

LINEAR MOTION SOLUTIONS

FOR THE NUCLEAR ENERGY SECTOR

2025 EDITION

FUEL LIFECYCLE • HANDLING • TREATMENT • DISMANTLING



SERAPID  **ENERGY**

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OVERVIEW

NUCLEAR & ENERGY PERFORMANCE

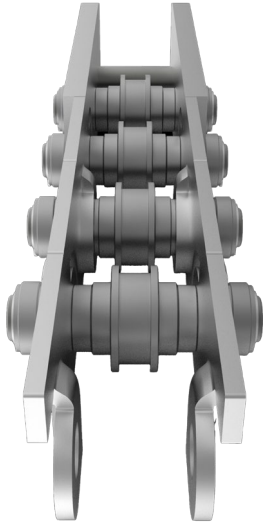
RIGID CHAIN TECHNOLOGY

ELECTRO-MECHANICAL ACTUATORS

BENEFITS & FEATURES

NUCLEAR & ENERGY

LINEAR MOTION SOLUTIONS



CLEAN, SIMPLE, ROBUST, PRECISE

SERAPID's electro-mechanical actuators deliver precise and dependable linear movement, a critical requirement in modern nuclear operations. Unlike hydraulic or pneumatic systems, Rigid Chain Technology thrives in extreme conditions, such as high radiation, high temperature, and clean rooms.

The biggest standout feature of SERAPID products is their capacity to function where other technologies simply cannot.

SERAPID push/pull and lift systems are frequently used for the loading and unloading of containers as well as inside glove box and clean rooms for applications in the nuclear sector.



WASTE STORAGE & TRANSPORT

SERAPID actuators are an optimal solution for transporting nuclear waste, allowing transport of hazardous materials without human contact.



FUEL HANDLING

We offer a variety of solutions for loading and unloading of fuel for reactors, from carts to loading platforms with high weight limits.



DECOMISSIONING

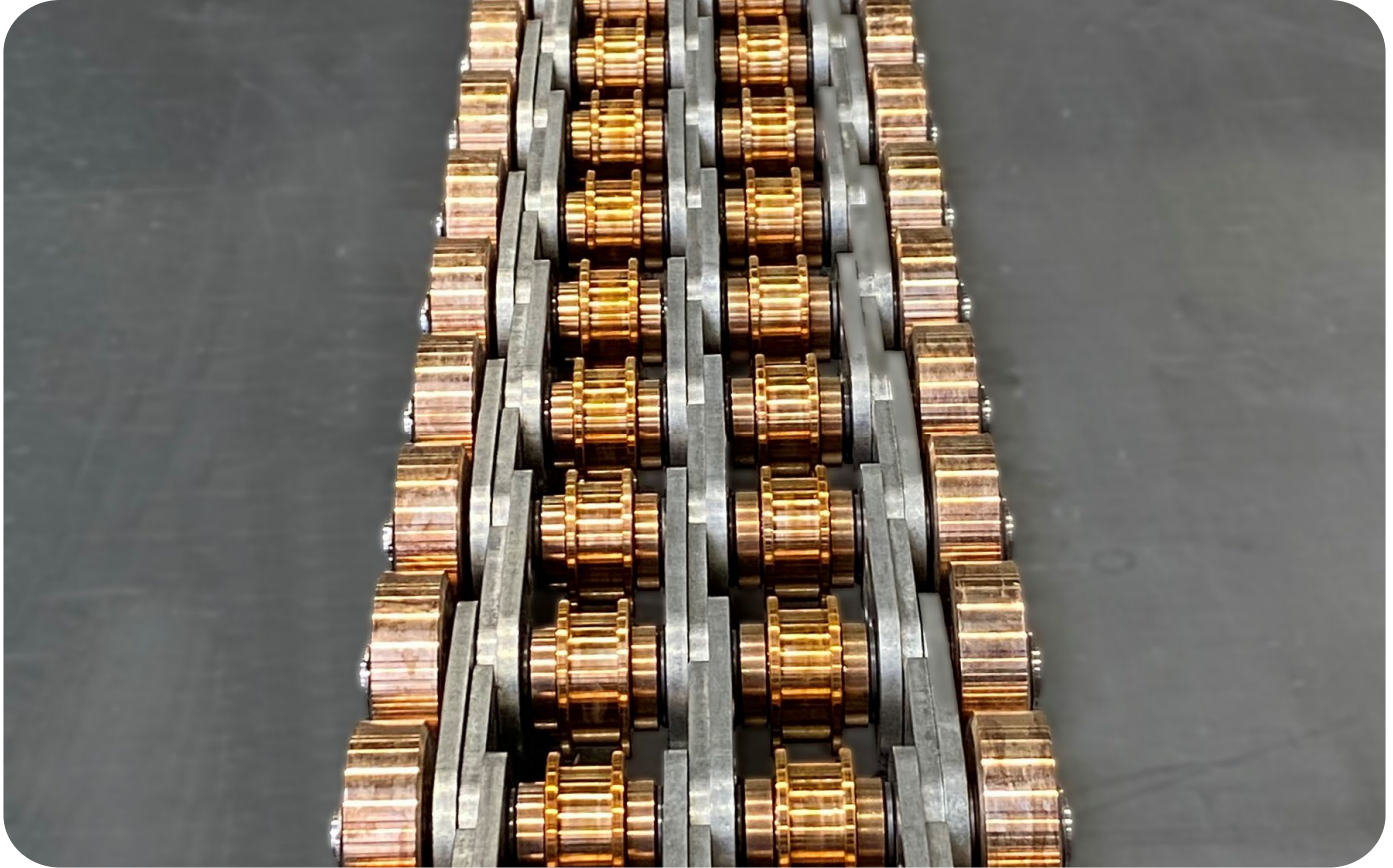
SERAPID Systems have been used in several large scale decommissioning projects. Our systems excel in hazardous environments for load transfer.



WORK PLATFORMS & LIFTING TABLES

Lifting platforms can be customized to lift everything from workers to fuel and more. We specialize in high weight limit and long-distance travel.

RIGID CHAIN TECHNOLOGY (RCT)



SERAPID Rigid Chain Technology is the optimal solution for nuclear handling and transport.

SERAPID has developed a chain engineered and designed to excel in challenging environments, including high heat, high radiation, and underwater conditions. This technology allows us to design strong and compact actuators which will integrate ideally into difficult environments and confined spaces such as in the nuclear sector.

Our push-pull chains enable smooth movement of extremely heavy loads in otherwise inaccessible areas, reducing the need for human intervention.

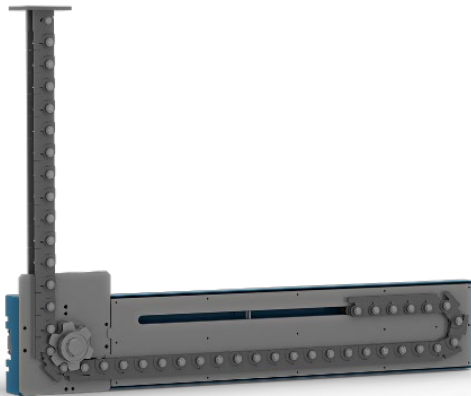
SERAPID, a global leader in mechanical actuation solutions, has carved a niche in the nuclear industry by providing innovative electro-mechanical actuators powered by the revolutionary Rigid Chain Technology.

These actuators have emerged as a trusted choice, capable of functioning in extreme nuclear environments where other technologies falter. Our engineering department designs and modifies our products, integrating them into bespoke systems, to meet your technical project requirements.

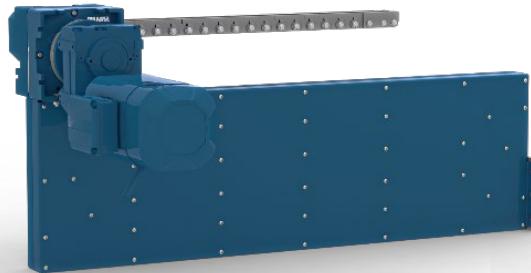
ELECTRO-MECHANICAL ACTUATORS



SERAPID LinearBeam



SERAPID HD Lift



SERAPID RollBeam



SERAPID ChainMast

SERAPID electromechanical actuators offer compact storage and telescopic action for horizontal & vertical load transfer.

SERAPID offers a complete range of standard products utilizing rigid chain technology to deliver unparalleled reliability, versatility, and efficiency for a wide array of applications. The SERAPID RollBeam and LinearBeam offer horizontal movement, while the LinkLift, HDLift and ChainMast offer lifting.

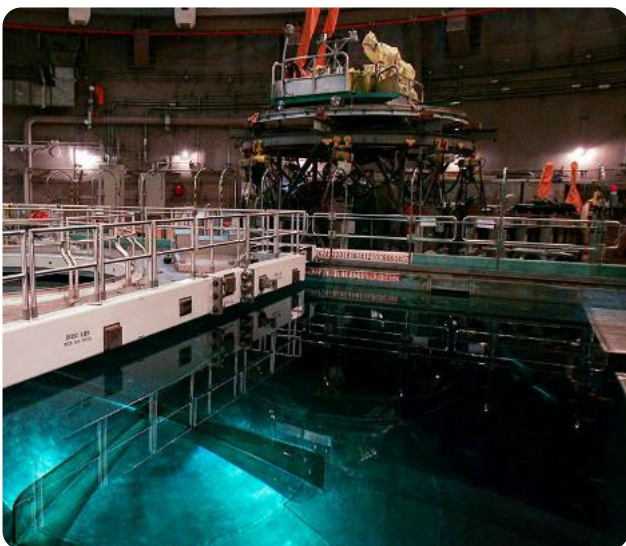
Whether your requirements involve vertical or horizontal movement, long stroke or extremely heavy loads, our standard products are engineered to meet your needs with precision and reliability.

SERAPID's electro-mechanical actuators have become a linchpin in nuclear sector operations, delivering the precision, reliability, and durability demanded by the industry.

Their ability to thrive in extreme nuclear environments underscores their importance in safeguarding the world's nuclear assets. In a sector where safety is paramount, SERAPID's actuators consistently rise to the occasion, ensuring the industry's continued success.

BENEFITS & FEATURES

Advantages of the SERAPID Load Transfer System:



- ▶ **Rigid Chain Technology** ensures precise, reliable & near silent motion even in extreme environments.
- ▶ **Customization:** Tailored to the unique safety and redundancy requirement of the nuclear sector.
- ▶ **Versatility:** Suitable for a wide range of applications, including reactor maintenance and fuel handling.
- ▶ **Compact Design:** Easily integrated into existing systems with small footprint for confined spaces.
- ▶ **Durability:** Designed to withstand the rigors of nuclear operations, ensuring longevity and reliability.
- ▶ **Safety:** Equipped with advanced safety features, including emergency stops and redundant systems.
- ▶ **Radiation Resistance:** Capable of functioning efficiently in high radiation environments.
- ▶ **Clean operation** without the use of hydraulic fluids.
- ▶ **Standard speed up to 300 mm/s**, higher speeds on demand – up to 1m/s.
- ▶ **Millimeter range accuracy** for repeatable positioning.
- ▶ **Application-specific designs**, system engineering, and complete solutions.



PROJECT REFERENCES

TRANSFER SYSTEM

WASTE MANAGEMENT

TELESCOPIC LIFT

LIFTING PLATFORM

TELESCOPIC ROBOT ARM

CONTAINER TRANSFER VEHICLE

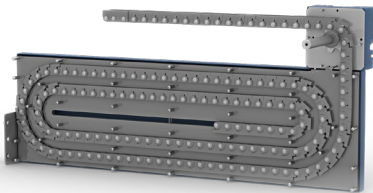
DEEP STORAGE TRANSFER

PROJECT REFERENCES

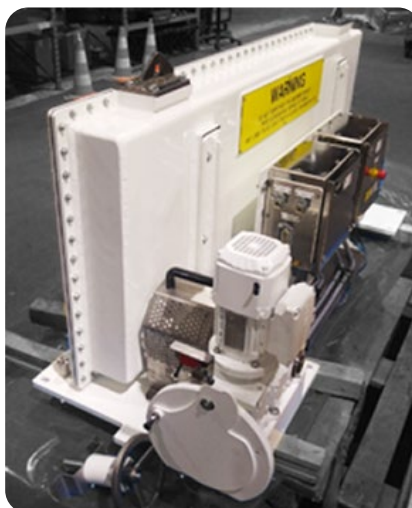
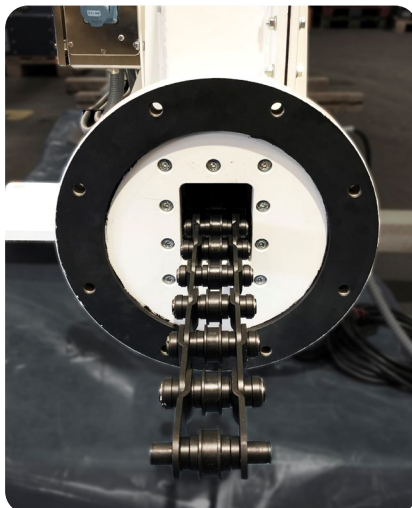
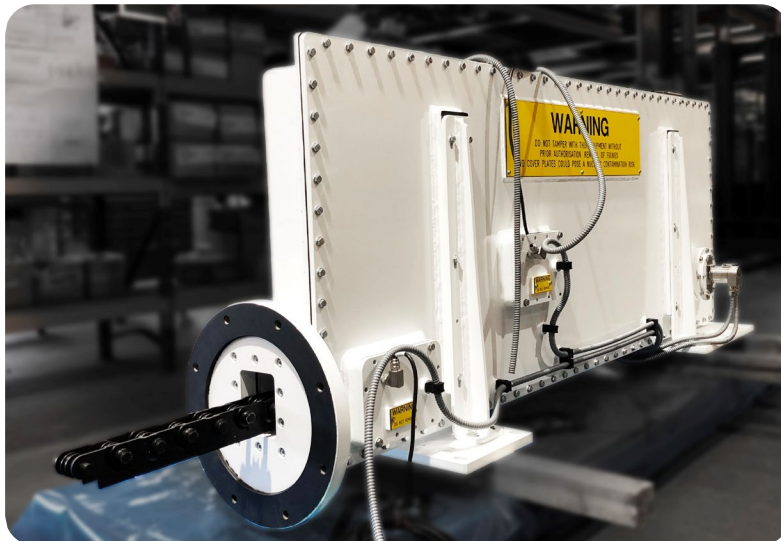
SELLAFIELD (UK)

TRANSFER SYSTEM

This push / pull transfer system utilized SERAPID Rigid Chain Technology in a system for decommissioning. SERAPID engineered a custom system with included gamma ray in a completely sealed environment for high radiation materials.



PRODUCT: RollBeam 60



DATA:

Sealed System

Force: 12,500 N

Speed: 50 mm/s

Stroke: 5,500 mm

MATERIALS:

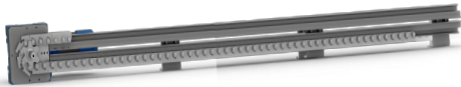
Carbon steel with custom paint for decontamination

PROJECT REFERENCES

EPR FLAMANVILLE (France)

WASTE MANAGEMENT

This waste management transfer system utilized SERAPID Rigid Chain Technology in a system for moving a wheeled cart on rails. SERAPID engineered a waste container with specially designed cart, track and push/pull system.



PRODUCT: LinearBeam 60PSG

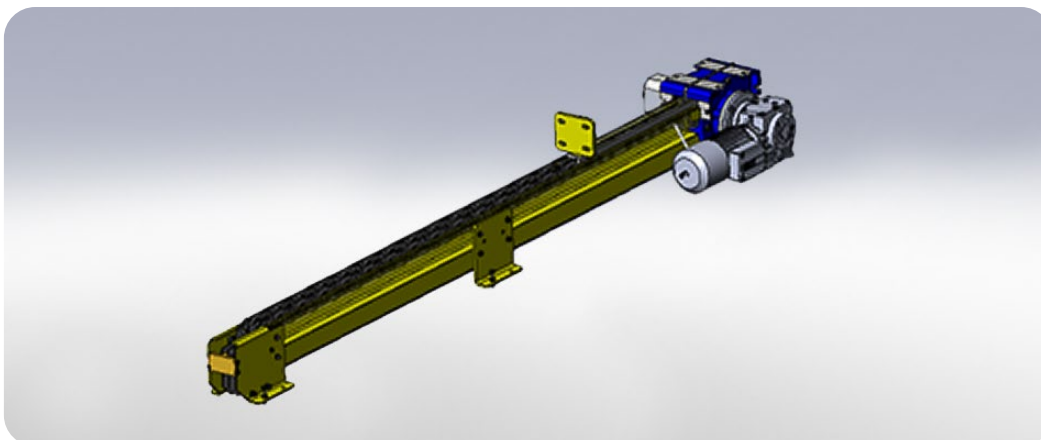


DATA:

Force: 980 daN
Cycles: 2000/an
Speed: 50 mm/s
Stroke: 17.30 m

MATERIALS:

Carbon steel with
custom paint for
decontamination



PROJECT REFERENCES



PRODUCT: ChainMast 40

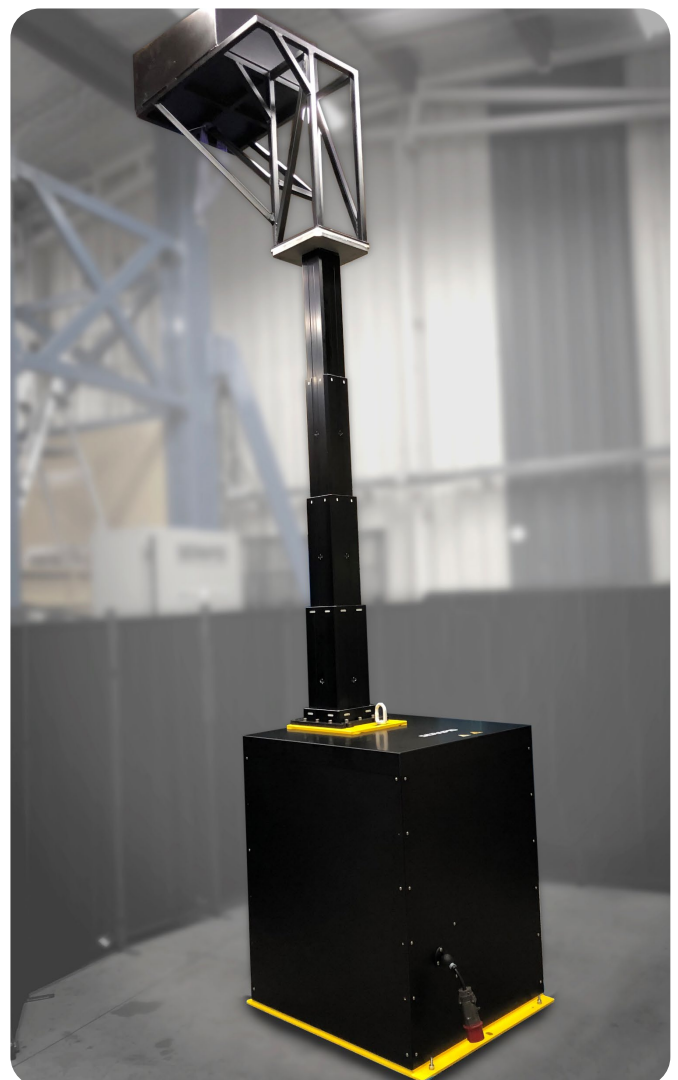
LASER MEGAJOULE (France 2011)

TELESCOPIC LIFT

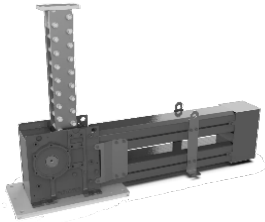
This optics lifting system was designed and engineered by SERAPID using our telescopic mast product The ChainMast. The telescopic action allows for powerful lifting up to 12m, while retracting into a compact magazine when lowered.



DATA: Load: 210 kg
Low Position: 1,200 mm
Raised Position: 2,250 mm
Speed: 5 mm per second



PROJECT REFERENCES

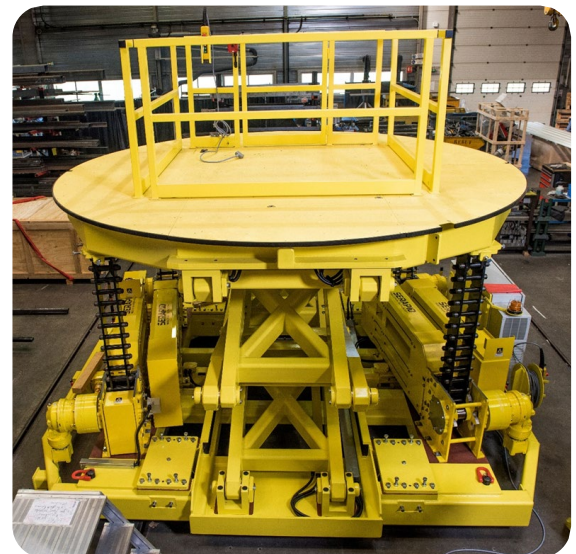


PRODUCT: 4 LinkLift 100 units

EDF (France)

LIFTING PLATFORM

This lifting platform was designed by SERAPID for use as a fuel loading table for trolleys at EDF powerplants in France. Four heavy-duty LinkLift 100 units were used to lift over 12 tons safely and accurately in a high-risk environment.



DATA:

Static Load: 12.50 tons

Dynamic Load: 12.50 tons

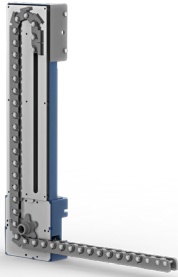
Speed: 30 mm/s

Stroke: 7,000 mm

MATERIALS:

Carbon steel with custom paint

PROJECT REFERENCES

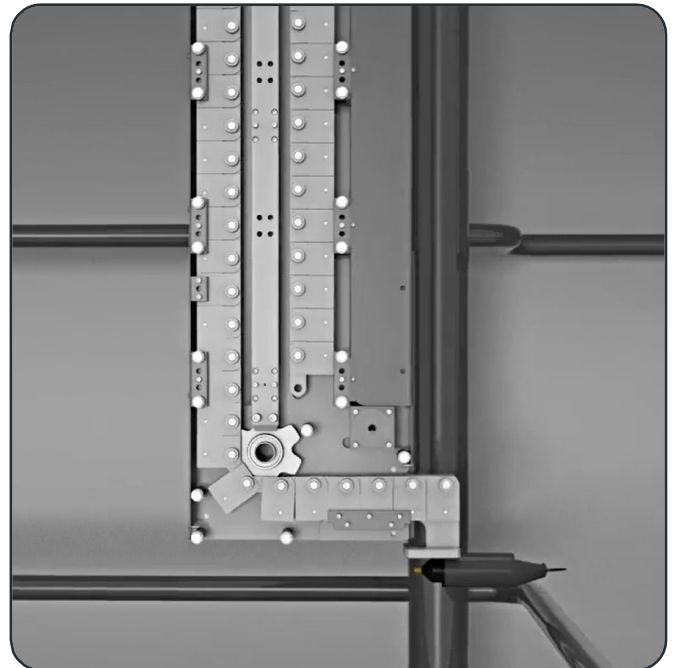
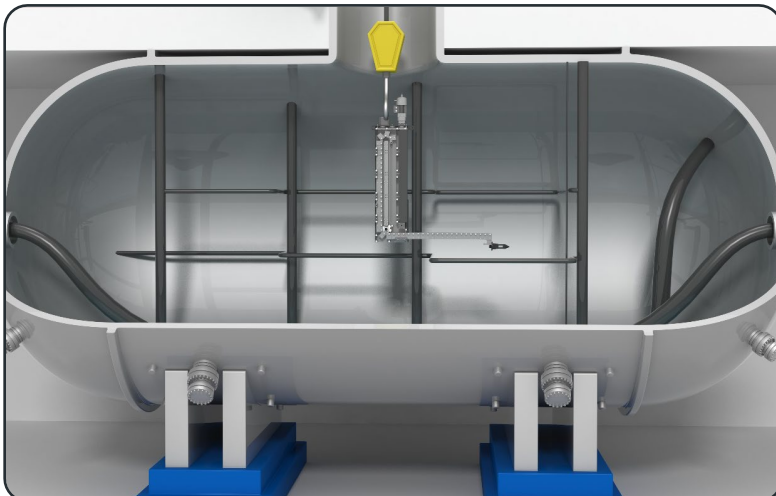
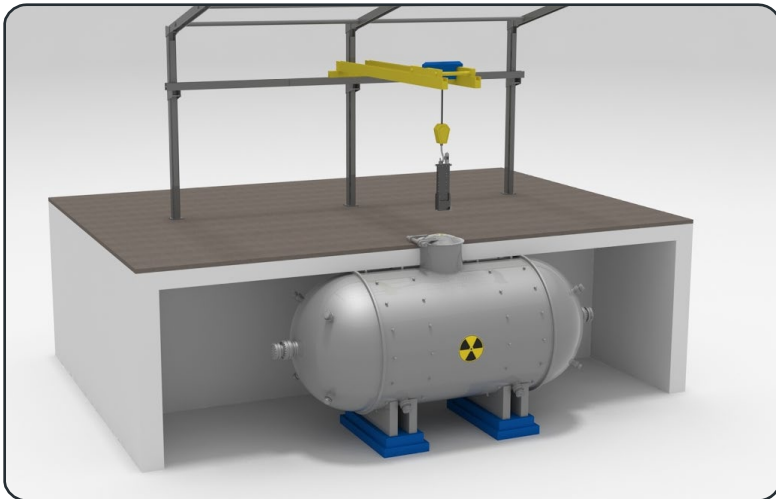


PRODUCT: RollBeam 60

CIGEO - LABORATOIRE DE BURE (France)

TELESCOPIC ROBOT ARM

This specialized machine was developed by SERAPID to be lowered into hazardous materials tanks. Once lowered, the arm has 360 degrees of rotation, combined with arm extension and retraction. The jib can be changed from camera to welder to cutting tool, allowing for inspection, contamination monitoring, weld repair and decommissioning / disassembly.



DATA:

Load : 45 Kg

Speed : 30 mm/s

Stroke : 5 meters

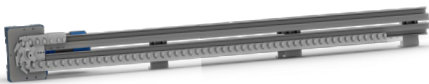
Deflection: 500 mm with 10 kg at 5 m

PROJECT REFERENCES

NICOLAS (France 2010 & 2020)

CONTAINER TRANSFER VEHICLE

This container transfer system was custom designed to be mounted on a truck to transfer heavy loads throughout the facility. The SERAPID LinearBeam allows for the chain to be stored horizontally under the movement path, leaving an unobstructed load area on top.



PRODUCT: LinearBeam 90



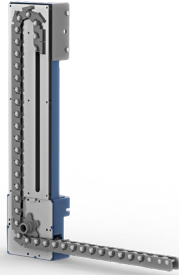
DATA:

Force: 48,000 N
Cycles: 1,000/year
Speed: 30 mm/s
Stroke: 12.5 m

MATERIALS:

Carbon steel with custom paint for decontamination

PROJECT REFERENCES



PRODUCT: RollBeam 130SG

CIGEO - LABORATOIRE DE BURE (France)

DEEP STORAGE TRANSFER

This horizontal waste transfer system utilized SERAPID Rigid Chain Technology to push a circular container into storage tunnel. SERAPID engineered a custom system with minimal footprint to seamlessly incorporate into existing facility.



DATA:

Force: 32,000 daN

Cycles: 3,000/an

Speed: 50 mm/s

Stroke: 4,100 mm

MATERIALS:

Carbon steel with custom paint for decontamination

QUALITY ASSURANCE

TRUSTED BY



CERTIFICATIONS

SERAPID has over 40 years of experience offering specialized handling, moving, and storage solutions for global nuclear and energy projects. In the complex and demanding nuclear sector, precision, reliability, and durability are prerequisites

Full List of proven case studies available upon request





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