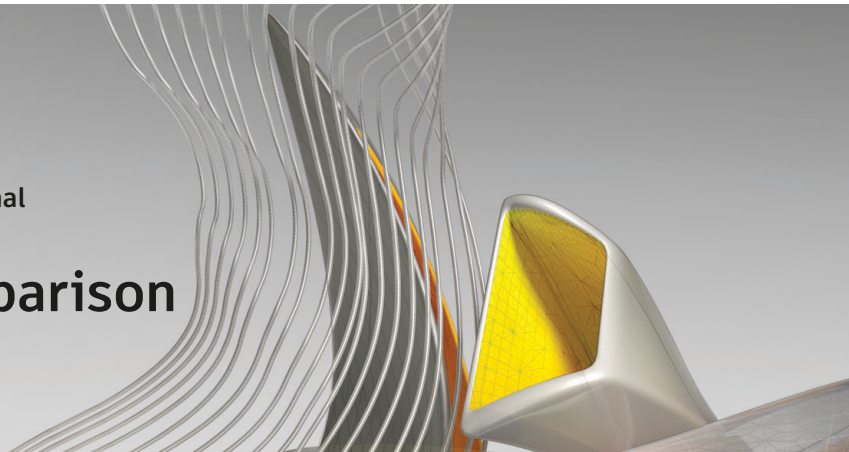# AUTODESK® CFD

Scalable, robust fluid flow and thermal simulation solution

2018 Feature Comparison

CFD Design Study Environment features (sold separately)	Autodesk CFD	Autodesk CFD Advanced	Autodesk CFD Motion
Direct modeling with SimStudio Tools	✓	✓	✓
Defeaturing with SimStudio Tools	✓	✓	✓
MultiCAD data exchange	✓	✓	✓
Design study automation	✓	✓	✓
Multi-scenario design review center	✓	✓	✓
Model-centric interface	✓	✓	✓
Customizable material databases	✓	✓	✓
Heat sink, compact thermal, LED, and TEC models	✓	✓	✓
Fan, porous media, HX, TIM, and PCB models	✓	✓	✓
Non-Newtonian fluid materials	✓	✓	✓
Point, wall, and bulk-flow data extraction	✓	✓	✓
Pre- and post-processing API	✓	✓	✓
Customizable report generator	✓	✓	✓
Web and mobile storage, sharing, and viewing	✓	✓	✓
FSI with Simulation Mechanical	✓	✓	✓
Simulation Data Management with Vault	✓	✓	✓
Export results to Showcase, 3DS max, VRED, Maya	✓	✓	✓

CFD solver comparison (sold separately)			
Fluid Flow	Autodesk CFD	Autodesk CFD Advanced	Autodesk CFD Motion
2D and 3D Cartesian	✓	✓	✓
2D axisymmetric	✓	✓	✓
Laminar flow	✓	✓	✓
Turbulent flow	✓	✓	✓

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	Autodesk CFD	Autodesk CFD Advanced	Autodesk CFD Motion
Incompressible flow	✓	✓	✓
Subsonic flow	✓	✓	✓
Compressible flow	-	✓	✓
Steady state (time-independent)	✓	✓	✓
Transient (time-varying)	-	✓	✓
Lagrangian particle tracking	✓	✓	✓
Two-fluid scalar mixing	-	✓	✓
Two-phase flows (humidity and steam)	-	✓	✓
Nucleate boiling	-	✓	✓
Height of fluid	-	✓	✓
Free surface (Volume Of Fluid)	-	✓	✓
Compressible liquid (water hammer)	-	✓	✓
Cavitation	-	✓	✓

Heat Transfer	Autodesk CFD	Autodesk CFD Advanced	Autodesk CFD Motion
Conduction and conjugate heat transfer	✓	✓	✓
Forced, natural, mixed convection	✓	✓	✓
Thermal comfort calculation	✓	✓	✓
Temperature-dependent heat source	✓	✓	✓
Radiation heat transfer	-	✓	✓
Radiation through transparent media	-	✓	✓
Solar loading	-	✓	✓
Temperature-dependent emissivity	-	✓	✓
Joule heating (temperature-dependent resistivity)	-	✓	✓

Intelligent Meshing	Autodesk CFD	Autodesk CFD Advanced	Autodesk CFD Motion
Geometry mesh diagnostics	✓	✓	✓
Automatic mesh sizing	✓	✓	✓
Solution-adaptive mesh	✓	✓	✓
Global and local size adjustment	✓	✓	✓
Boundary-layer mesh enhancement	✓	✓	✓
Interactive mesh-refinement regions	✓	✓	✓
Extrusion meshing	✓	✓	✓
Mesh growth-rate control	✓	✓	✓
Fluid gap and thin solid refinement	✓	✓	✓
Surface wrap meshing	✓	✓	✓

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Turbulence Models	2018	Advanced	Motion
K-epsilon	✓	✓	✓
K-epsilon with intelligent wall formulation	✓	✓	✓
Low Reynolds number K-epsilon	✓	✓	✓
SST k-omega	✓	✓	✓
SST k-omega SAS (Scale Adaptive Simulation)	✓	✓	✓
SST k-omega DES (Detached Eddy Simulation)	✓	✓	✓
SST K-omega RC (Smirnov Menter)	✓	✓	✓
SST K-omega RC (Hellsten)	✓	✓	✓
RNG	✓	✓	✓
Eddy viscosity	✓	✓	✓
Mixing length	✓	✓	✓
Automatic turbulence startup	✓	✓	✓
Laminar	✓	✓	✓

Solid Body Motion	2018	Advanced	Motion
User prescribed or fluid driven motion	-	-	✓
Multiple rotating frame of reference	-	-	✓
Linear	-	-	✓
Angular	-	-	✓
Combined linear and angular	-	-	✓
Combined orbital and angular	-	-	✓
Nutating	-	-	✓
Sliding vane	-	-	✓
Unconstrained (6 DOF) motion	-	-	✓

High Performance Solving (included)	2018	Advanced	Motion
Multicore single machine	✓	✓	✓
Microsoft HPC cluster	✓	✓	✓
Multi-node solving	✓	✓	✓
Remote solving	✓	✓	✓
Parallel solving on multiple machines *Requires multiple solver licenses*	✓	✓	✓

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