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SC strand and cable test demands and infrastructures (ITER experience)

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In large projects, the effective test of the components prior to final assembly is a key step to secure the final success. For superconducting magnets, beside the mandatory tests of the structural and insulation components, the cryogenic test of the superconducting strands and cables call for attention.
The approach to cryogenic tests in other large projects with superconducting magnets is summarized and the analogies/differences with the FCC are highlighted.
A sound justification must be the driver for the expensive, cryogenic tests. In the R&D phase the validation of the design and of the manufacturing approach and the exploration of novel operating conditions require a fast and accurate test of prototypes. No saving, but also no duplication, is recommended for cryogenic test in the R&D phase.
Once the design of the magnet is frozen and the prototype magnet has achieved the target performance, the cryogenic tests aim at integrating the overall database and quality control activities. Here, the perception of needs for the cryogenic test varies substantially according to the attitude and professional background of the project managers.
A tentative list of cryogenic test infrastructure of potential interest for FCC is given.

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