

**CERTIFICATE NO. ZA/SAHPRA 0002/B(U)-96**  
**PACKAGE DESIGN APPROVAL**  
**"MAGS"**

This is to certify that the South African Health Products Regulatory Authority (SAHPRA), being, for the purpose of the International Atomic Energy Agency (IAEA), the Competent Authority in the Republic of South Africa, in respect of the transport of radioactive material, has certified the package design, as described herein, as having met the regulatory requirements for Type B(U) packages as described in the IAEA Safety Standards Series No. SSR-6 (Rev.1), Regulations for the Safe Transport of Radioactive Material, 2018 Edition, Vienna, 2018.

**1. Certificate**

Effective Date: 1 August 2024

Expiry Date: 31 July 2029

**2. Competent Authority**

SAHPRA

**3. This certificate is issued on the basis of the application submitted by:**

Gammatec NDT Supplies SOC Ltd  
Vision 21 Industrial Park  
Steel Road, Peacehaven  
Vereeniging 1939  
Republic of South Africa

#### 4. Title and Identification of Reports and Drawings

##### 4.1. Reports

The safety case for the package design comprises of the following reports-

Document Number	Rev	Date	Title/Description
GEROTEK 18190	1	12 March 2024	Performance and design evaluation – “MAGS” Transport Container
7.1.7.0	0	April 2024	“MAGS” Transport Package Safety Assessment Report

#### 4.2 Drawings

The package is fabricated in accordance with the following drawings-

Drawing no	Revision	Description
CONTAIN-NCC0658	0	MAGS 6 Channel Tungsten Transport Container
BLOCK-SB0417	0	MAGS Tungsten Shield Block
INSERT-SI0073	0	MAGS Grooved Tungsten Shield Insert
DISK-SD0014	0	MAGS Tungsten Shield Disk
RING-SR0103	0	MAGS Tungsten Shield Guide Ring
BOOT-SB0437	0	MAGS Tungsten Shield Silicone Boot
HOUSING-SH0118	0	MAGS Shield Housing
PLATE-SP0222	0	MAGS TPT Container Housing Base Plate
LID ASSEMBLY		
LID- SL0085	0	MAGS TPT Container Lid
BARREL-SB0420	0	MAGS Security Lock Barrel
PIN-SP0219	0	MAGS Lid Locating Pin
SCREW-SS0419	0	MAGS- Lid M8 x 84 Cap Screw
LOCK-SL0086	0	MAGS TPT Container Security Lock
HANDLE ASSEMBLY		
HANDLE-SH0117	0	MAGS Handle
PLATE-SP0220	0	MAGS Handle Plate
SCREW-SS0417	0	MAGS Handle M6 x 16 Socket Dome Screw
WASHER-SW0046	0	MAGS Handle Washer
INSERT-SI0079	0	MAGS Flange Tungsten Shielding Disk
SCREW-SS0418	0	MAGS Handle M6 x 16mm CSK Capscrew
BUSH-SB0419	0	MAGS Handle Bush
FLANGE-SF0215	0	MAGS TPT Container Flange
FITTING-SF0214	0	MAGS Flange Fitting
BOLT-SB0418	0	MAGS TPT Container Eye Bolt
CAP-ASC0327	0	MAGS TPT Container Source Channel Cap Assembly
BARREL-SB0416	0	MAGS Source Channel Cap Barrel
CAP-SC0326	0	MAGS Source Channel Cap
PLUNGER-SP0223	0	MAGS Source Channel Cap Plunger
PLATE-SP0221	0	MAGS Source Channel Cap Plate
SPRING-SS0422	0	MAGS Source Channel Cap Spring
SIGN-SS0421	0	MAGS TPT Container Sign

## **5. Package Identification**

The package is identified by the model number:  
ZA/SAHPRA 0002/B(U)-96

## **6. Package Description**

The “MAGS” transport package is a newly designed tungsten shielded transport package for the transportation of radioactive sources to countries that are not members of the Nuclear Non-Proliferation Treaty but who, nonetheless, require radioactive sources for industrial radiography.

The shielding system consists of the top flange to which are bolted the tungsten shielding ring and the tungsten insert with machined source channels. The tungsten shielding block is screwed into the top flange and mates with the tungsten insert to complete the source channels.

The top flange houses the source channel fittings and channel caps. The caps incorporate a spring loaded plunger which allows for the source assemblies of various lengths to be transported assuring that the sources remain in a safe position in each channel.

A protective lid is placed over the channel caps, secured with 4 x M8 bolts, and secured with a removable barrel key lock.

The outer shell made of grade 316 stainless steel is attached to the top plate via a full penetration TIG weld. The shell surrounds a Nylon stiffening ring and a silicone shock absorber which provide added protection for the tungsten shield during mechanical shocks in case of an accident. The bottom plate is attached to the shell via a full penetration TIG weld.

The basic design is reflected in Figure 1.

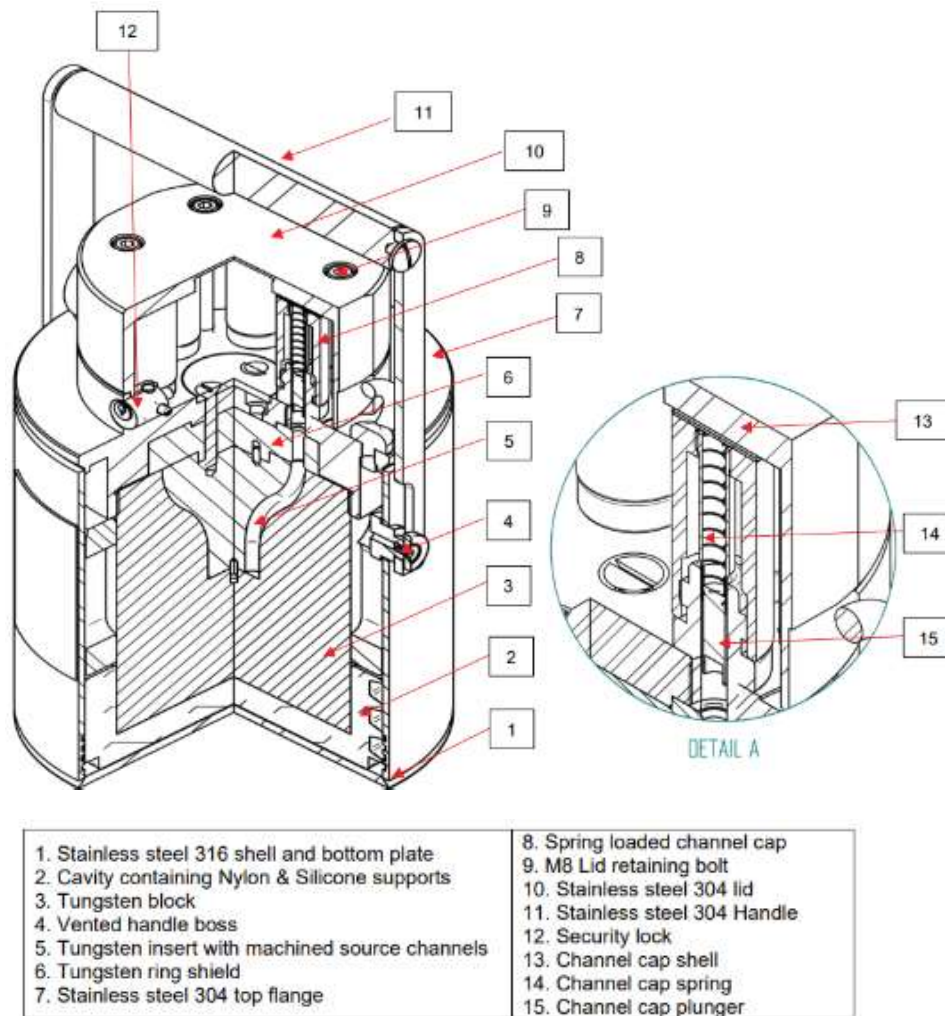


Figure 1.

#### Packaging Dimensions

Item	Diameter (mm)	Height (mm)
Assembled Package	219	326

#### Package Mass

Item	Approximate Mass (kg)
Assembled Package	93
Product	0.264

## 7. Authorised Contents

The package contents will not exceed either:

Radionuclide	Activity TBq	Physical State	Chemical Form	Use
Ir-192	6 x 4.81	Solid	Iridium metal	Radiography
Se-75	6 x 4.81	Solid	Selenium alloy	Radiography

## 8. Conditions for the use of the packaging

- 8.1 The maintenance required on this package is described in the document WI/GSA/LOG-007.01.011.00 Operational Manual for the “MAGS” 6 Channel Tungsten Transport Container, or any future revisions thereof, as accepted by the competent authority.

## 9. Notification

- 9.1 The owner of a package, manufactured in accordance to the design covered by this certificate, shall forward the package serial number to the competent authority.
- 9.2 Should the package be disposed of or change ownership, then this change must be notified to the competent authority.
- 9.3 Accordingly, the party relinquishing ownership of a package shall forward the name of the new owner to the competent authority.
- 9.4 The consignor of a package compliant with the design covered by this certificate shall check that the package bears a Model Number as identified in “5” above, as well as a serial number.

## **10.Mode(s)**

- 10.1 The package described by this certificate may be transported by air, land, sea or inland waterways.

## **11.Specifications of quality assurance programme.**

- 11.1 Quality assurance programmes as described in the Gammatec Quality Manual, PO/GSA/CORP-010.00.000.000 and its supporting documentation must be applied to the fabrication, testing and usage of the package.
- 11.2 All packages must be periodically inspected and as necessary, repaired and maintained in good condition so that they continue to comply with the relevant requirements and specifications, even after repeated use.

## **12.General Conditions**

- 12.1 Each user of the transport package must have in their possession a copy of this certificate and all documents necessary to properly prepare the package for transportation.
- 12.2 This certificate does not relieve the consignor or carrier from the compliance with any requirements of the government of any country through or into which the package will be transported.

## **13.Marking and Labels**

The packing must bear the marking ZA/SAHPRA 0002/B(U)-96 in addition to any other required markings and labelling.

#### 14.Relevant Regulations

IAEA Safety Standards Series No. SSR-6, Regulations for the Safe Transport of Radioactive Material, 1018 Edition, Vienna 2018.

#### 15.Expiry Date

This certificate expires at midnight on 31 July 2029



Dr. Boitumelo Semete

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Dr. Boitumelo Semete  
Chef Executive Officer  
SAHPRA

07 August  
2024

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Date