

Best Theratronics

PRESS RELEASE • June 20, 2013

Best Cyclotron Systems



Vancouver, British Columbia, Canada

Best Theratronics Ltd (BTL) and Best Cyclotron Systems, Inc. (BCSI) have made significant progress in manufacturing the first ever 70 MeV Cyclotron in North America and will be shipping it to their Customer in Europe, by the first quarter of 2014

In June 2009, BTL and BCSI announced their plans for the manufacture of a range of variable energy Cyclotrons, 15, 25, 35 and 70 MeV, in Ottawa, Ontario. BTL and BCSI are the only companies in North America producing these Cyclotrons and are able to customize for users based on their need. Cyclotrons use a combination of magnets and radio frequency electric fields, to accelerate ions to velocities high enough to create Isotopes. BTL has a cost effective, modern technology to manufacture a range of Cyclotrons. The B15 Cyclotron — beams up to 15 MeV energy, B25 beams — 15–25 MeV energy. B35 will have beams ranging from 15–35 MeV, and B70 will have beams ranging from 35–70 MeV.

In addition, BTL and BCSI are collaborating with National Laboratories, in Europe and USA, in expanding all their Cyclotrons capabilities. All of their Cyclotrons have external ion sources, thereby allowing Cyclotron designs with high current capabilities. This feature allows the customer to spend significantly less money in acquiring, maintaining and operating them. They are more reliable than the Cyclotrons with an Internal Ion Source.

In the first quarter of 2010, BTL participated in a tender for a 70 MeV Cyclotron at the Italian National Laboratories (INFN), in Legnaro, Italy. This was an International Tender, and in May 2010, BTL was selected as the winning bid by a team of internationally renowned scientists because of its unique design features and lower price. The actual contract was signed in the fall of 2010.

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Since then BTL and BCSI teams have been working hard to design, fabricate, assemble and test, the first 70MeV Cyclotron in Ottawa, Ontario, Canada. Substantial progress has been made during the last 3 years on the Cyclotron construction. The magnet alone took 18 months to complete, and the first ever 70 MeV in North America is now undergoing its assembly and testing in Ottawa.

This Cyclotron has two pieces, top and bottom, and together they weigh more than 160 Tonnes of high Quality Magnet Steel made to very precise dimensions, to meet the demanding specifications. The Magnetic Field measurements, performed recently on this Cyclotron in our facility in Ottawa, Canada, have confirmed all our design criteria. The magnetic field has been established to an accuracy of better than 1 part in 10,000. Our team has been extremely pleased with the results of this first ever 70 MeV Cyclotron, built by BTL in Ottawa. The results are spectacular. The Magnetic Field is exactly what was needed for the INFN project.

Though the initial application at INFN was for pure research, the B70 has medical applications as well. The B70 is vital for the world supply of diagnostic, therapeutic and research radio-isotopes. In particular, the higher energy 70 MeV produces Strontium-82 that is the parent of Rubidium-82 used for heart imaging. Likewise Copper-67, a therapy radio-isotope is produced from the higher energy beam. Since the B70 has a variable extraction energy, medical radioisotopes such as Germanium-68, the parent of Gallium-68 used for cancer imaging, and Iodine-123, an imaging agent for heart and brain imaging, are also available using the B70 low energy beams. The B70 has multiple simultaneous beam delivery into different production areas, that allows these radioisotopes to be produced in large quantities at the same time as the development quantities of other radioisotopes are generated.

The team of international scientists and experts BTL and BCSI have assembled, along with the design and manufacturing capabilities at TeamBest Companies are making it possible to be a major and a dominant manufacturer of Cyclotron systems in the world today. BTL and BCSI are paying attention to the demand by the medical field for an uninterrupted supply of diagnostic and therapeutic radio-isotopes.

Systems for Technetium-99m (Tc^{99m}) Direct Production

B15 for Tc^{99m} Radioisotopes — Tc^{99m} is an important radiochemical that is used in more than 90% of radio diagnostic procedures. TeamBest has developed a cyclotron based production system for the delivery of Tc^{99m} . The B15 can produce Tc^{99m} using a TeamBest target and processing system. The high intensity of the cyclotron (400 micro-amperes) allows production runs to supply large urban centers with an adequate supply of Tc^{99m} .

TeamBest Companies, including BTL and BCSI exhibited at the Society of Nuclear Medicine (SNM) in Vancouver, British Columbia, Canada, June 8-12. This was a very successful and productive trade show. There was a tremendous interest in the companies' various Cyclotrons and they anticipate, nearly 50 Million USD worth of orders, during the next 18 months. This is in addition to more than 20 Million USD orders that BTL and BCSI have currently, to be delivered within the next nine months.

Krishnan Suthanthiran, President of TeamBest Companies stated that, "BTL and BCSI have become the dominant and major manufacturer of Cyclotrons, in a short four year period. We are the only company in the world engaged in advanced research in Cyclotrons for Research

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and Medical Isotopes up to 70 MeV, and Synchrotrons up to 400 MeV for Radiation Therapy for Cancer. We would like to thank the teams for their proud accomplishments, contributing to science and human health globally.”

About Best Theratronics Ltd

Best Theratronics Ltd (BTL) was founded more than 60 years ago with their invention of the first commercial Gamma Beam Teletherapy (GBT) machine for treating cancer and non malignant tumors with radiation. Canada issued a special stamp to commemorate this breakthrough invention. BTL has been manufacturing and supplying these machines that are considered the gold standard and work horses of radiation oncology departments globally since its invention and commercialization. In addition, BTL manufactures a range of Blood Irradiators, Cyclotrons and other products. For more information, please visit www.theratronics.com.

About Best Medical International

Best Medical International (BMI) has served the medical community with the highest quality products and unparalleled customer service for more than 35 years. BMI, headquartered in Springfield, VA, USA encompasses a family of medical companies known as TeamBest, with a proven track record of innovation, quality and service. TeamBest provides solutions for External Beam Radiation Therapy and Brachytherapy including: Best® Iodine-125 and Palladium-103 seeds; Brachytherapy accessories, Radiotherapy and diagnostic imaging devices, Gold fiducial markers, MOSFET patient dosimetry, patient immobilization, cardiovascular brachytherapy and medical physics/QA instrumentation, repair and calibration.

For more information, please visit:

www.bestcyclotron.com www.theratronics.com www.teambest.com

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