HIGH-VOLTage NEUTRAL beam INJECTOR FOR FUSION DEVices: status and prospects [[1]](#footnote-1)\*)

DOI: 10.34854/ICPAF.2020.47.1.005

Ivanov A.A., Abdrashitov G.F., Belchenko Yu.I., Belavsky A.V., Gorbovsky A.I., Deichuli P.P., Dranichnikov A.N., Emelev I.S., Kapitonov V.A., Kolmogorov V.V., Kondakov A.A., Sanin A.L., Sotnikov O.Z., Shikhovtsev I.V.

Budker Institute of Nuclear Physics SB RAS, Novosibirsk, RF, [O.Z.Sotnikov@inp.nsk.su](mailto:O.Z.Sotnikov@inp.nsk.su)

A high-voltage heating neutral beam injector, based on the acceleration of a negative hydrogen ions and their neutralization in the plasma target is under construction at the Budker Institute of Nuclear Physics. The design power of the injector is 0.5 - 1 MW. The report presents a detailed description of the injector components and summarizes the results of the first cycle of 1 MV test facility construction and commissioning. It includes the original 1.5 A, 120 keV negative ion source, the LEBT with powerful cryopumps, located at a high potential, a single-aperture accelerator with voltage up to 0.5 - 0.9 MV, a high-energy beam transport line with bending magnet for the beam components separation. The injector facility was launched for operation in 2019. A negative ion beam with an intensity of up to 1 A and an energy of 80 keV was obtained and transported through the LEBT to the accelerator tube entrance. The further experiments with beam acceleration and transport through bending magnet to the recuperator section are planned for the early of 2020.

The other works carried out under the program of the high-voltage injector: on the development and production of a high-efficiency plasma beam neutralizer, on the studies of the photon beam neutralizer will be presented as well.

1. \*) [abstracts of this report in Russian](http://www.fpl.gpi.ru/Zvenigorod/XLVII/R/ru/LD-Sotnikov.docx) [↑](#footnote-ref-1)