

Development of an Injector Section for the High Intensity Proton Linear Accelerator at JAERI,

K. HASEGAWA, M. KINSHO, J. KUSANO,
M. MIZUMOTO, H. OGURI, Y. OKUMURA,
N. OUCHI, JAERI; Y. TOUCHI, Sumitomo Heavy
Industries, Ltd. - A proton linear accelerator has been
proposed with the beam power of 8 MW for the Neutron
Science Project at JAERI. The 2 MeV beam test has been
performed to study the characteristics of the injector section
of the accelerator which consists of a positive hydrogen ion
source, a low energy beam transport (LEBT) and an RFQ.
We have obtained a peak beam current of 80 mA with a
duty factor of 8% at the exit of the RFQ. We have also
developed a volume production type negative hydrogen ion
source. The beam test of the ion source was performed
with the modification of the positive hydrogen ion source
which was used for the RFQ beam test. The beam current
of 5.5 mA was obtained at an arc discharge power of
18 kW. We have designed and fabricated a new negative
ion source which is based on these experiments.