Attachment no 1

for the inquiry no 12/PIAST/2022

Technical parameters

Order subject: Software delivery: Node-Locked ESATAN-TMS Space
Brief description of the device: Software: Node-Locked ESATAN-TMS Space or equivalent with license for a single local computer node.

CPV code and name: 48460000 - Analytical, scientific, mathematical or predictive software packages

I. Minimal technical parameters of the software:

1. Preparation of the geometrical model:

1. Import and export of a geometry from / to following formats: ACIS, AMF, AutoCAD, CATIA, Creo Parametric, ECAD, ICEM CFD, IGES, MSH, JT Open, NX, OBJ, Parasolid, PDF, Rhino, SketchUp, STEP, STL, TGF, VRML.
2. Possibility to copy geometry between different models.
3. Possibility to use Boolean operations.
4. Possibility to create groups of elements, that can be used in numerical simulations.
5. Possibility to create assemblies.
6. Automatic creation of a mid-surface from solid elements with thickness attribute.
7. Automatic creation of beam elements from solid elements with associated profile.
8. Possibility to generate FEM mesh for numerical simulations directly in a GUI.

2. Numerical discretization

1. Mesh generation function for thermal solvers.
2. Contact generation between elements with editing possibility.
3. Solid structural mesh generator.
4. Diagnostic of the mesh quality function along with automatic and manual edition of elements and nodes.

3. Thermal analyses

1. Support for one-dimensional finite elements.
2. Support for shell finite elements.
3. Support for shell thickness / solid shell elements.
4. Possibility to perform an axial-symmetrical analysis.
5. Possibility to perform a solid elements analysis.
6. Access to linear, iso and anisotropic material models, with the possibility of defining them in a function of temperature.

7. Possibility of assuming variations of material properties depending on a temperature field.
8. Possibility of cooperation with external material databases.
9. Possibility to define user material.
10. Static and dynamic thermal analysis, assuming heat transfers: conduction, radiation. (to the surrounding and S2S models).
11. Possibility to assume a heat phase mechanisms.
12. Thermal analysis in layered materials (shell and solid composites).
13. Thermal analysis in one-directional materials.
14. Possibility to define analysis parameters.
15. Possibility to use some information from mathematical model in a mission-planning software.

4. Technical support

Providing 12 month technical support in the following scope:

1. Support in a downloading, installation and configuration of the software, along with a license server.
2. Project planning tips (estimating project implementation time, suggested technical and numerical solutions).
3. Error sources tips, model constraints and estimated accuracy.
4. Support in searching solutions to reported problems and interpreting the documentation.
5. Results interpretation tips.
6. Access to regular updates of the software.
8. Access to the database of free add-ones, if any.
9. Possibility of free participation in webinars and training courses on news in the software.

Technical support in Polis or English.