

# COMMERCIAL SUPERCONDUCTING ELECTRON LINACS

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## *Abstract*

Industry now has the capability to design, build and commission superconducting electron linacs. This capability includes the integration of the liquid helium refrigerator and the license to operate a radiation generating device. Niowave offers a broad range of commercial turnkey superconducting electron linacs with beam energies from 0.5 to 50 MeV and average beam powers from 1 W to 1 MW. The commercial linacs operate at 4.5 K with helium refrigerator loads typically less than 100 W. Operation at 4.5 K uses niobium cavities with frequencies less than about 700 MHz. The types of electron source used depend on the application and include DC, copper RF and SRF guns with cathodes based on photoemission, thermionic and field emission. There are many applications with a diverse range of uses from ultrafast electron microscopes to free electron laser to advanced x-ray sources and isotope production. Commercial developments and plans to date will be presented.

**CONTRIBUTION NOT  
RECEIVED**