



NUCLEAR SHIELDS

COMPANY PRESENTATION

2021

FACTORIES & OFFICES

Van Mullekom Group



Factories



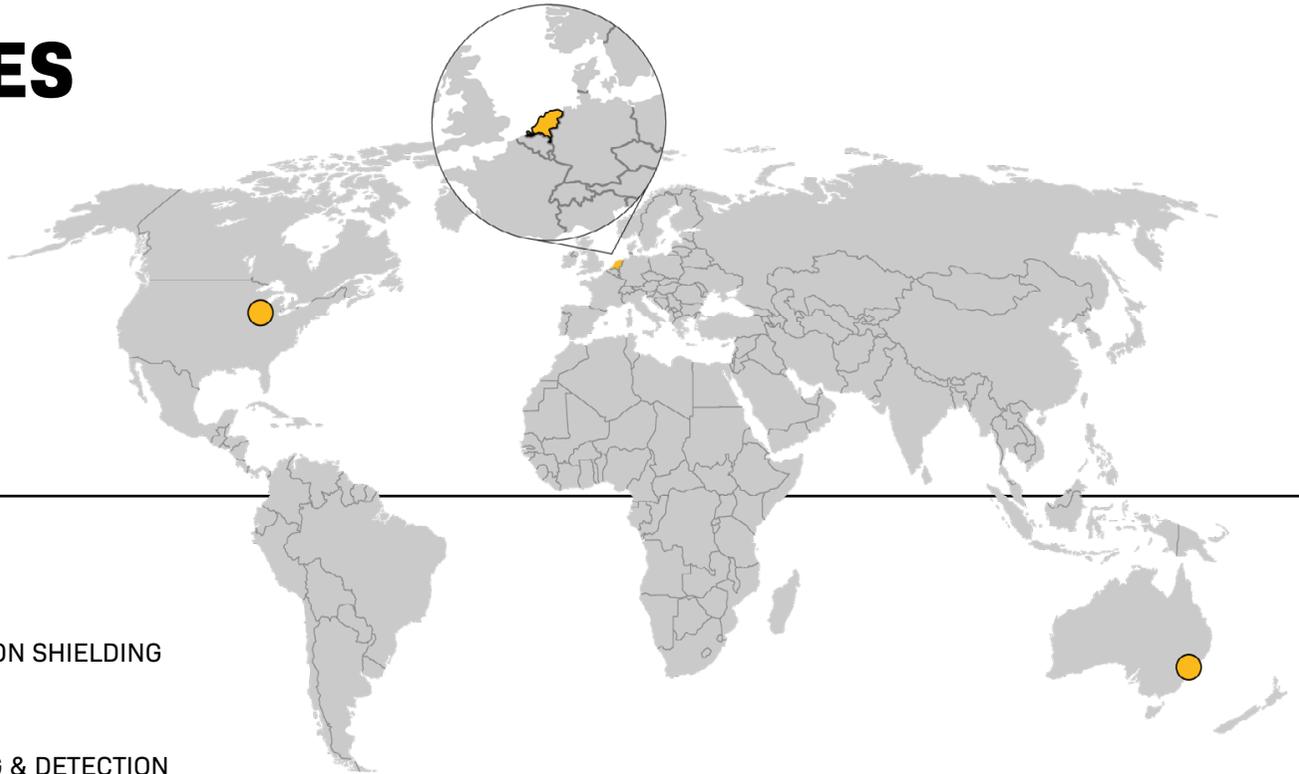
Offices



Continents



Employees



NUCLEAR SHIELDS



Nuclear Fields



RADIATION SHIELDING



IMAGING & DETECTION

NUCLEAR SHIELDS

Specialized in radiation shielding for ionizing radiation. Main markets served are nuclear, healthcare, research and non-destructive testing. Nuclear Shields also serves as the sales division of Nuclear Fields International.

Some examples of our radiation shielding solutions are:

- Nuclear waste storage & transport containers (LLW, ILW, HLW)
- Complete nuclear medicine hot lab shielding
- Shielded safes & cabinets for safe storage of radioactive materials
- Shielded workstations for safe handling of radioactive materials (i.e. gloveboxes, biosafety cabinets, etc.)
- Electric pass-through shutters for nuclear waste inside of drums for waste processing and storage facilities

NUCLEAR FIELDS INTERNATIONAL

Specialized in imaging & detection solutions and has been designing and manufacturing lead and tungsten collimators / anti-scatter grids for more than 40 years. Main markets served are healthcare, homeland security and research facilities. The imaging & detection systems are integrated in medical imaging cameras at hospitals and (explosion) detection systems at airports and other high-risk locations.

Nuclear Fields owns factories and offices in the following countries:

- Office & factory in The Netherlands (Nuclear Fields International B.V.)
- Office & factory in Australia (Nuclear Fields (Aust) Pty. Ltd)
- Office in the United States (Nuclear Fields (USA) Corp.)

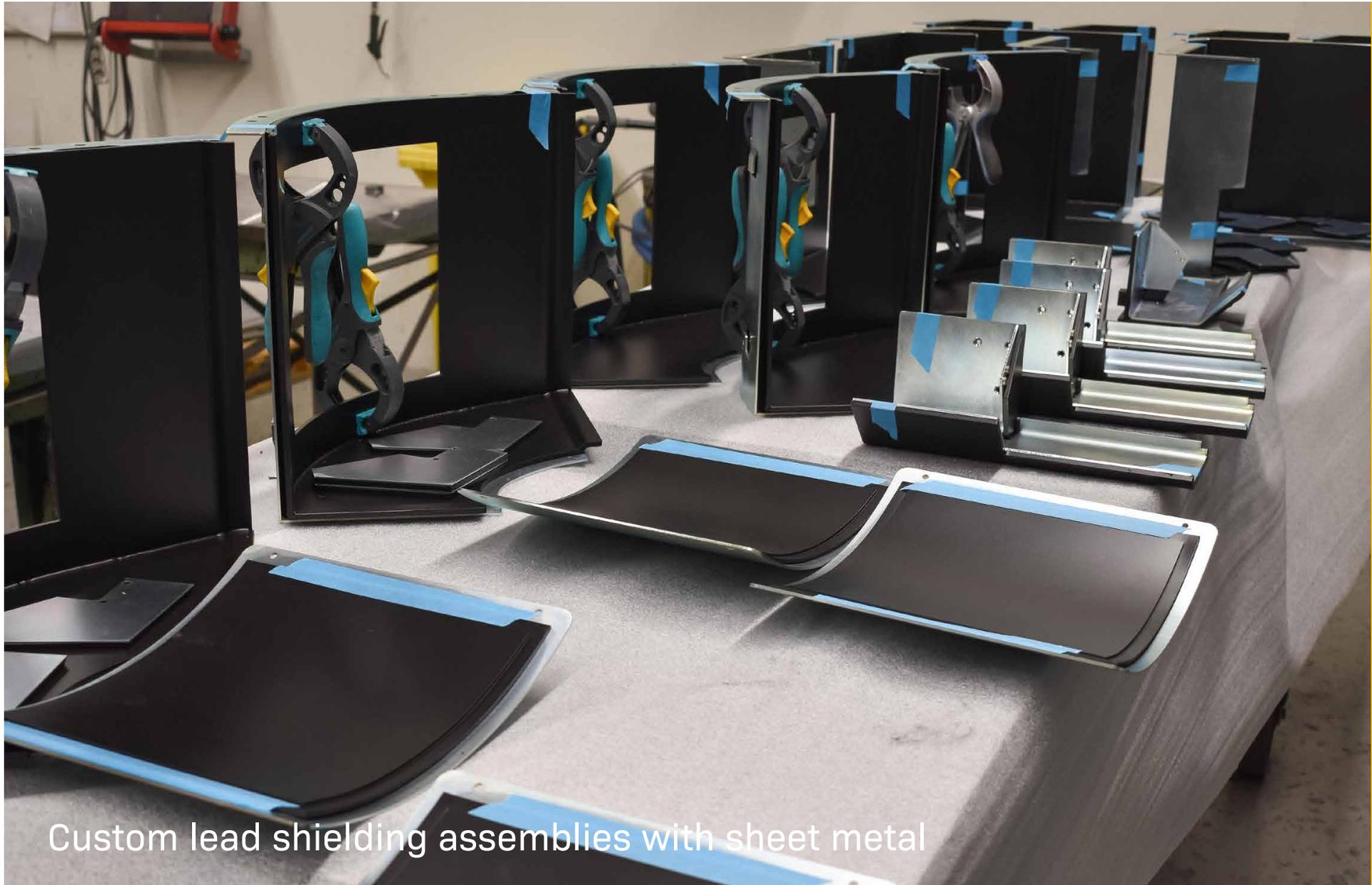
FACTORY & OFFICE

The Netherlands



OEM SHIELDING PARTS

Custom radiation shielding parts for your equipment



Custom lead shielding assemblies with sheet metal

Your factory for OEM (shielding) parts

Parts made from lead, tungsten, aluminum, (stainless) steel, plastic and many other materials on request.

OEM parts to size and shape

Our in-house CAD/CAM design team can assist with the design of the adhesive lead parts to fit your x-ray equipment or other machines when no drawings are available upfront. Our factory is designed to meet requirements for long-term serial production, making sure your custom lead parts can be steadily produced over a longer period of time while maintaining a high quality. Prototypes can be delivered upfront to make sure the quality is as expected. Our production facility is capable of producing anything from small volume orders to production runs of 1000s. We always keep plenty of raw material in stock.

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Finishing

The standard finish of the adhesive lead parts is a RAL 7016 paint, which is a grey color. A special contaminable paint is available for situations where the lead parts might become contaminated. If preferred, the lead could be left untreated. However, it is recommended to prevent exposure to lead for health and safety reasons.

Lead shielding parts with sheet metal

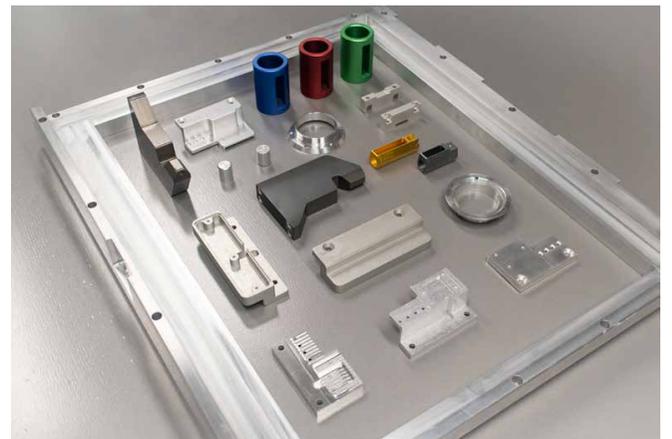
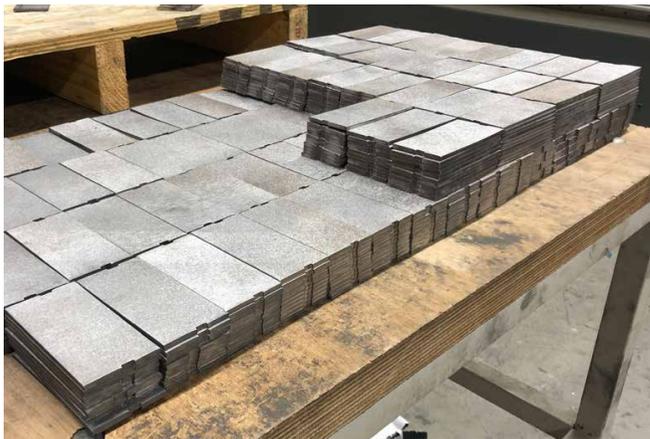
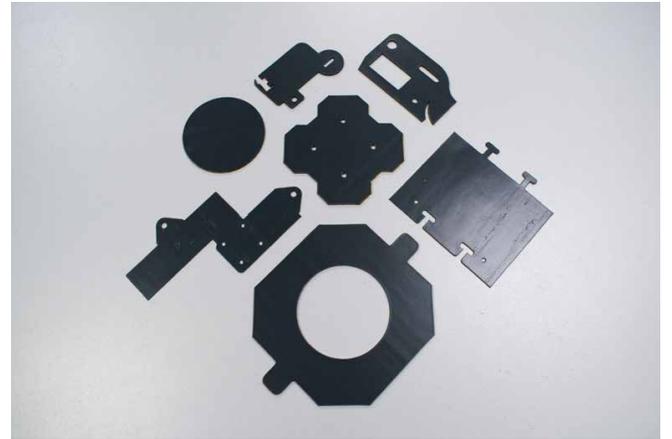
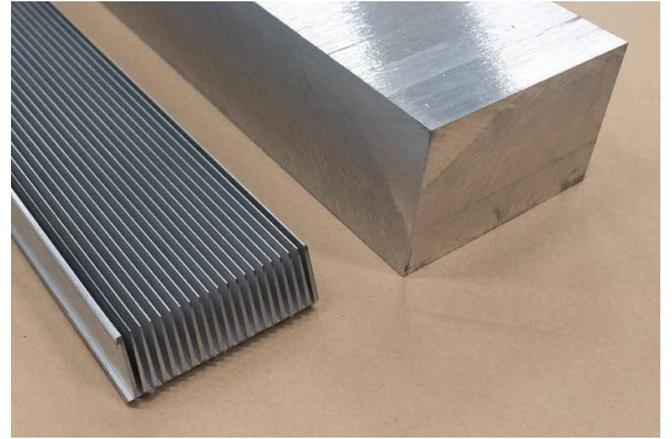
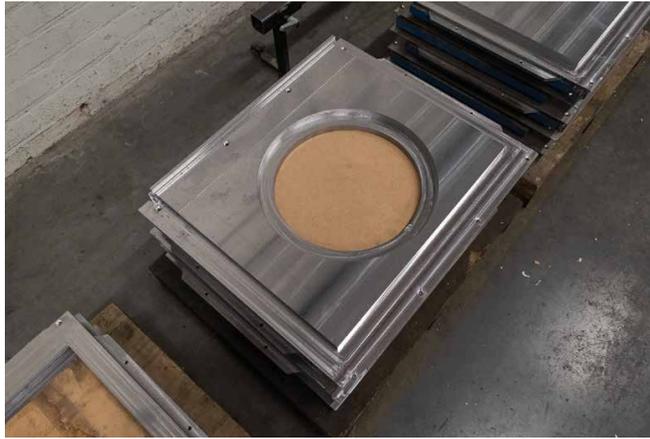
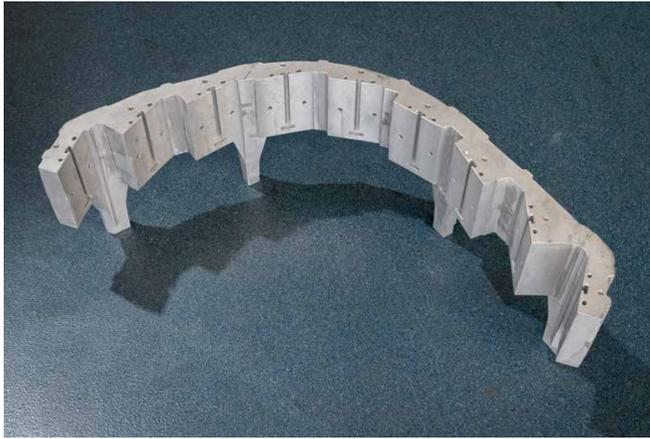


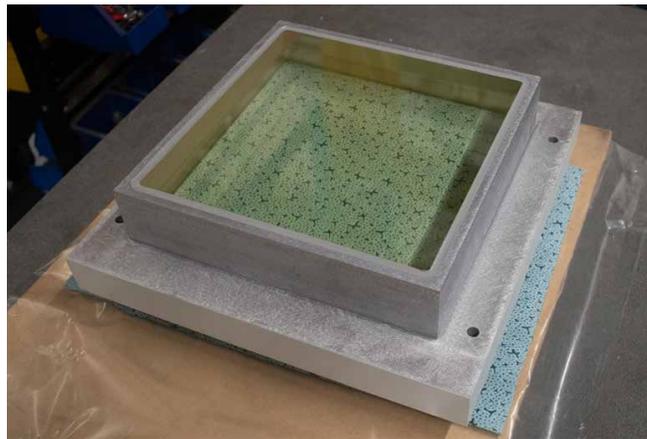
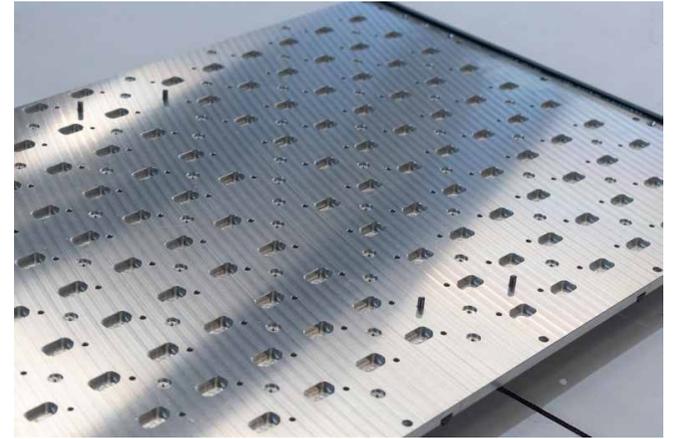
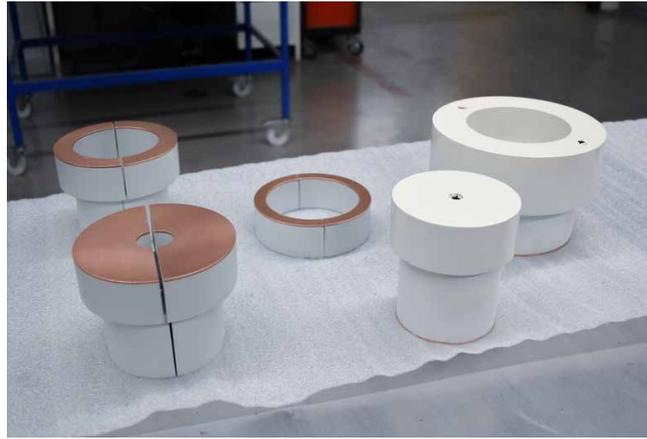
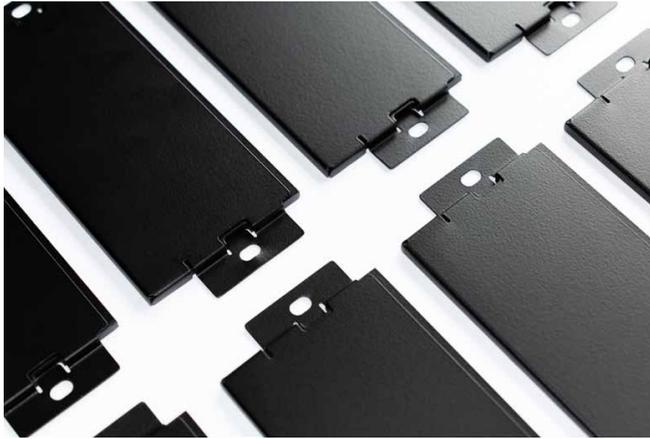
Tungsten shielding parts with aluminum



Stainless steel assembled parts







SOLUTIONS FOR NUCLEAR

Radiation shielding & nuclear waste solutions

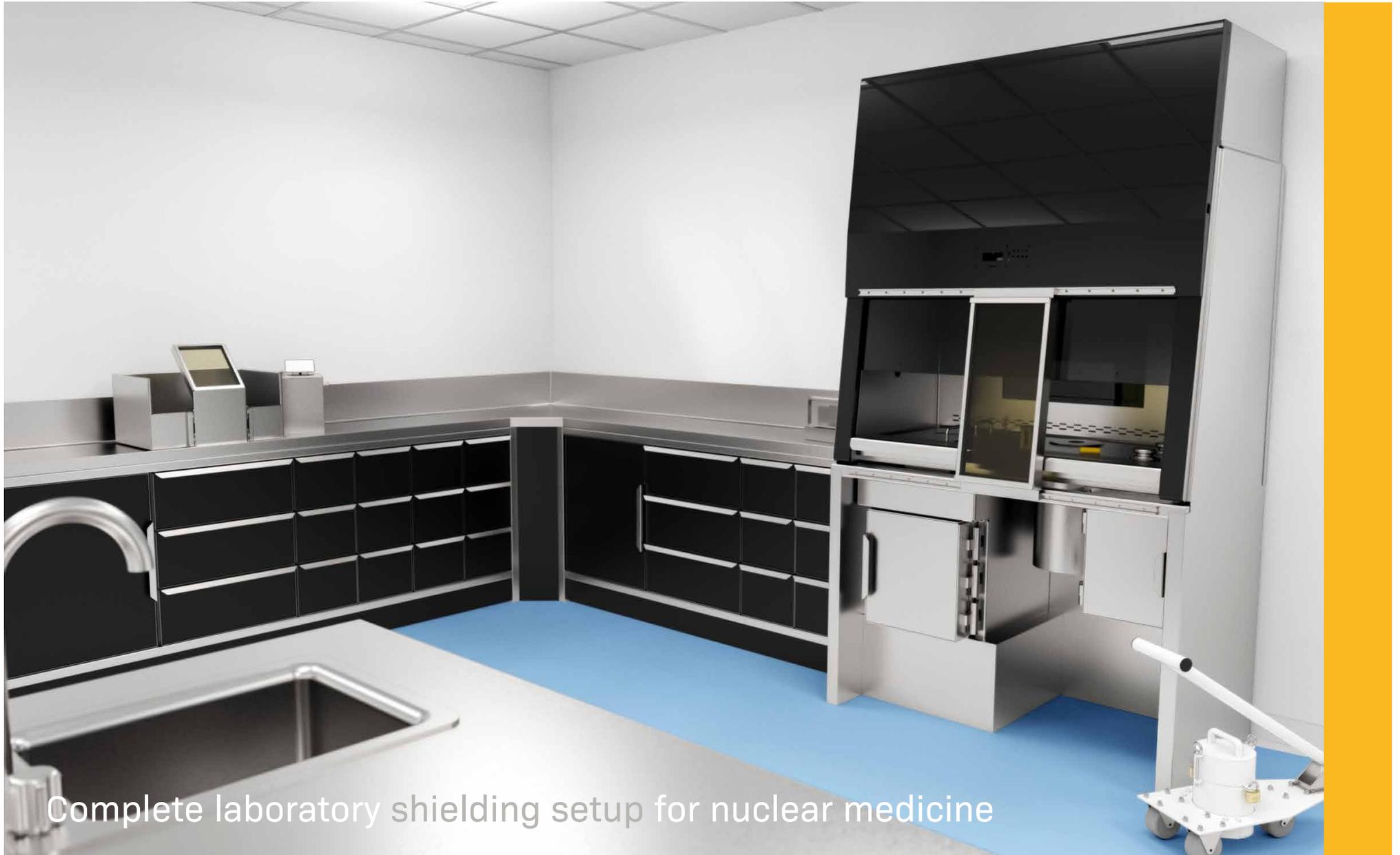


Shielding of large molybdenum production facility

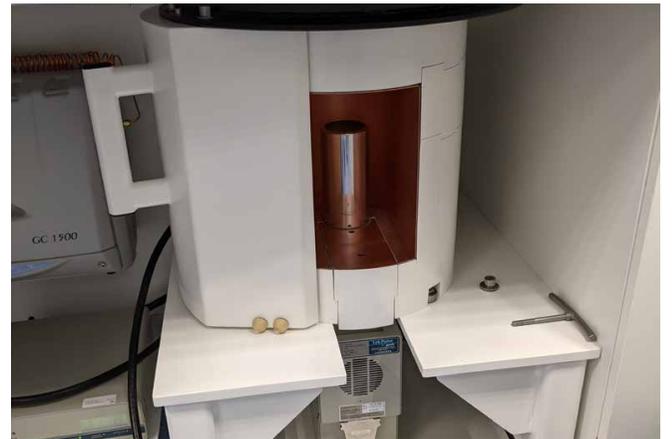


SOLUTIONS FOR HEALTHCARE

Nuclear medicine, PET, cyclotrons, research & more



Complete laboratory shielding setup for nuclear medicine



SOLUTIONS FOR IMAGING / DETECTION

Collimators and anti-scatter grids for healthcare & homeland security



**IMPROVE YOUR IMAGE
CONTRAST & RESOLUTION**



AND MANY OTHER APPLICATIONS

World leader in collimator / anti-scatter grid technology

Anti-scatter grids can be made from lead or tungsten. The function of anti-scatter grids is to filter out the scattered radiation and collimate the primary radiation to create the best image contrast possible. With **40 years of experience in collimator production**, we can manufacture anti-scatter grids with a very high quality.

Some of the applications:

- medical imaging cameras (gamma, SPECT, CT, X-ray)
- MRI-compatible SPECT collimators for MRI/SPECT hybrids
- solid state detector (pixelated)
- baggage / cargo scanners (EDS)

New **explosive detection systems** use sophisticated software to make security decisions by analyzing the image data. To let the sophisticated software make correct security decisions, you need to clean up the image as good as possible to create the highest possible contrast. By using our collimators, you will achieve the **highest possible contrast** to let the software **optimally analyze the image**.

By using the most precise collimators / anti-scatter grids made from lead or tungsten, we can make sure that the imaging solutions we deliver will improve the contrast of your image for your **(pixelated) detector**. Our collimators can be produced to exactly line up with the pixel separation within high tolerances giving you the **best pixel or crystal exposure**.

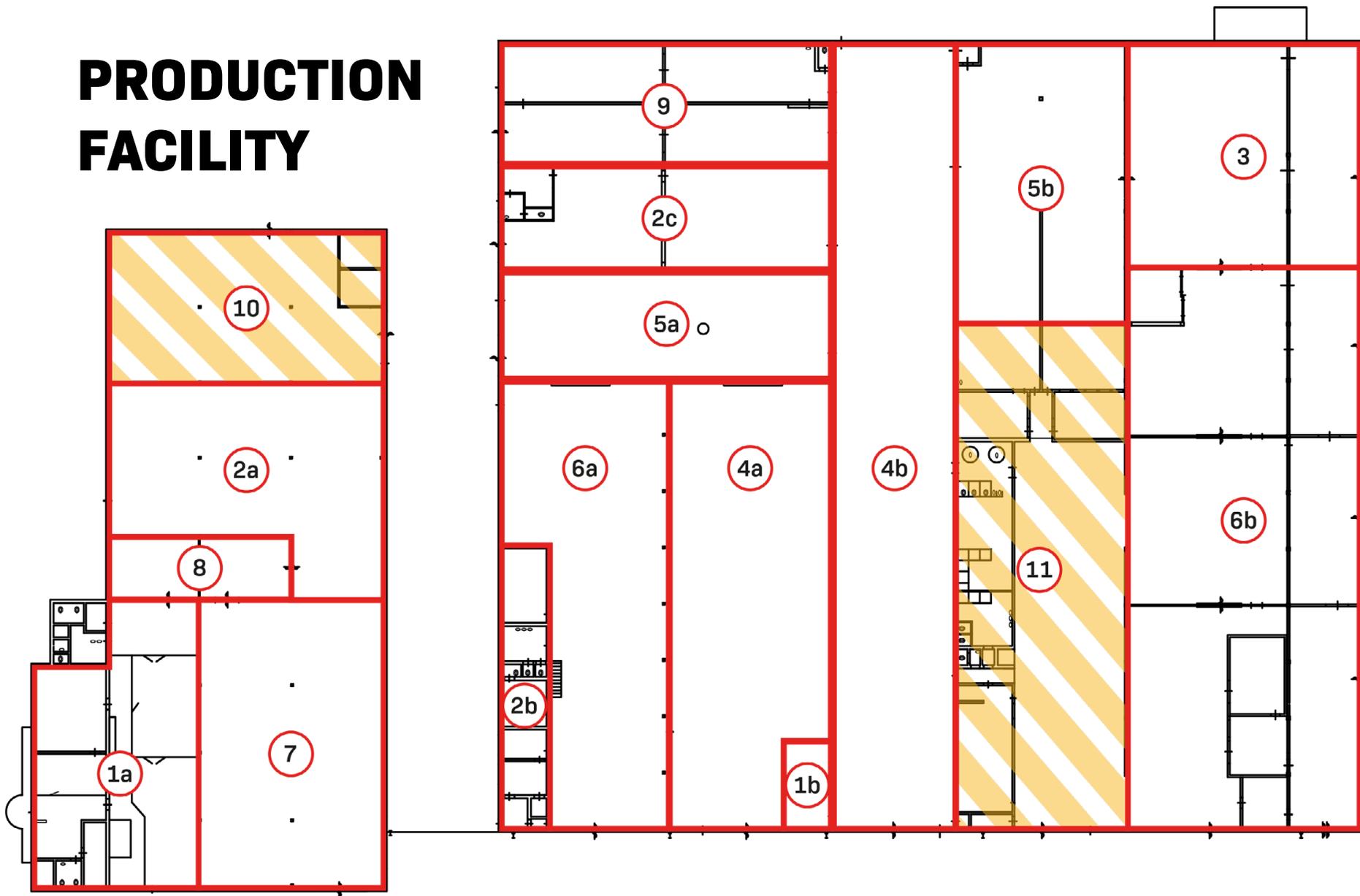
Micro-cast technology



High energy collimators



PRODUCTION FACILITY



Legend:

- | | | | |
|----------------|----------------------|-------------------|---|
| 1 Office | 4 CNC machining | 7 Expedition |  Other companies |
| 2 Assembly | 5 Welding / assembly | 8 Quality control | 10 Freedom Autoaanpassingen |
| 3 Lead casting | 6 Warehouse | 9 Spray-painting | 11 Luc Otten |

1a Office

Offices of Nuclear Shields, Nuclear Fields Intl. and Freedom Autoaanpassingen on both the first and second floor.

1b Office

Office of the CNC machining department.

2a Assembly line

Final assembly of collimators.

2b Assembly line

Assembly of custom made collimators and other products.

2c Gluing assembly department

Glue assemblies and preparation for spray-painting department.

Additional descriptions





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3 Lead casting department

Lead casting department with three lead ovens.

4a CNC machining department

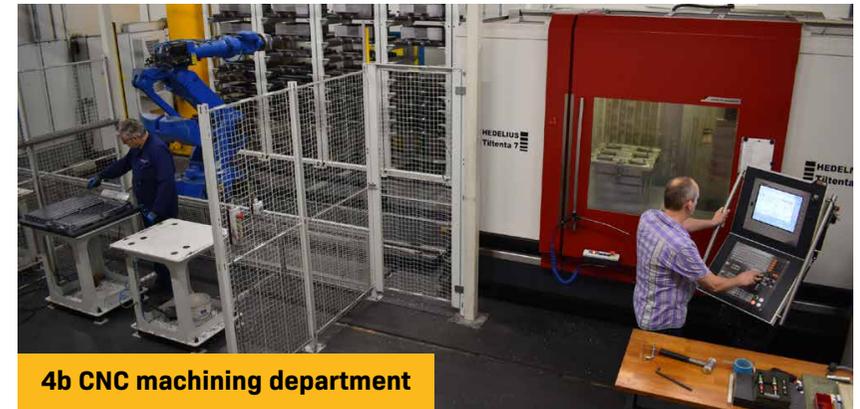
CNC machines for continuous production of lead parts.

4b CNC machining department

CNC machines for milling of steel, aluminum and lead parts.

5a Welding department

Stainless steel welding and assembly department.





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5b Welding department

Steel welding and assembly department.

6a Warehouse incoming / outgoing

Warehouse where all incoming and outgoing pallets and packages are placed ready for transport.

6b Storage

Storage of manufacturing related tools such as moulds for casting, lead, etc.

7 Expedition

Packaging of products for transport and receipt of packages from suppliers.



5a Welding department



6a Incoming / outgoing



NUCLEAR SHIELDS

8 Quality control department

Quality control where radioactive sources are used for control of collimators, etc. CMM machine is used to inspect machined and incoming parts.

9 Spray-painting department

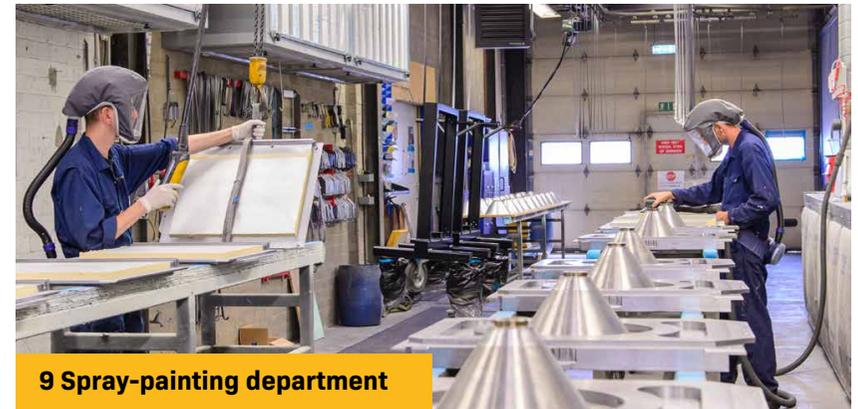
Spray-painting and sanding of diverse products. This department includes two distinguished rooms for spray-painting and a heated drying cabin.

10 Freedom Auto Aanpassingen (Wheelchair accessible vehicles)

A company which converts cars to make them wheelchair accessible. Freedom Auto Aanpassingen is part of the Van Mullekom Group, together with Nuclear Shields and Nuclear Fields International.

11 Luc Otten

A company specialized in metalworking. Luc Otten is not a part of the Van Mulekom Group.





Nuclear



Healthcare



Serial production



Imaging & detection

Complete production cycle in one factory

The in-house capabilities of the Van Mullekom Group range from prototyping to full assembly, which enables us to provide a wide and complete range of solutions for a low price, high quality and with short lines of communication. These in-house departments express our capability of manufacturing a broad product range, including the design and production of custom-made solutions to fit your specific situation and requirements. All companies within the Van Mullekom Group are ISO certified.

- Full CAD/CAM design
- CNC machines, 5-axis, milling and turning
- Spray-painting department
- Lead casting department
- Assembly department
- Quality control department, including CMM and gamma cameras

COMPLETE PRODUCTION CYCLE



CAD/CAM design



Lead casting



Sanding & spray-painting



Full assembly



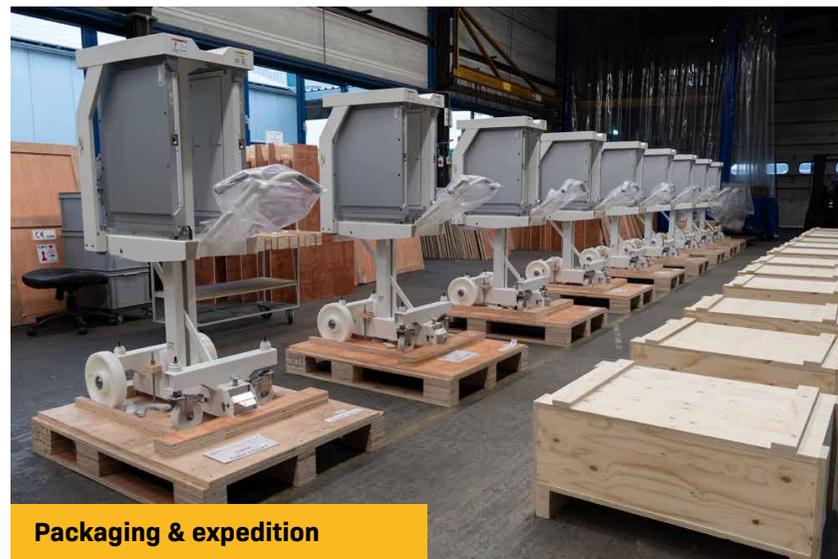
CNC machining



Welding



Quality control (CMM)



Packaging & expedition



NUCLEAR SHIELDS

Sales & Aftersales:

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