

INDUSTRIAL HIGH ENERGY ELECTRON ACCELERATORS TYPE ILU

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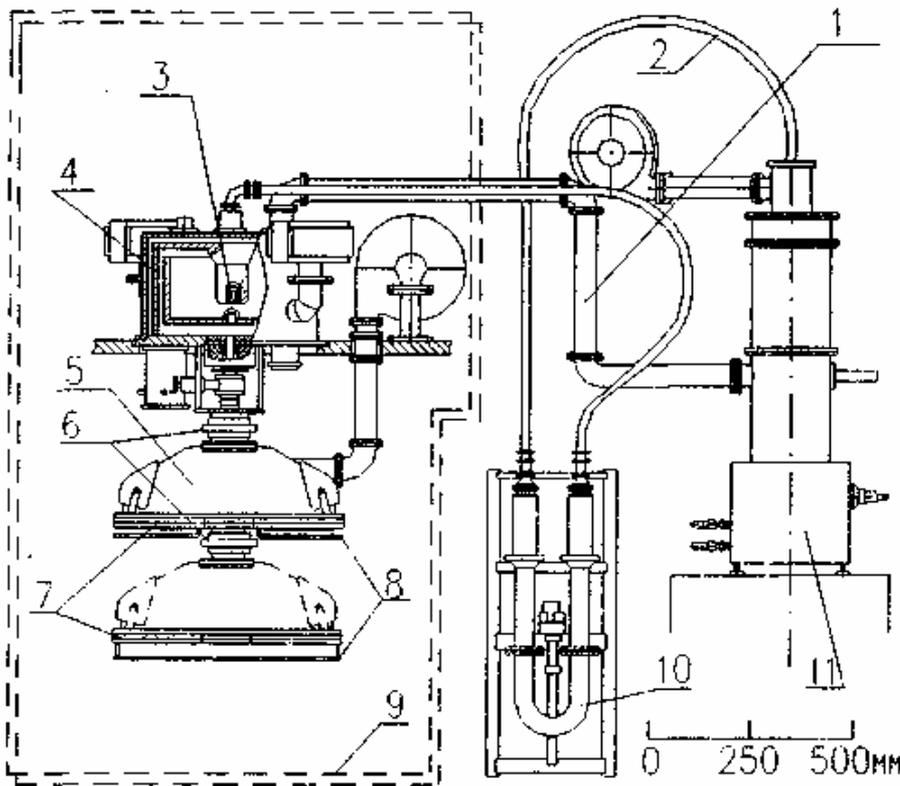
Introduction

- The ILU electron accelerators are produced by Budker Institute of Nuclear Physics for more than 40 years. They cover the energy range from 0.8 to 5 MeV, the beam power is up to 50 kW.
- ILU accelerators are reliable machines that are working for decades in the research and industrial installations.
- The ILU machines use RF voltage for acceleration of the electron beam, so they are very compact and need relatively small radiation bunker because they do not need the tank for gas insulation.

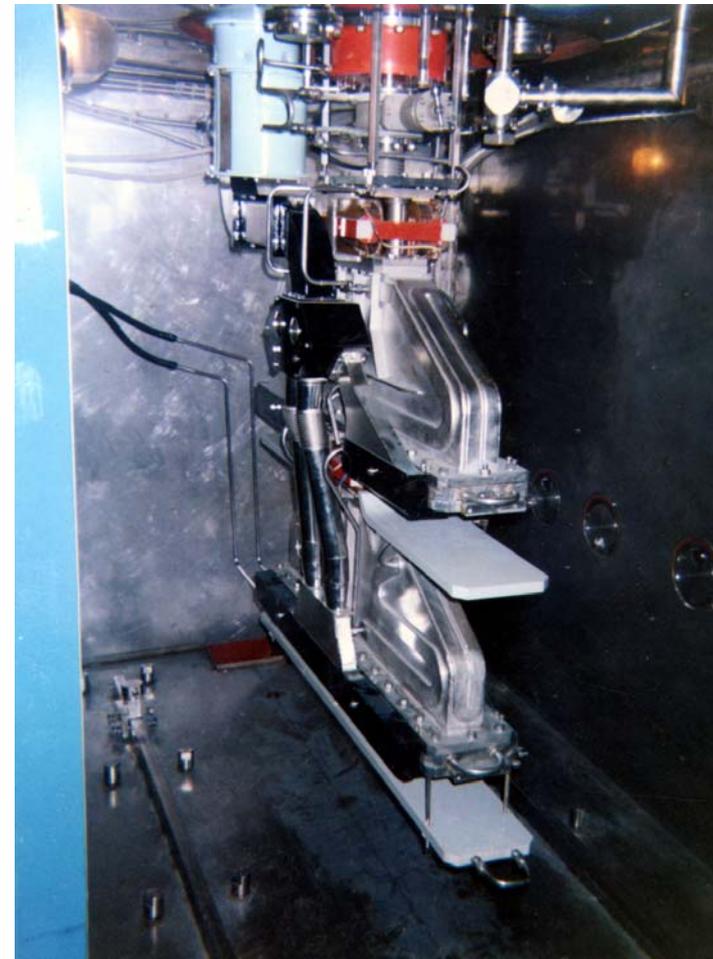
ILU Accelerators

Parameters	ILU-6	ILU-8	ILU-10
Electron Energy	1.7-2.5 MeV	0.8-1 MeV	4-5 MeV
Beam Power	20 kW	20 kW	50 kW
Local Shield Weight		76 t	

ILU-8 in Local Shield

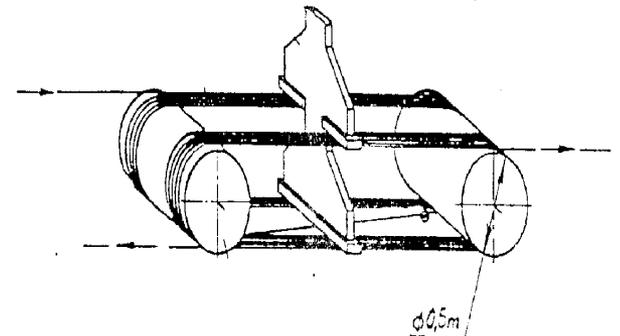
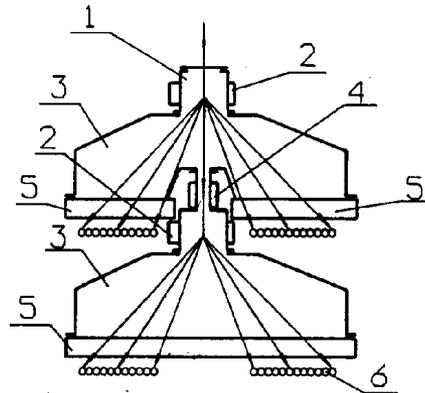
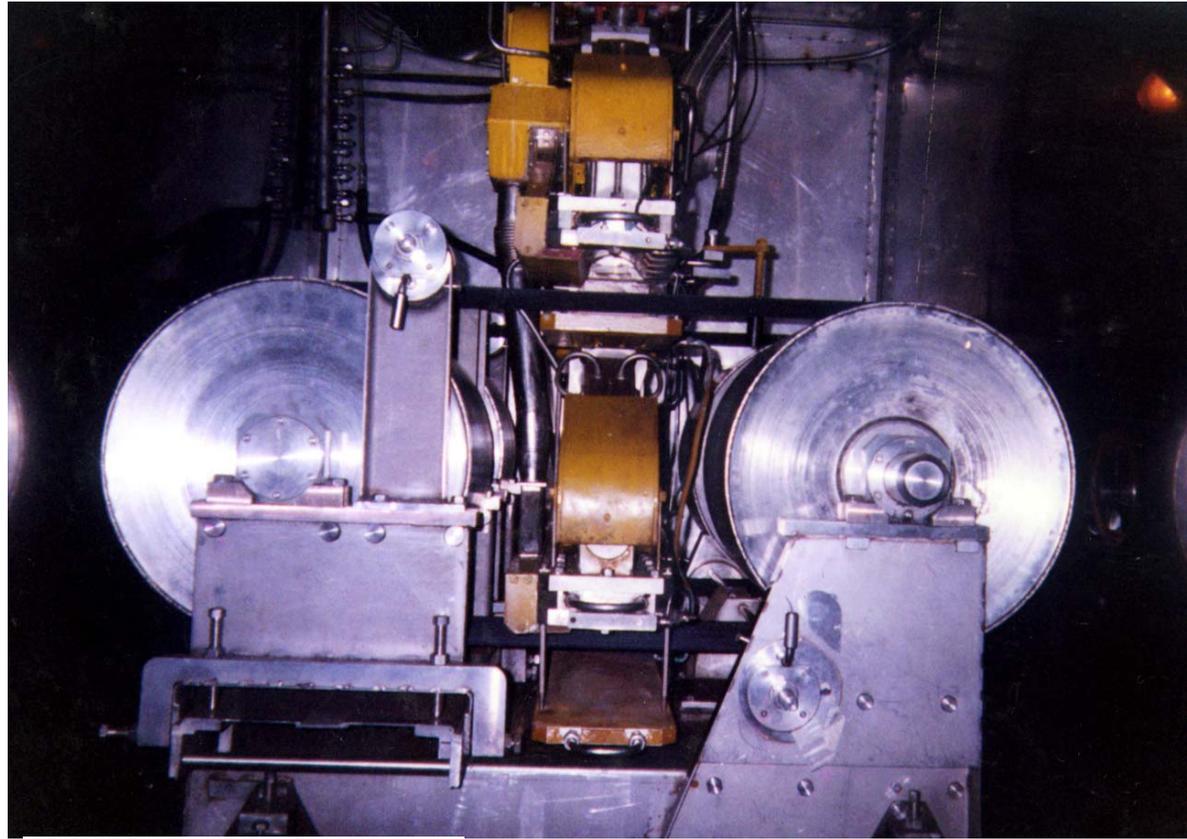


- Energy 0.8-1 MeV
- Treatment of wires, tubes, films

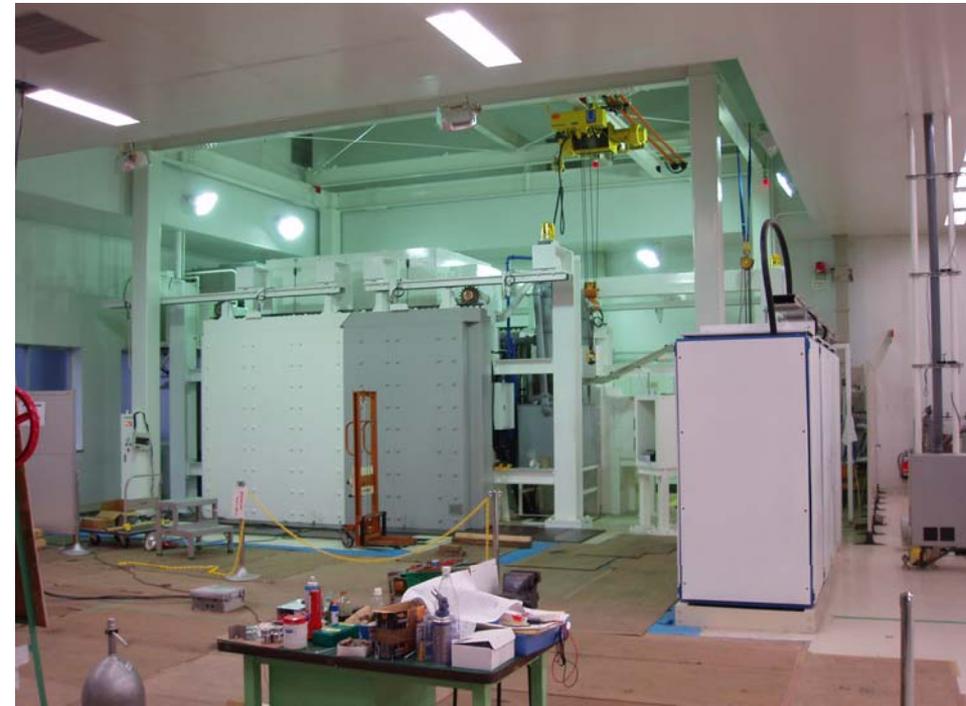


ILU-8 in Local Shield

- Beam extraction device for 4-sided irradiation allows to increase beam usage efficiency comparing with 2 sided irradiation
- No cable twist

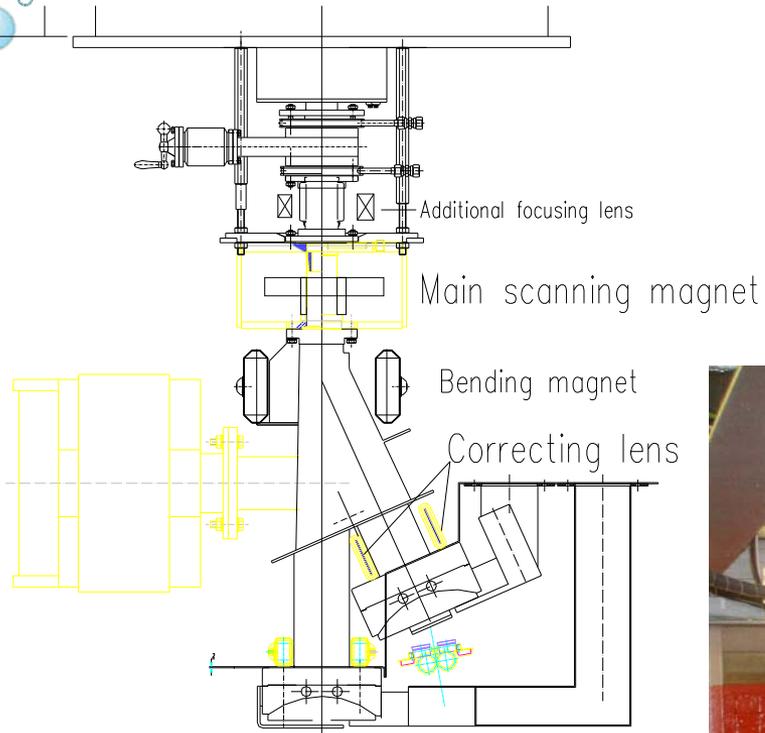


ILU-8 in Local Shield in Japan



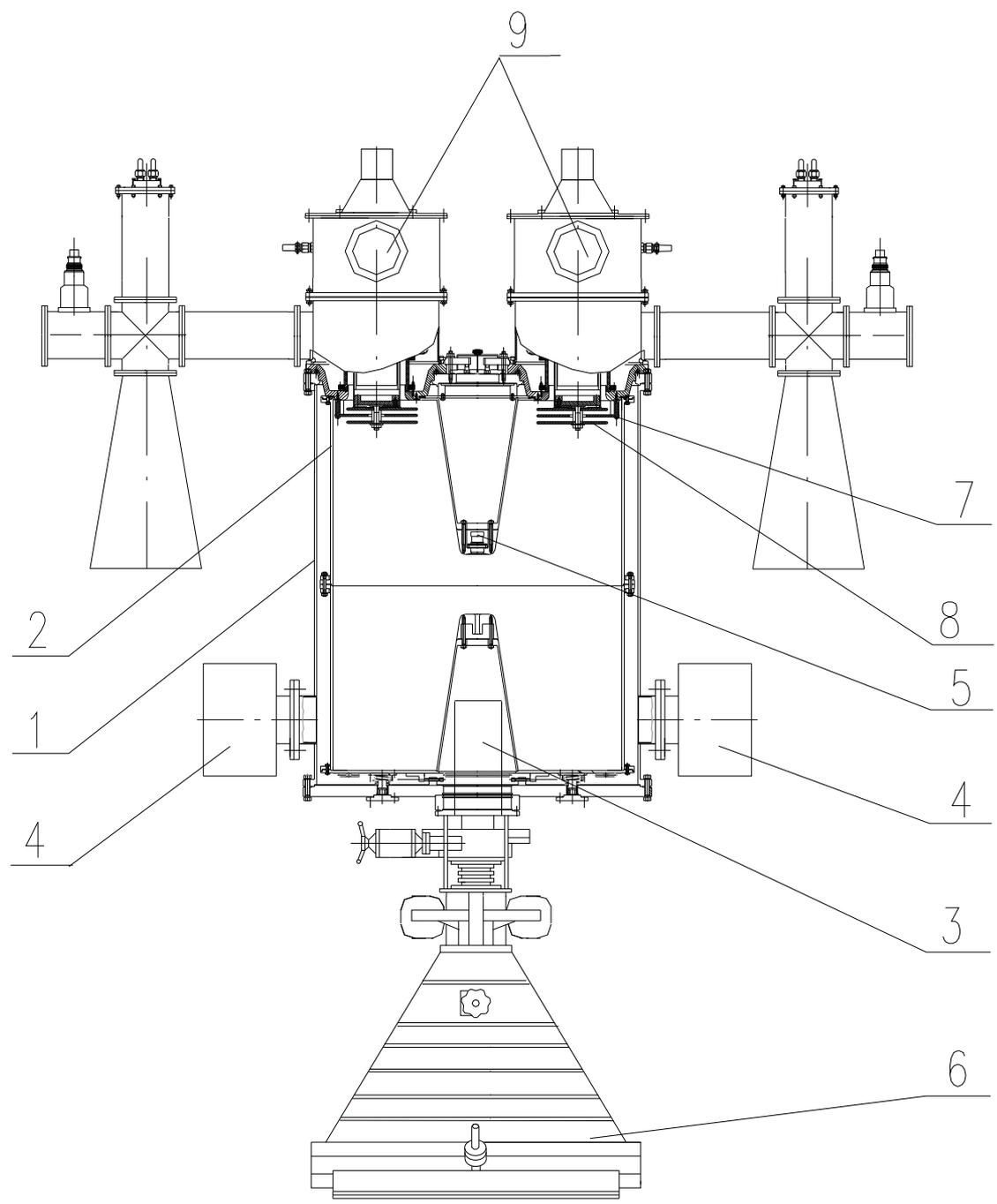
- Energy 0.8-1 MeV

2-windowed beam extraction device.



ILU-10

- Energy 4-5 MeV
- Beam power 50 kW
- Elaboration of treatment technologies for thick cables and polymer pipes
- Sterilization of medical products



ILU-10 in Poland, 2008

- Energy 5 MeV
- Beam power 50 kW
- Treatment of polymer pipes
- Treatment of cables

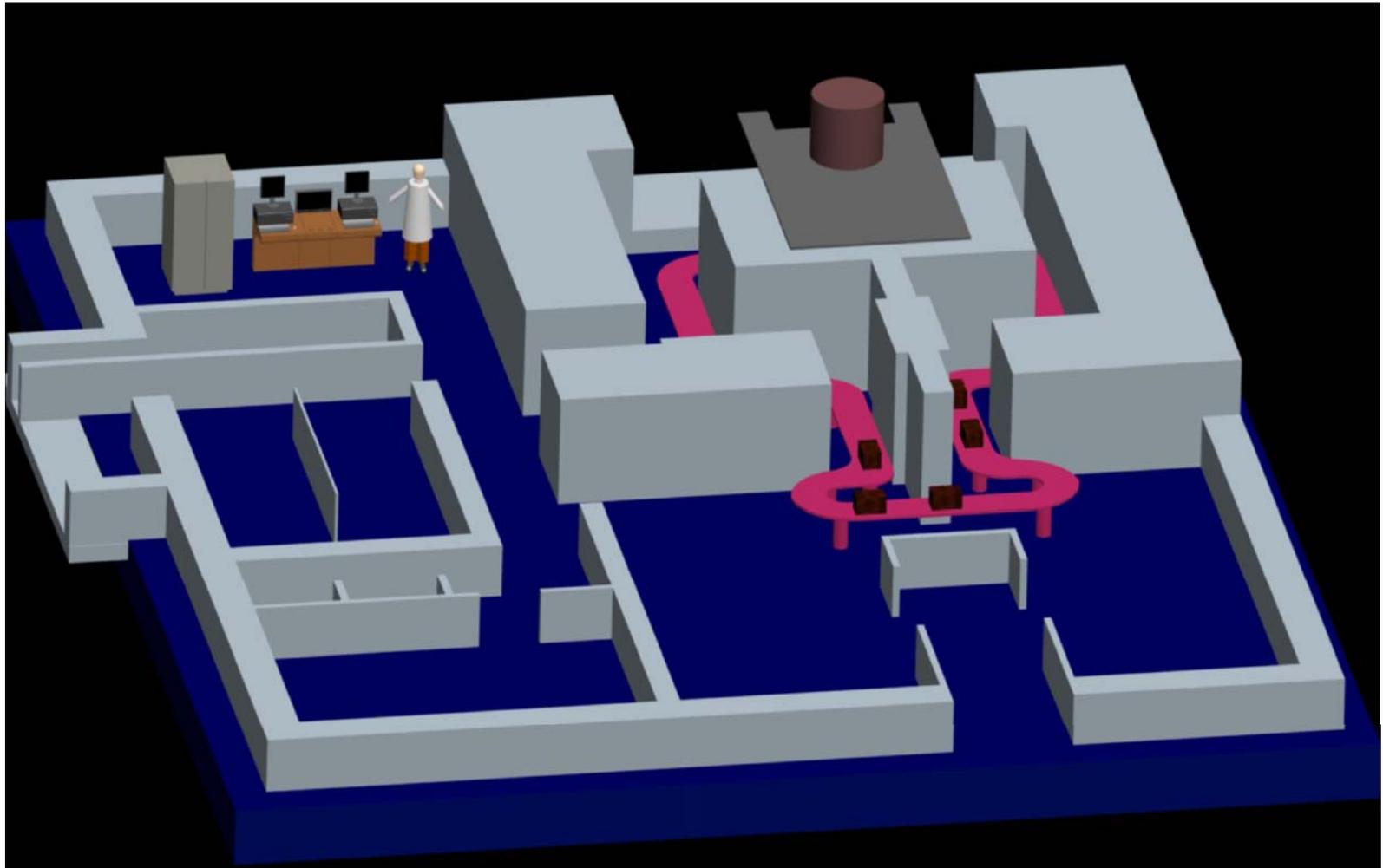


Sterilization in BINP



- Linear scanner and packed medical products to be sterilized

Sterilization in Biisk based on ILU-6



ILU supplies since 2006

N	Accelerator	Place	Production
1	ILU-8	Japan	Sterilization of plastic packs
2	ILU-8	Moscow	PE-Foam
3	ILU-10	Poland	Thermo-shrinkable tubes and polymer pipes for hot water supply.
4	ILU-6	Altay region	Sterilization of pharmaceutical raw.
5	ILU-10	Novosibirsk	Producing of pharmaceutical products
6	ILU-10-M	Krasnoyarsk	Irradiation center
7	ILU-8	Cheboksary	Cable treatment

ILU accelerators are used in industry for:

- Plastic cross-linking
 - Irradiation of cables
 - Producing of thermo-shrinkable tubes.
 - Producing plastic pipes and fittings for hot water supply systems.
 - Producing of PE foam with close cells.
- Sterilization of single use medical goods in packs.
 - Syringes, medical clothes, tools and etc.
- Production of pharmacological goods.
- Sterilization of pharmacological goods.
- Sterilization of food containers.
- Food pasteurization.
- Improving of properties of semiconductors.

ILU Accelerators in the World



Conclusion

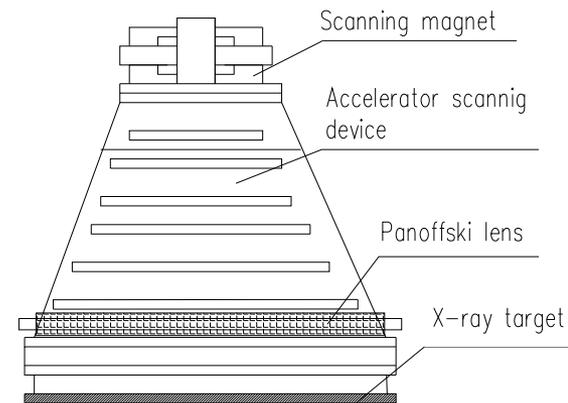
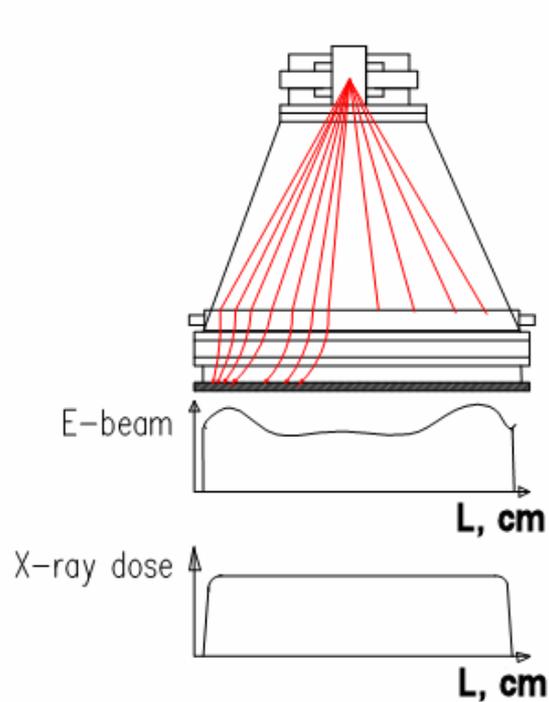
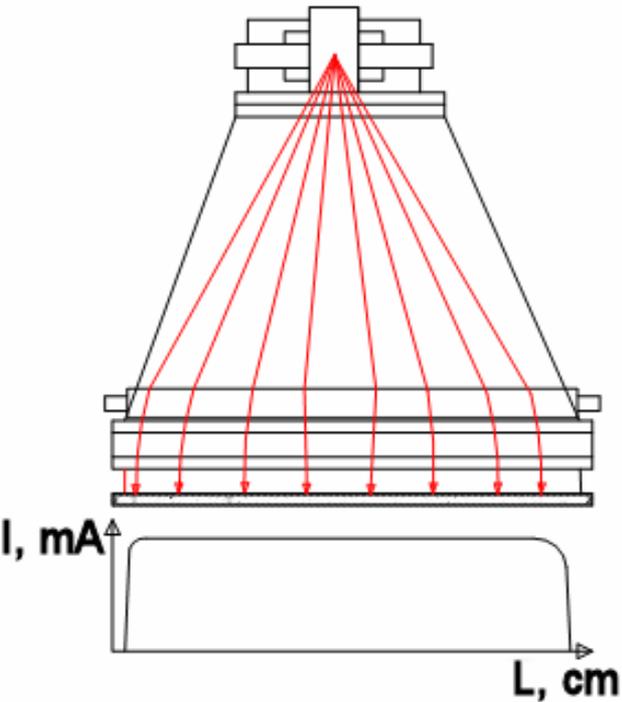
- Accelerator market is expanding by new technologies (pharmaceuticals, sterilization, large diameter pipes, etc.)
- Market requires high energy accelerators. BINP is developing new 7.5-10 MeV 100 kW machine.
- Russian market becomes main market for BINP accelerators.
- High energy ILU-10 accelerator and compact ILU-8 accelerator are demanded by market now.

Thank you for your
attention

Forming of the dose profile

Electron mode
mode

X-ray



Due to the special magnetic lens the beam profile may be formed along the output window.