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Cryogenic System for Turkish Accelerator Center

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The Turkish Accelerator and Radiation Laboratory in Ankara (TARLA) is proposed as the first facility of Turkish Accelerator Center (TAC) Project. It aims to be the first user laboratory in the region of Turkey in which both electromagnetic radiation and particles will be used. Main purpose of the facility is to use IR FEL for research in material science, nonlinear optics, semiconductors, biotechnology, medicine and photochemical processes. TARLA will use TESLA type superconducting linear accelerators operating at 1.3 GHz. Electrons will be After pre-acceleration by two normal conducting RF cavities, electron main acceleration system consists of two ELBE designed 20 MeV superconducting linear accelerator modules (cryo-modules) which can be operated in continuous mode.
AL-AT (Air Liquide Advanced Technologies) takes part to the project by supplying cryogenic plant for 2K sub atmospheric superconductive cavity operation. The plant includes the He refrigerator associated to its compressor station, a Dewar, a storage tank for helium gas and transfer lines. In addition, an in-house cold compressor associated to ambient temperature helium vacuum pumps was designed to generate 2K Helium flows. Customized HELIAL MF has been designed and manufactured by AL-AT to match the refrigeration power need for the TARLA project which is around 200 W at 2 K.

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