

AutoGrid™ 5

Technical Specification

NUMECA, a new wave in fluid dynamics



AUTOMATED TURBOMACHINERY GRID GENERATOR

- Highly powerful, automated, fully hexahedral grid generation software for turbomachinery
- Complex axial, radial and mixed-flow configurations meshing capabilities
- Multistage and bypass meshing in a single run

CAPABILITIES:

- Structured multi-block meshes
- High grid quality
- Template approach
- Predefined topologies
- Quality Control
- Wide range of turbomachinery configurations:
 - axial
 - by-pass engine
 - radial
 - mixed configuration
 - compressors
 - turbines
 - pumps
 - propellers
 - various topologies:
 - High quality skin topology
 - H topology
 - HOH mesh topology
 - User-defined mesh topologies*
 - spinner or bulbs on the hub
 - splitter blade
 - hub or tip clearances
 - rounded tip and blunt leading edge and trailing edge,
 - seal leakages
 - discontinuities in the meridional contour
 - radial expansion of the mesh (propeller, windmill)
 - holes on the hub or on the shroud
 - cooling/bleed ports
 - Meshing complex 3D blade designs*:
 - Non-axisymmetric endwalls*
 - Arbitrary sets of splitter blades*
 - Cooling holes*
 - Tip basins*
 - Part-span shrouds / Multi-flux
 - Single row / multi rows*
 - Special 3d effects: non-periodic blade configuration
- Multi-Stage GUI with automatic placement of inter-row interfaces*
- Automatic position of rotor-stator interface*

- Curved or straight rotor-/stator interface
- Predefined boundary conditions
- Editable Templates
- Easy & versatile input data formats:
 - ASCII (profile sections & endwall curves)
 - IGES
 - CATIA (V.5)
 - PARASOLID
 - No intersection curve needed between blade and meridional contour
- Direct CAD importation (IGES, PARASOLID, Catia v5)*
- Fast:
 - Less than 15 minutes from CAD to high quality mesh without existing template
 - Less than 1 minute with existing template
- Intuitive GUI
- Batch operation

HARDWARE REQUIREMENTS

(RECOMMENDED FOR FULL CAPABILITIES):

- Standard equipments: monitor, keyboard, mouse
- CD-Rom drive
- 3-button mouse
- 24-bit color graphics and 1280x1240 pixel resolution monitor
- Mandatory ethernet card for a node-locked license on LINUX
- RAM minimum requirement : 256 Mb,
> 512 Mb recommended (for 1 million points)
- Swap space: 3 times of installed RAM size
- Hard disk storage capacity depends on project types and number of points; 100 Mb space is needed to store mesh and solution files of a 1-million-points project

COMPUTER PLATFORMS:

- SGI
- SUN
- HP
- IBM
- DEC Alpha
- Linux
- Pentium/Athlon (WindowsNT, 2000, XP)

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*Optional Module

Highly Automated Full Hexahedral Grid Generator for Turbomachinery