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## DC ELV Accelerators: Development and Application

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ELV accelerators are widely used for electron beam processing. The use of these machines enabled to develop the manufacture of a wide range wires, cables and heat-shrinking goods, films, bands and so one. All of them are of high security and reliability during operation as under standard and extreme operating conditions. ELV are DC electron accelerators with high power of electron beam. The efficiency of a conversion of electricity to electron beam power is also high. Budker Institute of Nuclear Physics (Novosibirsk, Russia) had started the activities with ELV accelerators at the 1970 according to the request of former USSR cable industry. From that time over 140 accelerators were delivered inside Russia and abroad.

ELV accelerator can be equipped with a wide set of supplementary devices extending the application range. There are systems of ring and double side irradiation, 4-side irradiation system, extraction device for focused electron beam, transportation systems for cable, film and grain. There are special device for improving of dose uniformity during film and band irradiation. ELV accelerators can be easily integrated in the technological processing due to control system based on a computer. We study the requirements of accelerators market and follow the requests of electron beam technologies users. Lifetime of accelerators usually is some tens of year. Very often the modification of accelerator for users is more attractive in a comparison with installation of new machine. So very often old accelerators have upgrade and continue operation.

The development of ELV accelerators is concerning with: stability in operation, new energy region (the minimum energy became 200 keV instead of 400 keV. Accelerators with energy less 1.0 MeV can be assembled inside the steel local shielding. There was developed the system after warranty service of delivered accelerators. We are manufacturing ELV accelerator both inside BINP and in collaboration with South Korea or China firms. Accelerator with 400 kW power of electron beam was developed and manufactured together with EB-TECH.co.

### Country/Organization invited to participate

Russian Federation

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