Equipment for the opening and closing of reactor pressure vessels and of various primary circuit components

>>> www.siempelkamp-tensioning.com
For more than 40 years Siempelkamp Tensioning Systems GmbH (STS) has enjoyed an excellent reputation on the international nuclear engineering market as a specialist for the design, delivery, upgrading and maintenance of highly automated stud tensioners for the opening and closing of reactor vessels and of other primary circuit components in nuclear power plants. Together with its French subsidiary, Siempelkamp MSDG SAS*, STS is a 100% subsidiary of Siempelkamp Nuklear-technik GmbH, one of the nuclear ventures of the Siempelkamp Group with a staff of over 3,000. The nuclear ventures of the Siempelkamp Group are active in nuclear power plants all over the World and offer a proven and tested top quality service package for nuclear plants. As an international provider of highly qualified engineering and customer services for the nuclear technology industry, Siempelkamp specializes in reactor related products and services for nuclear plants.

(*= Siempelkamp Machines de Serrage et Desserrage des Goujons)
Stud tensioning technology and accessories are utilized in:

**Europe:**
- Belgium
- Bulgaria
- Finland
- Great Britain
- France
- Germany
- Russia
- Sweden
- Switzerland
- Slovakia
- Slovenia
- Spain
- Slovakia
- Slovenia
- Spain
- Czech Republic

**North America:**
- USA

**South America:**
- Argentina
- Brazil

**South Africa**

**Asien:**
- People’s Republic of China
- South Korea
- India
- Japan

Demand-oriented solutions for the opening and closing of reactor pressure vessels and further primary circuit components as well as comprehensive STS accessories are utilised in nuclear power plants all over the world. We also supply customer-specific tensioning technology for the latest generation of nuclear power plants such as the EPR™ Reactor, the AP1000™ or the VVER-1200.
Siempelkamp Tensioning Systems (STS) offers demand-oriented solutions for the opening and closing of pressurised and boiling water reactor vessels as well as of primary and secondary circuit components in nuclear power plants. The automated stud tensioners by STS are equipped with the latest control technology. The utilisation of STS stud tensioners reduces the duration of opening and closing reactor vessels by more than 50% when compared to traditional methods, thus significantly reducing outage time and radiation dose. By virtue of the high degree of automation and precise control of every single operational sequence prolonged service life of the reactor studs as well as of all other components involved in the process is ensured. This wide range of products and services, which undergoes continual further development, enables the operators to carry out quickest possible maintenance overhauls of the primary circuit components and to thus increase the economic efficiency of their nuclear plants.
With the latest technically sophisticated concepts and products that have been proven in practice, Siempelkamp Tensioning Systems (STS) is represented in nuclear power plants all over the World.

Continual further development of the products by STS engineers assures our international customers’ trust, appreciation and integrity.

Our scope of products includes:

› Multiple stud tensioning machines for pressurised and boiling water reactors
  The new STS generation of multiple stud tensioning machines reduces the time required for opening and closing of the reactor pressure vessel (RPV) during power plant outages to less than four hours for each process.

› Single stud tensioners
  STS has a wide range of single stud tensioners that can be designed specifically to support the varying designs of nuclear power plants in which operation of an MST is not possible for various reasons.

› Multiple stud tensioners for steam generators and pressurizers
  The customer can choose between ring and segment tensioners manufactured from high-strength steel or aluminium for the tensioning of primary and secondary circuit components.

› Stud turning and handling devices
  The time-consuming and laborious stud turning and transportation is reduced to a minimum with these devices.

› Additional devices and accessories
  Range of accessories: stud elongation measurement systems, high pressure hydraulic units, cleaning devices for studs, nuts, flange holes; manipulators, lifting systems, test stands
In addition to our various tensioning systems, STS provides a reliable and comprehensive customer service internationally for the opening and closing of reactor vessels. The “24 hours customer service” consists of a team made up of over thirty experienced staff members that can be deployed anywhere in the world. Their experience and long standing know-how is utilised in the following service areas:

1. **Upgrading / modification of stud tensioners**
   In the course of more than 40 operating years of stud tensioners a rapid development took place in the fields of mechanical engineering, high pressure hydraulic systems and in particular automation technology. The technical innovations have stimulated the interest of many operators of nuclear power plants to have their stud tensioners modernized in order to economically optimise outages. STS offers the complete range of services necessary for upgrading of tensioning equipment like:
   - Planning
   - Engineering and Design
   - Expertise
   - Delivery
   - Assembly
   - Commissioning
   - Training of NPP staff
   - Deployment of service engineers for onsite operation and support

2. **Commissioning / maintenance / repairs**
   The commissioning of new or modernized stud tensioning equipment is a basic service offered by STS. Our service personnel carry out the stipulated maintenance tasks on your stud tensioning systems at defined intervals. We provide a complete maintenance service to ensure STS equipment is always fully functional and in prime condition ready for the next outage.

3. **Training**
   Qualified and trained personnel ensure the safe and economic efficiency of a nuclear plant. The training Siempelkamp Tensioning Systems provides in connection with initial deliveries and upgrades of stud tensioning systems, contributes significantly to the safe and effective operation of the equipment. Depending upon the customer’s needs, the training of the operating staff can take place directly on site in the nuclear power plant or during the functional testing of the tensioning systems in the STS test facility in Lünen, Germany.
Faster and safer on the critical path with Siempelkamp

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