



JOINT STOCK COMPANY  
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**CERTIFICATE-PERMISSION**  
**for design and transportation of radiation head**  
**of gamma-defectoscope RID-Se4P**

**RUS/560/A (Rev. 1)**

Joint Stock Company “Energomontage International”, acting as a competent entity of Russian Federation on nuclear and radiation safety during transportation of nuclear materials, radioactive chemicals and devices, basing on expert report No. 29-01/560 states that design and transportation of radiation head of gamma-defectoscope RID-Se4P with sealed special form sources of gamma-radiation based on Se-75 acting as a transport package during transportation, corresponds GOST 16327-88 “Transport Packages for Radioactive Materials. Common Technical requirements”, the requirements of “Rules of security during transportation of radioactive materials (NP-053-04)” and “Rules of secure transportation of radioactive materials” (IAEA, Vienna, issue 1996) to “A” type packages.

The present Certificate-permission is issued by JSC “Energomontage International”.

Validity of this Certificate-permission is expired in January 23, 2023.

**The hallmark given by the  
competent entity:  
RUS/560/A (Rev. 1)**

General Director Of JSC  
Energomontage International



V.A. Fedorov  
23.01.2018

### **Basic purpose of package set**

The radiation head of gamma-defectoscope RID-Se4P meets requirements applied to “A” packages and designed for deflation and closing of flux of gamma-radiation during the work of gamma-defectoscope, as well for transportation and storage of sealed sources of gamma-radiation Se-75.

The radiation head of gamma-defectoscope RID-Se4P can be used for storage and transportation of certified sealed sources of gamma-radiation based on Se-75 SR 17 under special form S218 RUS/6223/S-96 (Rev.2), with maximum total activity, 2,96 TBq (80 Ci). The exposed power ratioo at the distance 1 m from the source shouldn't exceed  $1,7 \times 10^{-6}$  A/kg (23,3 R/h).

### **Design of radiation head**

The radiation head (see Picture) consists of the stainless body (1), inside of which there are: protection unit (5) and locking system (10).

Protection unit is made of depleted uranium according to TR 95 2045-90.

On the one side of the body there are mechanisms of locking of source holder and insert of remote control connector (4), transportation handle (8). Inside the body of the handle there is multicolor display of source position (6) (storage position – green, working position – red), locking gear (7) and fixing system for source holder.

From the other side of the body there is mechanism of locking of guide tube (2). Source holder with source is located along horizontal axe of the radiation head.

Locking mechanisms are protected by caps on both sides of the body.

During transportation radiation heads may be put in metallic overpack box.

Dimensions of radiation head with transport box, mm:

D = 375;

H = 276;

Weight BRUTTO, kg (not more) - 50.

### **Transport sources and terms of transportation**

Transportation of radiation head of gamma-defectoscope RID-Se4P loaded with source can be carried out by any source of transportation following the rules of safety for transportation of radioactive goods class 7, on transport category “I-white», observing norms of safety stated in “Rules of security during transportation of radioactive materials (NP-053-04)”.

Transportation of radiation head is recommended to provide in metallic overpack box. Potency of equivalent doze in any point of outside surface of the package shouldn't exceed 2mSv/h (200 mBr/h).

Transportation of radiation head without a source loaded is provided according to transport category "I-white».

Transportation index (TI) during transportation of loaded radiation head shouldn't exceed 10.

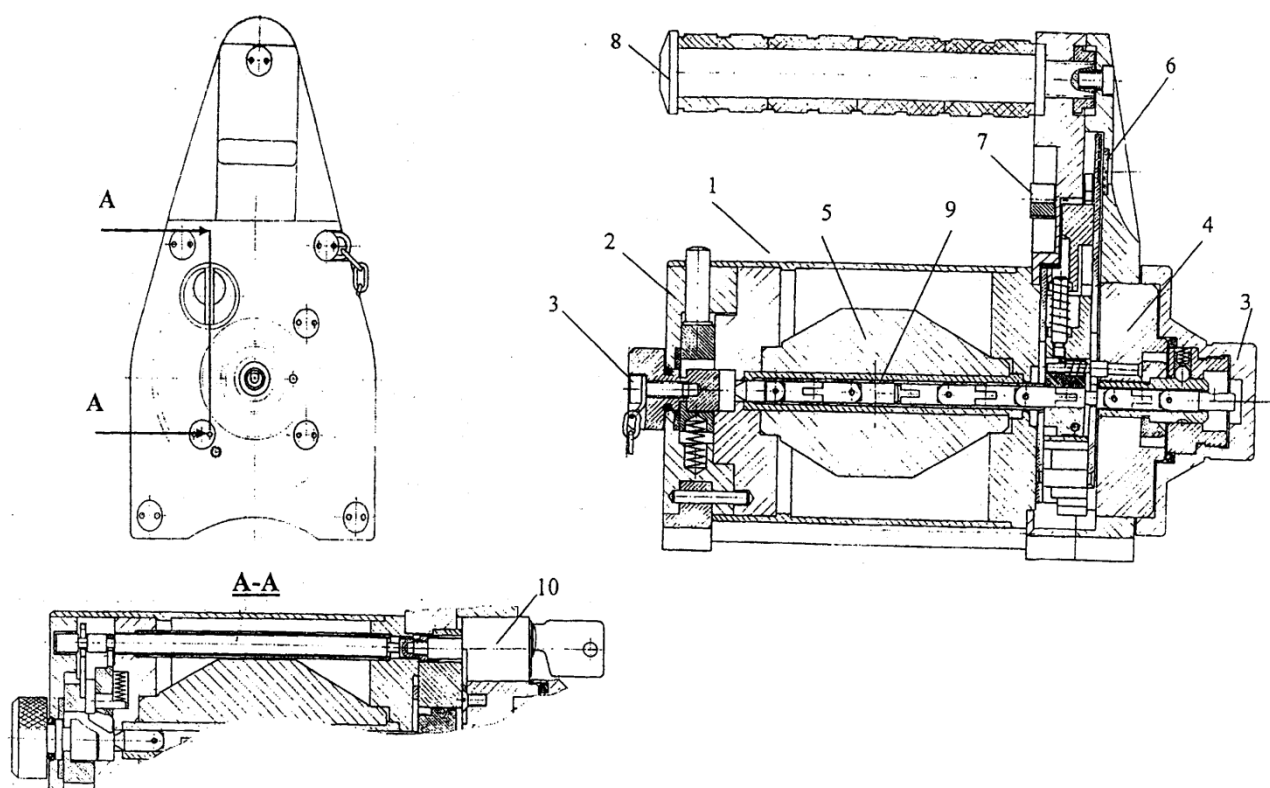
Total TI of a number of packages placed in one source of transportation shouldn't exceed 50.

During transportation provided by civil plain the total TI shouldn't be more 50.

During transportation provided by cargo aircraft the total TI shouldn't be more 200.

Level of radiation in any point of external surface of transportation source shouldn't exceed 2mSv/h (200 mBr/h); at 2 m distance – 0,1 mSv/h (10 mBr/h).

### Radiation head



### Picture

1 – Body; 2,4 – Locking systems; 3 – Cap; 5 – DU shield; 6 – Display; 7 – Locking gear; 8 – handle; 9 – source holder

### **Measures of safety**

The usage of radiation head of gamma-defectoscope RID-Se4P during storage, loading, unloading and transportation should be held according to: "Norms of radiation safety" (NRB-99), "Basic medical rules of usage of radioactive and ionization sources" (OSPORB-99), "Sanitary Rules of Safety for Workers and Population" (SanPiN 2.6.1.1281-03), "Rules of security during transportation of radioactive materials (NP-053-04)" and "Rules of secure transportation of radioactive materials" (Vienna, IAAE, issue 1996).

In case of emergency situation occur during transportation of the radiation head, it is necessary immediately to contact with:

- JSC "Energomontage International", +7 (499) 262-14-93, e-mail (only for emergency notification) emi@jscemi.ru,

as well as to follow requirements of div. 7 "Measures During Accidents During Transportation of Radioactive Materials" NP-053-04, div.3 "Investigation and Protocol of Emergency Cases" NP-014-2000, div.6 "Actions During Nuclear Accidents and Elimination of Consequences" SanPiN 2.6.1.1281-03 and emergency card No. 926.

### **Additional requirements**

This certificate is valid up to January 23, 2023.

The present certificate does not liberate the shipper, forwarder and consignee from following rules and requirements in force for safe transportation of radiation head.

All questions connected with this certificate should be decided in the Department of Nuclear and radiation Safety of Joint Stock Company "Energomontage International" (107078, Moscow, Krasnovorotskiy pr. 3, bld. 1, tel.: (499) 262-14-93, (499) 262-12-87).

Only the copies of this certificate-permission sealed by Joint Stock Company  
“Energomontage International” are valid.

Chief of department of  
security and licensing of JSC  
EMI

S.A. Morozova  
December 12, 2017



1-st Vice General Director  
JSC “Energomontage  
international”

I.M. Zhuravlev  
December 23, 2017

