

# PACKAGE DESIGN N° 3852

Package Name: 4m ILW (Intermediate Level Waste) Box



## Type

The 4m ILW Box is designed as an Industrial Package Type 2 (IP-2) in accordance with the IAEA Regulations for the Safe Transport of Radioactive Material TS-R-1.

## Certification

The 4m ILW Box is a non-fissile Industrial Package Type 2 (IP-2) according to the IAEA Transport Regulations. It is designed to ISO standards and is approved as meeting CSC and ISO requirements.

## Description

The 4m ILW Box is designed to be acceptable to the UK Nuclear Decommissioning Authority (NDA) for a variety of large items of Intermediate Level Waste that are intended for deep disposal without any further packaging or treatment. Therefore the 4m ILW Box is designed as both a transport package and a disposal package. It is also designed to meet all current transport and disposal requirements after 50 years on-site storage.

The design, testing and safety case submittal were carried out by Croft on behalf of the NDA.

The 4m ILW Box will be approved as an IP-2 package to carry radioactive materials that qualify as either Low Specific Activity or Surface Contaminated Objects (LSA/SCO) under IAEA Transport Regulations.

A wide range of materials and radioactive contents can be transported within the limits of the IAEA Regulations, by casting various thicknesses of reinforced concrete shielding inside the stainless steel cladding. Capacity is limited by the radioactive contents and a maximum loaded weight of 65 tonnes. For example:

Payload	Shielding thickness (normal concrete)		
	100mm	200mm	300mm
Internal Volume (m <sup>3</sup> )	13.5	11.0	8.1
Internal Dimensions L x W x H (m)	3.68 x 2.11 x 1.74	3.48 x 1.91 x 1.64	3.28 x 1.71 x 1.44
Maximum weight (tonnes)	47.5	42.5	35.5

Other thicknesses of concrete can be cast, subject to safety review and construction of a custom former.

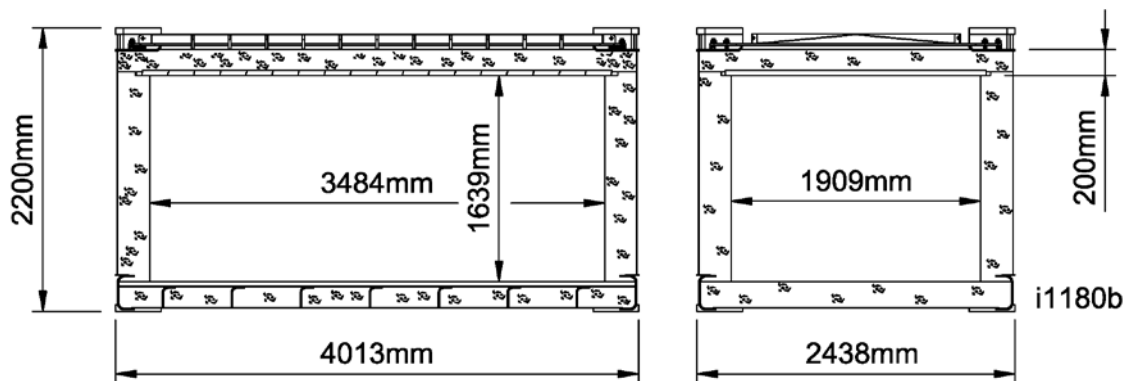
## Containment

- Stainless steel outer surface, all welded except for lid closure
- Pre-cast shielded lid
- Lid closure: 20 nuts and studs, verifiable elastomer seal
- Protected and filtered vent in lid
- All surfaces fully decontaminable

## Benefits to Users

- Suitable for both transport and deep disposal – no need to re-package
- Payload up to 13.5 m<sup>3</sup> or 47.5 tonnes
- Shielded with cast concrete and stainless steel
- Top shielding can be cast in box or pre-cast with lid
- Non-fissile IP-2 package
- Designed to meet all current requirements after extended onsite storage
- Large bolted top lid
- Filtered vent in lid
- ISO container compatible dimensions (2/3 length)
- ISO and CSC approvals, IAEA approval pending

## Illustration of Package Design No 3852 (200mm shielding shown)



## Physical Data

External Height	2.2 m
External Length	4.013 m (2/3 ISO standard)
External Width	2.438 m (ISO standard)
Empty Weight (without any concrete shielding)	4.2 tonnes
External Volume	21 m <sup>3</sup> (approx)
Maximum weight of contents	47.5 tonnes
Maximum weight of Package Design N <sup>o</sup> 3954 including contents	65 tonnes

- ISO standard twistlock apertures on top and bottom
- Distances between centres: ISO standard width, 2/3 standard length
- Requires updated twistlocks for maximum payload (design details available)

## Further Information

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