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La Calhène is an equipment manufacturer specialized in material to protect human beings in a hostile environment, protect a product against the surrounding environment, and protect the environment from hazardous products. Its customer base is half in the nuclear field and half in the pharmaceutical field.

In the nuclear sector La Calhène supplies 4 product lines: remote manipulators, transfer systems (the DPTE® range, standard and special applications), Glove Box ports, and shielded casks for transfer / transport. La Calhène supplies to 5 market segments: nuclear fuel manufacture, spent fuel recycling, radiopharmacy, laboratory / universities / units of research, and dismantling / decommissioning / sanitization.

On the basis of its long experience in the nuclear sector, Getinge La Calhène developed a set of solutions and equipment for the pharmaceutical industry, in particular for isolators and sterile transfer systems (DPTE® and DPTE-BetaBags®).

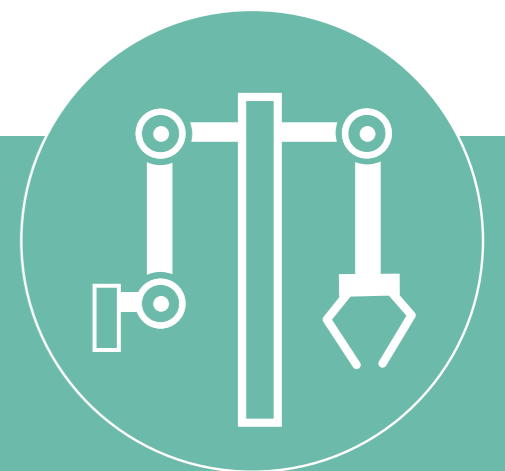
La Calhène is an active member of:



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MT 200 TAO

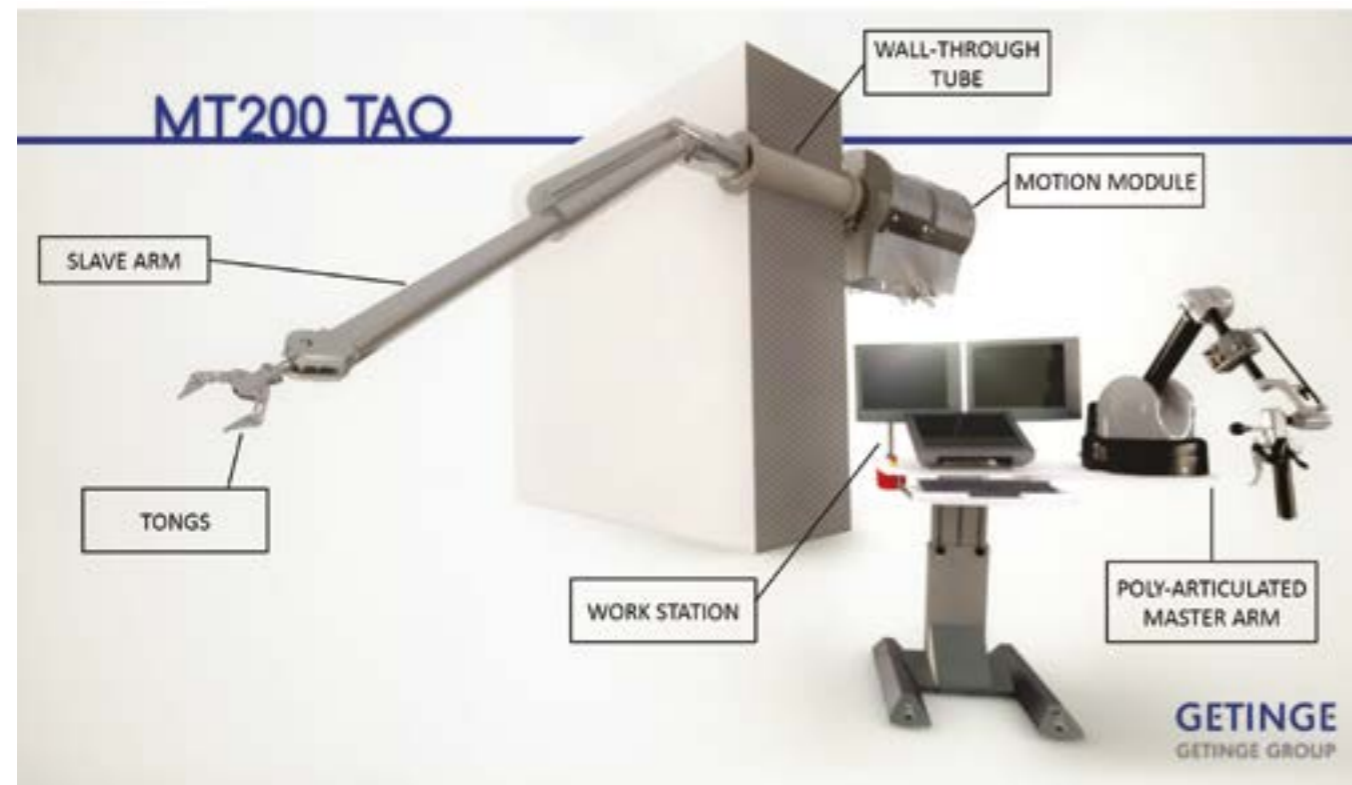
Electrically Assisted,
 Computer-Aided
 Master-Slave Manipulator



A new generation manipulator, fully electrically powered with software control

A new generation remote manipulator with electrical master arm and motion module with integrated software has been developed and installed in hot cells. The redesigned electrically powered manipulator with software control improves efficiency and ergonomics while increasing operating field space.

Efficiency is boosted by new functions including force feedback, robotic mode, piloting via cameras and operation precision. Operators in test conditions reported improved ergonomics and less fatigue. Productivity increased and maintenance downtime decreased, with consequent financial savings.



No mechanical connection between the master arm and the slave arm means that **remote workstations** are the work method of the future.

The workstation can be situated up to 150 m from the hot cell. Remote working contributes to operator security.

No mechanical connection

The mechanical link between the master arm and the slave arm is replaced by an electrical connection -> the operator is free of system constraints and vice versa.

Motion Module

The MT200 TAO motion module, a completely interchangeable system, is compatible with the previous generation of fully mechanical MT200 thru-tubes as well as those of the next generation TERMAN system.

Improved Force Feedback and Workstation Ergonomics

The poly-articulated master arm uses haptic technology. Operator effort is multiplied by a homothetic coefficient in the slave arm, which reduces the physical effort required to lift and move loads. The offset function has been greatly simplified by integration into the master arm; this improves ergonomics.

Remote Work Stations

The operator can work either with direct vision, or with camera vision anywhere within 150 m of the hot cell, thanks to the electrical link between the master and slave arms. The camera inside the hot cell is automatically enslaved onto the grip position.

Greater distance means reduced dosimetry. Camera systems mean that conventional shielded windows may be unnecessary in future plants.

Maintenance Gains

During the qualification phase the system showed a tremendous reduction in maintenance costs:

- MBTF (Mean Time Between Failures) multiplied by 2 to 10, depending on the type of work
- reduced spare parts consumption
- decrease in waste

Robotic Mode

Repetitive tasks not requiring force feedback can be done in playback in robotic mode, reducing operator strain and improving speed.

Improved Slave Arm Working Volume

Tasks are simplified because the MT200 TAO slave arm can reach the top of the hot cell. Space coverage is increased by a factor of 3.

Accessories

- Handling and installation lifting device,
- Storage trolley,
- Pneumatic ejection device for replacing the sealing booting,
- Parking fixture for tongs, jaws and sealed adaptator disconnection and connection,
- Maintenance tool kit,
- Tool for setting the slave arm horizontal position (for the disconnectable model).

