

LaCalhene 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 LaCalhene supplies 4 product lines: remote manipulators, transfer systems (the DPTE® range, standard and special applications), glove box ports, and shielded casks for transfer / transport. LaCalhene 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-BetaBag®).

LaCalhene is an active member of:

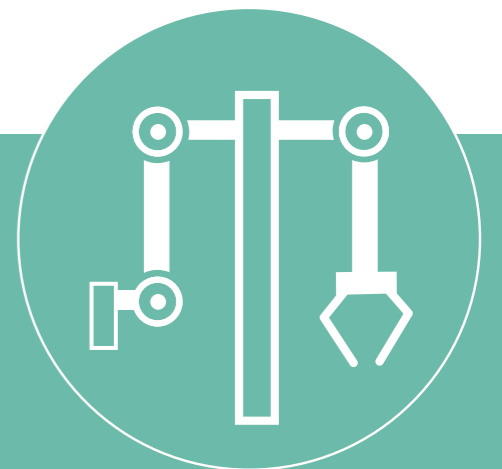


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## MA 30

### Mechanical Articulated Remote Manipulator



# A compact remote manipulator for glove boxes and small cells

With its experience and know-how in the field of remote manipulation for the nuclear sector, LaCalhene developed a simplified manipulator, the **MA 30**, for handling materials that are likely to be hazardous if in contact with operators, and that have to be kept inside containment (toxic, sterile or radio-active products, etc.)

This manipulator is used for various applications including radio-pharmacy production and applied nuclear medicine research, carried out in hot cells.

## The MA 30 is ideal for use in small cells and glove boxes.

Due to its small size and compact architecture, this manipulator can be used with precision in volumes of 2 to 3 m<sup>3</sup> (depending on the version).

Its exceptional dexterity, ergonomics and robustness make it particularly effective in a radiological environment for handling small sized objects. MA 30 load capacity is 2.5 to 3.5 daN depending on the model (manufacturer's test value).

## The MA 30, easy to install and quick to service.

The MA 30 has a leaktight sleeve on the hot side and radiological protection in the thru-tube.

Sleeve change-over is fast and safe, with a LaCalhene change-over device.



MA 30 manipulators installed on shielded cells (radiopharmacy applications)

## Architecture

Articulated with 7 degrees of freedom.

## Motion

- X (lateral rotation):  $\pm 180^\circ$
- Y (shoulder):  $+30^\circ / -50^\circ$   
The Y motion is equipped with a mechanical offset,  $\pm 22,5^\circ$  with manually operated switch.
- Z (elbow):  $+30^\circ / -50^\circ$
- Azimut:  $\pm 174^\circ$
- Tongs lifting elevation:  $+35^\circ / -135^\circ$
- Tongs rotation motion:  $\pm 220^\circ$
- Tongs clamping / opening: 60 or 86 mm

## Materials

Aluminium and stainless steel.

## Balancing

Balancing is achieved by a rewind spring.

## Accessories

- Sleeve, mounted on a BE 22 ejection system (alpha or gamma mounting).
- Tongs parking fixture: for the tongs, jaws and sealed sleeve booting.
- Jaws: various shapes and materials, adapted to specific requirements.

## Arm ends fittings

- The arm ends fittings consist of identical wrist joints to which the master actuator (handle) and slave tool (tongs) are connected. This gives perfect symmetry and maintenance optimisation.
- The master actuator is an ergonomic handle equipped with a clamping lever, which enables the load to be held and moved with ease in the entire operating space.
- The slave tool is a PEM 78 type tongs. Both tongs and jaws are disconnectable.

## Wall thru-tube

Containment on the hot cell side is provided by a sleeve (which also protects the slave arm from contamination) on an ejectable ring system combined with a cell ring.

- Minimum wall thickness: 30 mm.
- Separation distance between two MA 30 manipulators: 700 mm (recommended).
- Inner diameter of wall sleeve: 170 mm.
- Thru-tube attachment (on wall sleeve or on wall): 6 M8 screws at 192 mm p.c.d (pitch circle diameter) equally spaced.



MA 30 Elbow



PEM 78 Jaws



Wrist + Handle