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Fri-Mo-Po.08-01: HTS tapes for very High Field Magnets: Performance specification, Characterisation and Uses

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As the principal components and conductors of the new generation of very high field superconducting magnets, High Temperature Superconducting Tapes (HTS tapes) are getting a particular attention on their selection, characterisation and uses.

In this context, Tokamak Energy has multiple specification covering the needed performance, tolerance and characteristics of HTS tapes. The most important parameters will be discussed in this poster alongside our tape selection and qualification process in order to guaranty the best performance for our magnet systems.

In addition, we will exhibit the extensive characterisation platform developed on both short samples and coils to determine the electromagnetic performances of HTS tapes over various temperature and fields, including in fusion-relevant conditions (<30 K, >15 T). This characterisation platform is both used for quality control and quality assurance as it supports the relevancy on the tape specifications and evaluate the position of each available product in the market in a regular basis.

Lastly, a discussion toward the relevancy of the highlighted tape specifications on magnet development will be presented with the help of concrete examples based on our recent HTS coils and magnet development held at TOKAMAK Energy.

In conclusion, we will highlight the important characteristics to work on to improve our coil quality and production capability.

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