrumentation and control equipment and conveyor technology for the application in areas exposed to radiation
- Support in licensing processes

Your performance
is **our** everyday **commitment**

Technical information

We offer:

- Innovative, robust, pneumatic conveyor technology in areas exposed to radiation to ensure a failure-free operation in the long term
- Individual irradiation duration based on variable conveyor speed and possibility of multiple runs to reach the required dose
- Precise calculation of the punctual local dose to secure the complete sterilization of the processed products
- System for the individual identification of each container to consistently document and track the irradiation process even when handling mixed loads



Example of a two-dimensional calculation for a proton accelerator: proton, neutron and gamma calculations for determination of the activation and a suitable shielding design



Our nuclear specialists ensure the long-term operation – with services that go far beyond standard

Knowledge and expertise

- 14,000 employees serve customers all around the world
- Individual, customer-oriented solutions from a single source
- Efficient and proven technology: we have an eye on the complete lifecycle
- Comprehensive in-house engineering expertise

References

Modernization of a gamma irradiation facility in Germany

- Sterilization of medical technology, pharmaceutical products, cosmetics
- 2 million Curie Cobalt-60 source
- Study, concept, replacement of the automation and conveyor technology, documentation and dose rate calculation

Installation and service of a multi-purpose gamma irradiation facility

- Research facility for industrial demonstration purposes
- 300,000 Curie Cobalt-60 source
- Products to be irradiated in boxes, packed products on pallets, unpacked products, samples
- Irradiation capacity for pilot operation: maximum 10,000 m³/a

More than 50 years manufacturer experience for nuclear power plants: engineering, installation and service worldwide

- Complete automation solutions and conveyor systems for the manufacturing of fuel assemblies
- Remote-controlled underwater repair systems with adhesive technology
- Conveyor and automation solutions for
 - sealing of tanks
 - lifting devices

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