

SOLIDWORKS FLOW SIMULATION MATRIX

FEATURES	SOLIDWORKS FLOW SIMULATION	SOLIDWORKS FLOW SIMULATION & ELECTRONIC COOLING	SOLIDWORKS FLOW SIMULATION & HVAC
Analysis Capabilities			
Two- and three-dimensional analyses	●	●	●
Symmetry planes	●	●	●
External and internal fluid flows	●	●	●
Laminar, turbulent, and transitional flows	●	●	●
Time-dependent flow	●	●	●
Subsonic, transonic, and supersonic regimes	●	●	●
Calculation of relative humidity in gas flows	●	●	●
Gas mixture, liquid mixture	●	●	●
Conjugate heat transfer	●	●	●
Heat transfer in solids	●	●	●
Flows with gravitational effects (buoyancy effects)	●	●	●
Fluid flows with liquid droplets or solid particles	●	●	●
Cavitation	●	●	●
Joule heating		●	
Fluid and Solid Properties			
Incompressible and compressible liquid	●	●	●
Compressible gas	●	●	●
Real gases	●	●	●
Water vapor (steam)	●	●	●
Non-Newtonian liquids (to simulate blood, honey, molten plastics)	●	●	●
Library of solid surface radiation conditions	●	●	●
Library of building materials			●
Library of contact thermal resistance		●	
Library of typical IC packages		●	
Additional database of solids		●	●
Design Tools			
Multiple studies / "what if" scenarios	●	●	●
Automatic cavity/fluid volume detection	●	●	●
Parametric study	●	●	●
Check geometry	●	●	●
Engineering database	●	●	●
Gas dynamic calculator	●	●	●
Environment			
Velocity	●	●	●
Mach number (for gases)	●	●	●
Mass flow rate or volume flow rate	●	●	●
Static pressure, total pressure, and environment pressure	●	●	●
Fans	●	●	●
Additional library of fans		●	●
Porous media (simulation of filters)	●	●	●
Perforated plates	●	●	●

FEATURES

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Environment

Walls with roughness	●	●	●
Tangential motion of walls (translation and rotation)	●	●	●
Rotating regions (for fans and pump applications)	●	●	●
Heat sources (heat transfer rate, heat flux, heat generation rate)	●	●	●
Temperature	●	●	●
Radiative surface	●	●	●
Radiation source	●	●	●
Solar radiation	●	●	●
Library of environmental radiation for geographic, time-of day, month, atmospheric conditions	●	●	●
Thermal contact resistance	●	●	●
Thermoelectric coolers	●	●	●
Library of thermoelectric coolers		●	
Heat sink	●	●	●
Radiation: spectrum and absorption in solids			●
Printed circuit boards model		●	
Heat pipes model		●	
Two-resistor components model		●	
Library of two-resistor components		●	
Electrical conditions (current, voltage)		●	
Electrical contact resistance		●	

Results Tools

Cut plot	●	●	●
Surface plot	●	●	●
Isosurfaces	●	●	●
Flow trajectories	●	●	●
Particle study	●	●	●
Surface, volume, and points parameters	●	●	●
XY plot	●	●	●
Multiple and dynamic animation	●	●	●
Probe	●	●	●
Comfort parameters (inc. MRT, operative temp., PMV, PPD, ADPI, draft temp., CRE, and LAQI)			●

Engineering Collaboration

Microsoft® Word report format	●	●	●
Publish eDrawings® of flow simulation results	●	●	●
Save plots as BMP, JPEG, PNG, VRML, or AVI files	●	●	●
Save results in Excel	●	●	●
Export finite volume mesh	●	●	●
Export results (pressure, temperature, and convective coefficients) to SolidWorks® Simulation	●	●	●

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