



JOINT STOCK COMPANY
«ENERGOMONTAGE INTERNATIONAL»

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CERTIFICATE OF APPROVAL
for design and transportation of radiation head
of gamma-defectoscopes EXERTUS SELEN 80 CIRCA and EXERTUS
SELEN 40 CIRCA with radioactive sources based on Se-75

RUS/578/A (Rev. 5)

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. 29-01/578/5 states that design and transportation of radiation heads of gamma-defectoscopes, EXERTUS SELEN 80 CIRCA and EXERTUS SELEN 40 CIRCA with radioactive sources 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-053-16)” and “Rules of secure transportation of radioactive materials” (IAAE, Vienna, No. SSR-6, issue 2018) to “A” type packages.

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

Validity of this Certificate-permission is expired on July 01, 2030.



General Director of JSC “EMI”

I. Zhuravlev
July 01, 2025

**The hallmark given
by the competent entity:
RUS/578/A (Rev. 5)**

Basic purpose of package set

The radiation heads of gamma-defectoscopes EXERTUS SELEN 80 CIRCA and EXERTUS SELEN 40 CIRCA according to Technical Requirements DVPA16.00.00.000 TR are designed for radiographic NDT of quality of welding for different industrial goods and pipe-lines both during their manufacturing and during their assembling and exploitation (heat & atomic power stations, chemical industry, oil & gas mining) here and after referred as radiation heads.

Gamma-defectoscope is named "device" in this document.

Permitted radioactive contents

The radiation head is allowed for transportation and temporarily storage of certified sealed source of gamma-radiation based on Se-75 of type SR17 under special form RUS/6508/S-96 on TU 90.03.0.000TU with maximum total activity 2,96 TBq (80 Ci) despite of dimensions of active part.

Design of radiation head

The radiation head (see Picture 1) consists of the following main parts: protection unit (1), source holder (2), stopper with color display (4) and two locking systems (5, 6) preventing extraction of a source until remote control and guide tubes attached. Protection unit is made of tungsten alloy and fixed inside the stainless steel body (7). Inside the protection unit there is a straight channel for source holder. Flanges on the edges of protection unit are equipped with matching sites to install locking systems.

Source holder is designed as a chain which consists of tungsten and steel parts connected by spring pins. The source of radiation is fixed at the tip of source holder. Stopper with color display is designed for fixing of source holder in storage position. Locking system (5) is designed to attach remote control. It consists of aluminum body and connector.

Locking system (6) consists of tungsten unit with elements for fixing and locking of collimator. It is connected with the lock of device via axle gear.

Weight of the radiation head EXERTUS SELEN 80 Circa, kg (not more) - 8,8.

Weight of the radiation head EXERTUS SELEN 40 Circa, kg (not more) - 8,4.

Dimensions of radiation heads, mm: 203x110x191

Transport sources and terms of transportation

Transportation of radiation heads with radioactive sources 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-yellow», observing norms of safety stated in "Rules of security during transportation of radioactive materials (NP-053-16)".

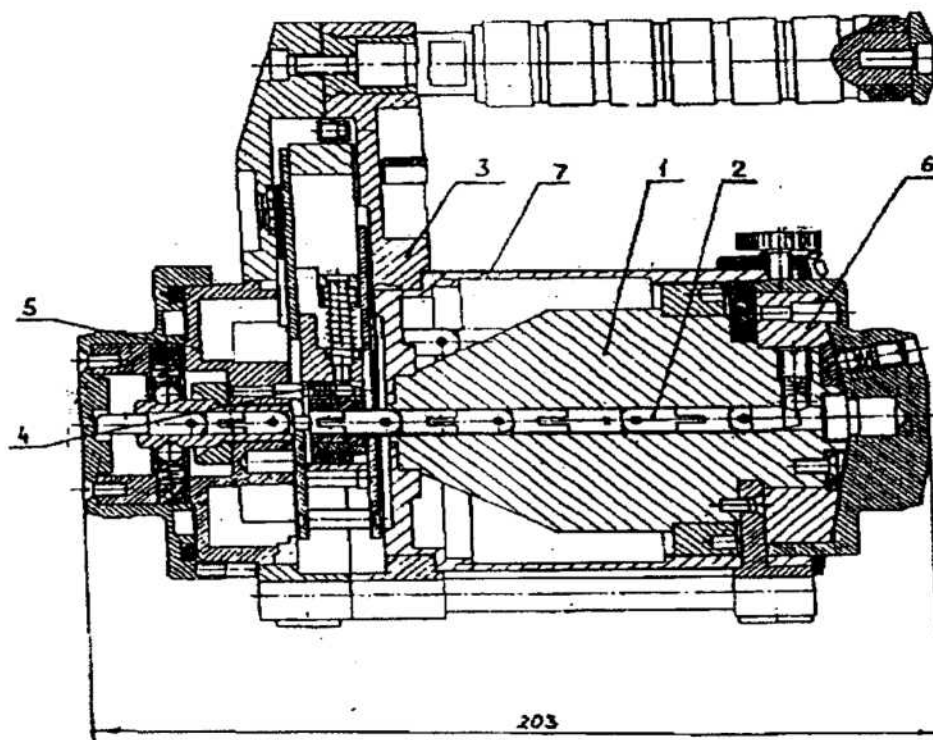
Potency of equivalent doze in any point of outside surface of the radiation head shouldn't exceed 2mSv/h (200 mBr/h). Transportation index (TI) shouldn't exceed 10.

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

1 - Protection unit; 2 - Source holder; 3 - Support; 4 - Stopper with color display; 5 - Locking system; 6 - Locking system; 7 - Body

Measures of safety

The usage of radiation head during storage, loading, unloading and transportation should be held according to: "Norms of radiation safety" (NRB-99/2009), "Basic medical rules of usage of radioactive and ionization sources" (OSPORB-99/2010), "Sanitary Rules of Safety for Workers and Population" (SP 2.6.1.2612-10), "Rules of security during transportation of radioactive materials (NP-053-16)" and "Rules of secure transportation of radioactive materials" issue 2018, No. SSR-6, IAAE, Vienna.

Note. Radiation heads with expired period of exploitation can't be used for transportation of radioactive sources.

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-053-16, div.3 "Investigation and Protocol of Emergency Cases" NP-074-06, div.6 "Actions During Nuclear Accidents and Elimination of Consequences" SanPiN 2.6.1.2612-10 and emergency card No. 926.

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).

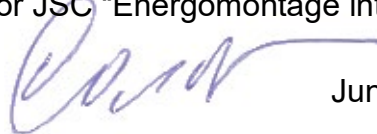
Only the copies of this certificate-permission sealed by Joint Stock Company
“Energomontage International” are valid.

Chief of Radiation Safety Division of JSC EMI



S. Morozova
June 19, 2025

1-st Vice General Director JSC “Energomontage international”



S. Kolotev
June 27, 2025