This paper presents an extension to the Aircraft Preliminary Sizing Tool PreSTo which has been developed at the HAW Hamburg. The extension is called "PreSTo-Vis"; it bridges the gap between the mathematical sizing process and three-dimensional (3D) geometrical aircraft design. The core of this add-on to PreSTo is a universal aircraft surface model which was created using an advanced parametric associative design method in the 3D computer-aided design (CAD) system CATIA V5. A Microsoft Excel-based Visual Basic project automatically reads the output spreadsheets of the preliminary sizing process, processes these data and reconfigures the 3D CAD model to visualize the concept geometry of the new aircraft. Thus the design engineer has the chance to gain a three-dimensional impression of the calculated aircraft dimensions, and he obtains a parametric surface model in a native CAD format suitable for further geometric refinement and analysis.