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AN OVERVIEW OF TDS SOFTWARE: FEATURE AND FLEXIBILITY

TDS is a comprehensive software package that offers a user-friendly and configurable environment. It provides all the tools needed to design competitive transformers for the current market conditions.

Supported by MECHGUIDE and CREO-automation, TDS facilitates the verification of mechanical and seismic stability and streamlines the preparation of production drawings. This package significantly simplifies and accelerates engineering tasks. It enables a reduction in the number of highly experienced engineers required or allows engineers with moderate qualifications to enhance their skills through package use.

The TRDO software database enables users to generate a standard tender variant of a preliminary design with just a few clicks and within half an hour. It includes numerous tools that enhance efficiency and speed, such as a built-in database containing data from IEC, IEEE, and GOST standards, as well as charts and reports. Additionally, it features editors for electrical and hydraulic connection diagrams, along with an extensive database incorporating IEC, IEEE, and GOST specifications.

TDS stores comprehensive transformer design information in a collection of XML files accompanied by XSD schema descriptions. This method of data storage allows for seamless integration of input and output data into existing software design tools or the creation of custom tools based on TDS. It features built-in databases containing material properties, standard test voltages, cooling system components, and insulation structures, all of which are easily editable and configurable.

Although it is recommended to use the complete package with all modules, TDS is highly scalable and can be easily reconfigured to include only the specific modules that are needed by the user. This flexibility allows users to tailor TDS to their specific requirements, optimizing their use of the software according to their project needs.

The design workflow may proceed as follows:

- TRDO calculates impedances and currents, but TRANSMAG-2D offers more precise calculations, requiring users to define branches and create connection diagrams.
- Winding insulation can be checked for impulse tests using BIL in TRANSMAG-2D, necessitating corresponding connection diagrams as input.
- To assess main insulation, TDS generates a model for TELAX2D. Users can select a structure from the database or input it manually. AC potential distribution requires a corresponding connection diagram, while impulse potential distribution is automatically derived from BIL.
- Coolant flow rates and pump operation correctness can be calculated in TR-HYDRAULIC, requiring users to input the hydraulic connection diagram for the cooling loop. Other heating modules can function without it but with reduced accuracy.
- ELMAG-3D module in TDS allows for basic stray loss calculations, requiring users to input standard structure elements into TDS tables. Core, windings, currents, and rectangular tank are generated automatically. For more precise calculations, users can utilize a standalone version that imports geometry directly from 3D CAD software.
- WELDINST assesses mechanical stability under short-circuit conditions, necessitating the input of corresponding connection diagrams.
- Mechanical calculations and seismic stability are performed separately by ANSYS with the assistance of the MECHGUIDE package.
- To leverage validated structural solutions and expedite production drawing creation, one can utilize CREO automation.