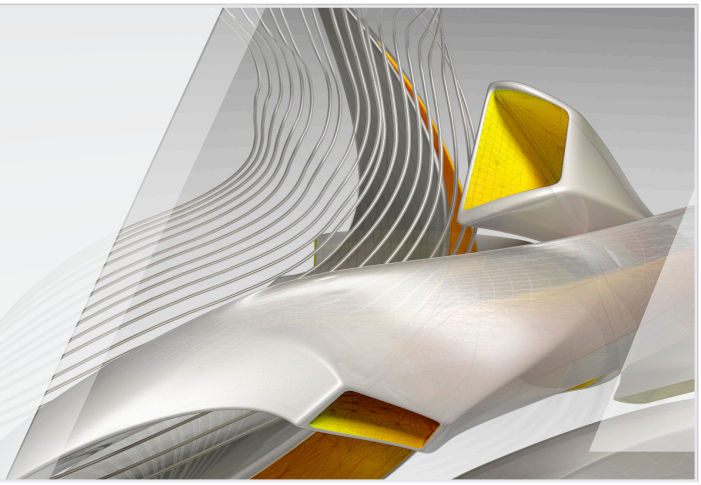
AUTODESK® CFD 2021

Scalable, robust fluid flow and thermal simulation



2021 Feature Comparison

** Denotes feature is included with **active CFD Subscription.***

CFD Features	Autodesk CFD Premium	Autodesk CFD Ultimate
Direct modeling with Fusion 360™ *	✓	✓
Defeaturing with Fusion360™ *	✓	✓
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, region, and bulk-flow data extraction	✓	✓
Pre- and post-processing API	✓	✓
Customizable report generator	✓	✓
Web and mobile storage, sharing, and viewing	✓	✓
FSI with Nastran In-CAD	✓	✓
Simulation Data Management with Vault	✓	✓
Export results to 3DS max, VRED, Maya	✓	✓

Solver Features

Fluid Flow	Autodesk CFD Premium	Autodesk CFD Ultimate
2D and 3D Cartesian	✓	✓
2D axisymmetric	✓	✓
Laminar flow	✓	✓
Turbulent flow	✓	✓
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 Premium	Autodesk CFD Ultimate
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 Premium	Autodesk CFD Ultimate
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	✓	✓

Turbulence Models	Autodesk CFD Premium	Autodesk CFD Ulitmate
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	Autodesk CFD Premium	Autodesk CFD Ultimate
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	Autodesk CFD Premium	Autodesk CFD Ultimate
Multicore single machine	✓	✓
Multicore cloud solving	✓	✓
Remote solving	✓	✓
Parallel solving on multiple machines **Requires multiple licenses*	✓	✓

For more information visit **www.autodesk.com/products/cfd**

AUTODESK.