



Cyclife Aquila Nuclear Multi-Functional Cell

Multi-Functional Cell (MFC) for
nuclear and nuclear medicines
specification and trials.

Why the Multi-Functional Cell?

The MFC consists of a stainless-steel containment, surrounded on the front face by façade shielding and cladding, lead glass window, 2 La Calhène master slave manipulators (MT120), various windows, access ports, glove ports, gland plates and sealing arrangements to allow clients and operators to interact with and trial in-cell equipment.

These penetrations have been designed and manufactured to both Sellafield and Cyclife Aquila Nuclear standards.

The decision to invest in the design and manufacture of a demonstration MFC derives from the level of interest from our nuclear and nuclear medicines clients who want to experience the use of a shielded facility 'hands on'. Also, this facility is available to use without having to enter a licenced nuclear site.

The MFC will allow our clients to test their own process or equipment inside the cell to gauge ease of use in operation and for maintenance purposes.

Cyclife Aquila Nuclear is the sole UK distributor for Getinge Life Science France products, all of which are used on containment and shielded facilities. Getinge Life Science France is the world's leading supplier in manipulators and containment-related equipment and are a principal partner in the production of the MFC. Cyclife Aquila Nuclear personnel have received training in France on the full range of Getinge Life Science France products on offer, including manipulators and DPTE® posting ports.

The advantages of being able to host trials with our client at our site means we can also help with the design and demonstrate our client's processes.

Built with our partners

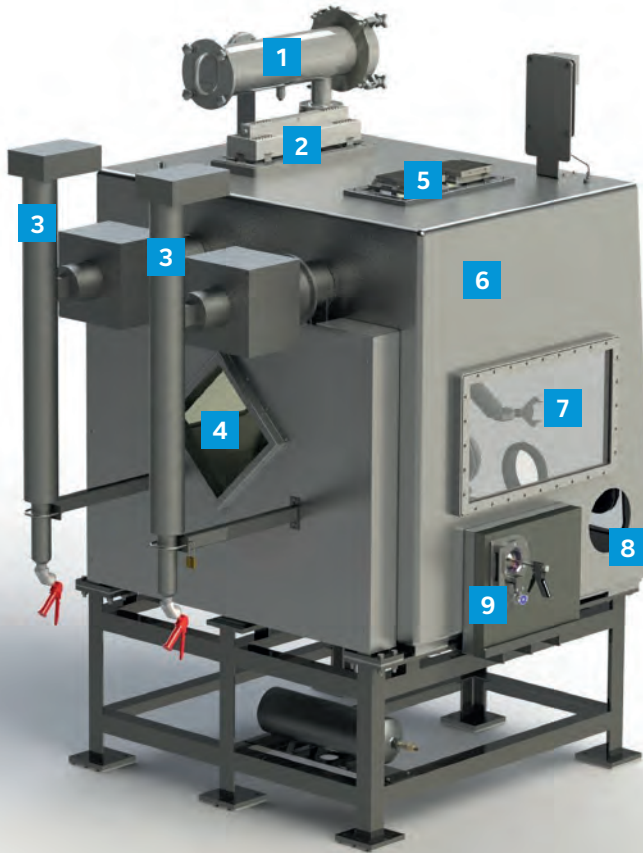
- Getinge Life Science France
- Universal Fabrications
- Hayneswood
- Helander Precision
- Silchester Controls

MFC will...

- Be the only trials and demonstration facility of its kind in the UK, to include MSMs (Master Slaver Manipulators) and lead glass windows.
- A focal point for the UK hot cell and glovebox industries.
- Encourage early engagement with Cyclife Aquila Nuclear to focus on the containment and shielded process.
- Demonstrate the capabilities of Cyclife Aquila Nuclear and our Supply Chain partners.
- Allow clients to 'mock up' their containment design, train operators, trial manipulators and perform equipment trials in an inactive, safe and easy-to-access environment.
- Encourage operator involvement during the design phase and validate operation and maintenance activities.
- Provide a central point for Cyclife Aquila Nuclear and our supply chain partners to display product and services information.



3D Modelling of MFC



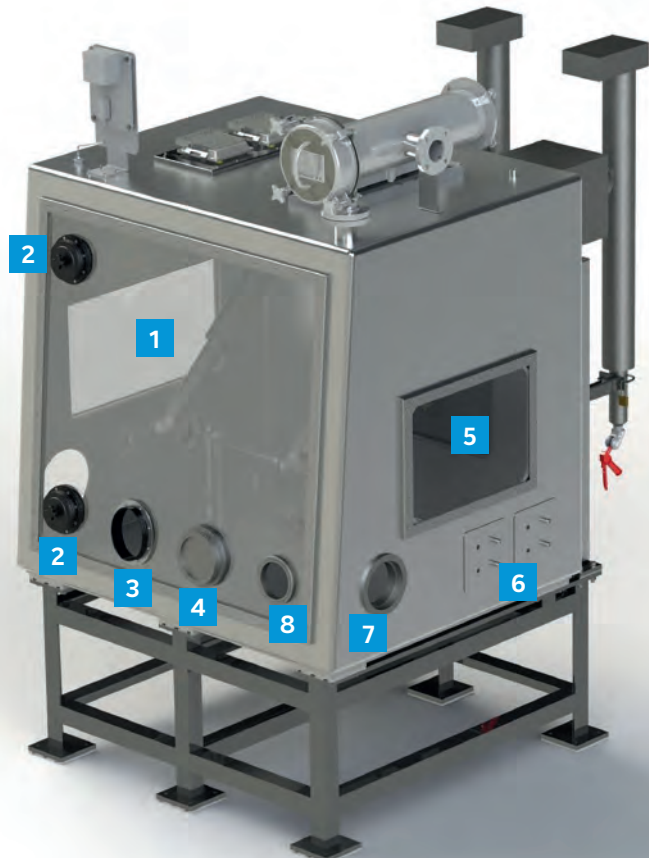
MFC Front View

- 1 Push Through Filter Housing
- 2 Sellafield Standard Light Unit
- 3 Getinge Life Science France MT120 Manipulators
- 4 Lead Glass Window
- 5 Cyclife Aquila Nuclear Standard Light Unit
- 6 Sellafield Standard Containment
- 7 Sellafield Standard Window
- 8 Getinge Life Science France DPTE®190
- 9 Cyclife Aquila Nuclear Hinged Tong Ball Unit



MFC Rear View

- 1 Cyclife Aquila Nuclear Standard Window
- 2 MIP 6" Glove Port
- 3 Cyclife Aquila Nuclear Standard 7-9/16" Glove Port
- 4 Getinge Life Science France AD Glove Port
- 5 Cyclife Aquila Nuclear Standard Window
- 6 Gland Plate
- 7 Getinge Life Science France AD Bagging Port
- 8 Getinge Life Science France J2L Glove Port



Specifications

CONTAINMENT

This has been designed and manufactured in SS304L in accordance with the Sellafield Alpha Glove box standard ES_O_1503_1-IMEC 1.

SHIELDING

Shielded cells can vary in shielding thickness from 50mm to up to 300mm of lead or lead equivalent. Rather than shield the whole facility, we have only included a section in chevron. With the modern manufacturing plant within our supply chain, shielding is now normally supplied in single slab form.

DOUBLE LIDDED POSTING PORT

The Getinge Life Science France DPTE®190 has been installed on the containment shell. This allows for the safe transport of active material into and out of the containment. A shielded version of the DPTE® can also be provided and used in conjunction with the Getinge Life Science France PADIRAC system.

VIEWING

Shielded Window

We have incorporated a standard 300mm thick lead glass window and mounting system for viewing. In addition, we have included a radiation-hard camera inside the cell, together with viewing options from outside the cell.

Non-Shielded Window

The MFC incorporates a range of non-shielded windows designed and manufactured to either the Sellafield or Cyclife Aquila Nuclear specification.

SHIELDED TONG BALL

Traditional tong balls have been installed to match the Cell shielding thickness. Cyclife Aquila Nuclear has a design for a hinged sphere tong unit which enables the whole tong assembly to move away from the cell.

This is employed in the nuclear medicines industry where access to the inside of the cell is safe, once the isotope has been removed from the environment.

LIGHTING

A minimum of 500 Lux lighting is provided with both the standard Sellafield unit, or the Cyclife Aquila Nuclear unit.

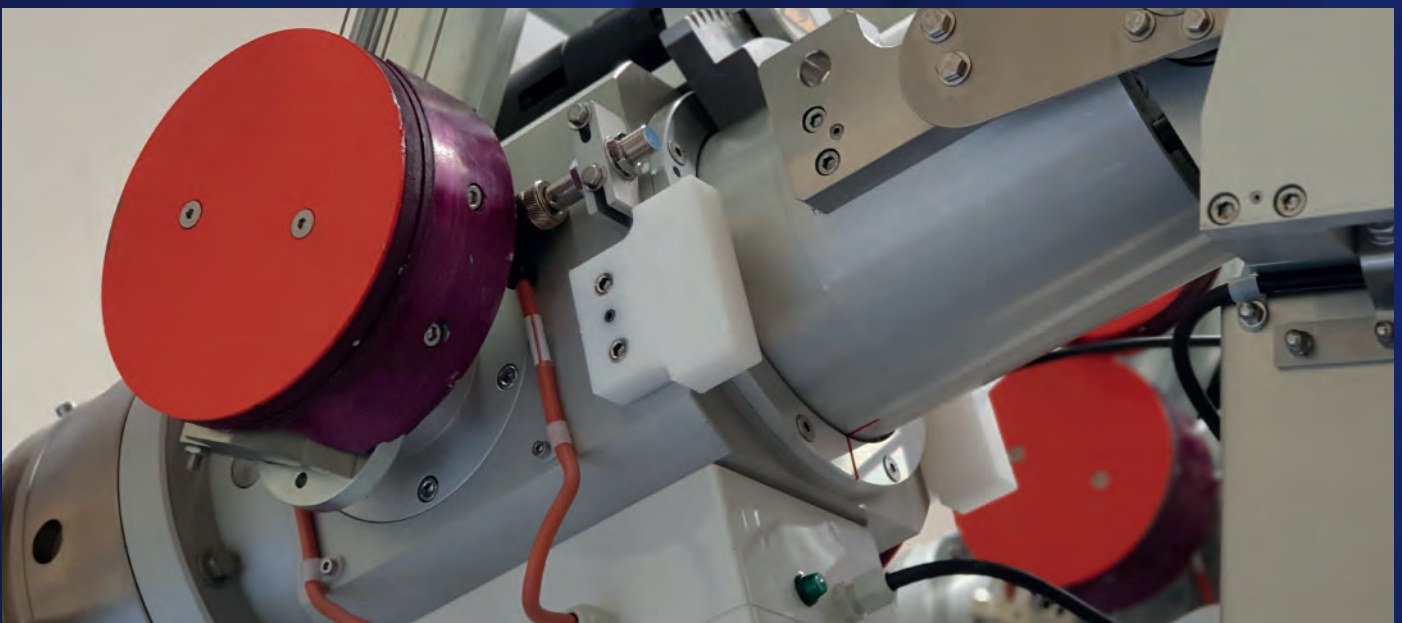
PENETRATION

Standard penetrations have been included for:

- **Gland Plates:** Electrical/Pneumatics and Hydraulic command.
- **Push Through Filter Housing:** This connects to the active ventilation.
- **Vertical Posting Out Port:** Typically used to post out waste from the cell to transport container positioned under the box floor.

CONTAINMENT PORTS

The MFC includes a range of glove ports, including 6" and 7-9/16" standard glove ports and Getinge Life Science France AD and J2L glove ports together with an AD bagging port.



MASTER SLAVE MANIPULATOR



The Getinge Life Science France MT120 MSMs have been installed on this demonstration facility. This MT120 is versatile with a reach of up to 1440mm and duty of 12kg.

We have installed a detachable and non-detachable Master Arm with a short length slave arm. These MSMs are powered by the control panel mounted on the front face. The maximum length of the long slave arm can go up to 2040mm.

Sectors we work in:

- Decommissioning & Waste
- Nuclear Science
- Nuclear Defence
- New Nuclear Build
- Nuclear Medicines
- Plant Life Extension (PLEX)

GETINGE
La Calhène

MT120

Année de fab. /
Manu. year 2019

Bras maître / Master arm

- D = 850
• N° : BET0164
• Type :
 Déconnectable /
Disconnectable
 Non-déconnectable (CC)* /
Not disconnectable (CC)

**Traversée – Bras esclave /
Through tube – Slave arm**

- E = 700
• N : 700
• I : 370
• J : 400

Charge d'épreuve / Test load

- Bras esclave / Slave arm <
ou égal 1100 mm : 12 daN
maximum

CE

MT120



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Our Accreditations

