

KeyCreator Version 9

History-free 3D modeling software can give you an edge in producing manufacturing-ready models.

Cadalog didn't approach me to write this review; I went to Cadalog first. I am so passionate about KeyCreator that I want to spread the word. I wanted to tell more people about KeyCreator after realizing two things. First, I read a post on the KeyCreator discussion forum and realized I am not the only one who has a passion for this software. Second, customers and suppliers alike often approach me to help accomplish their modeling tasks — that's how I know I have great software.

Because I use KeyCreator every day, I see the advantages of the software firsthand. With all the talk lately about direct model editing, I believe users should take a hard look at their current software to make sure it is exactly what they need. Can you produce manufacturing-ready models, and do so in a timely manner? Can you complete changes — big or small — with ease? How much time do you spend studying or learning the history tree or recreating a model from scratch because you don't have the tool necessary to interact with the model? In my role as the casting engineer for an aluminum sand foundry, KeyCreator and its direct-modeling approach give me an edge in performing all these tasks.

KeyCreator is a great example of a history-free modeler. It offers users a clean interface, extreme flexibility, effective tools, and the speed to complete any task, among other things. Another notable feature of KeyCreator is its interoperability, which I will discuss in more detail below.

What's New in Version 9

The most prominent change in modeling is the marriage of two already strong functions: Dimension-Driven Editing (DDE) and Quick Dimension. DDE allows you to modify your geometry simply by changing a dimension. With DDE, the dimen-

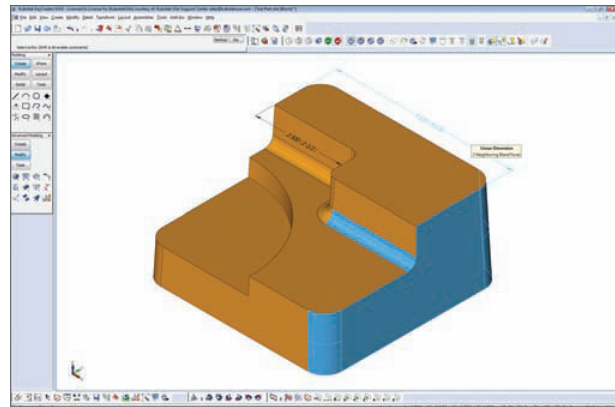


Figure 1. KeyCreator's Dimension-Driven Editing function allows users to modify geometry simply by changing a dimension. The changes are applied to the solid depending on which side was selected. The middle can also be selected to affect both sides simultaneously.

sion becomes a control; select the middle of the dimension to affect both sides of the geometry, or select either end to affect only one side. You can add constraints on the fly to get the results you desire. Quick Dimension is a function used to place dimensions on your geometry. Simply select an edge or set of edges, then place the dimension in the desired location. To simplify the use of Quick Dimension, Kubotek has improved the automatic placement of dimensions based on common faces or implied planes of the selected geometry. This improvement means you don't have to rely so heavily on construction plans to get the dimensions you need.

After invoking the DDE function, KeyCreator will ask you to select an entity. It can be an already placed dimension or current edges of your solid. If you select the former, the function will continue with KeyCreator's DDE function and allow you to control which faces will be affected by this dimension edit. If you don't have any dimensions on your model, selecting any edge (or pair of edges) will automatically invoke the Quick Dimension function and allow you to place the dimension and edit the geometry accordingly (**figure 1**).

KeyCreator implemented Geometry Mating in V8, and has taken it one step further by adding the option to implement associative mates between entities when using Geometry Mates. When a relationship must be remembered, the software places an Entity Mate on the screen that actually stores

KeyCreator Version 9

3D Direct-Modeling Software

Pros: Easy to use; powerful functions; true hybrid modeler; unmatched interoperability.

Cons: None significant.

Price: \$3,700

Kubotek USA
800.372.3872 or 508.229.2020
www.kubotekusa.com

the mating conditions inside a label. For now, the constraints are static in nature, but they will add flexibility and ease of use to assemblies.

For users seeking a more dynamic method for moving geometry, KeyCreator offers its new Transform Dynamic (XForm Dynamic) function. This function uses a 3D DynaHandle (**figure 2**) to manipulate geometry. Right-clicking on any of the seven controls will give you a menu with all the options available for that control. This function allows you to move the geometry freely in 3D space, move along a specific axis, or to rotate around a specific axis.

The overall performance of KeyCreator has been improved. Files will not only open and close faster, but solids modification will greatly improve. In fact, the more edges and faces you have in your files, the more improvement you should see. According to three benchmark files used by Kubotek, users should see an improvement in performance of more than 50% on average.

I can personally attest to this improvement on real-world files. When designing new tooling, I like to develop external casting models and internal core models separately; then, with both models completed, I Boolean subtract the core to create a final casting. On a customer file with approximately 6,400 faces, I saw a 55.5% increase in speed! By spending less time waiting, I remain more focused on my tasks at hand and stay more productive overall. In cases in which performance is relative to hardware configuration, KeyCreator has a new add-in to test and help optimize the different settings that could influence hardware performance.

Real-World Application

I have used KeyCreator for five years (since V3), and I have come to rely on its flexibility and power. I learned to model with history-based software and have since used, in one way or another, three other packages in my short engineering career. KeyCreator and its approach to direct modeling stand out among all the modeling tools I've worked with over the years.

The best way to convey the benefits of KeyCreator is to describe a typical project. You receive a request for quotation (RFQ) from a customer, and in the RFQ package you receive solid models in any of several file formats. With KeyCreator, this is no problem. You can import SAT, SRF, DXF, DWG, IGES, STEP, Parasolid v21, SolidWorks 2009, Inventor 2010, CATIA v4 and v5, Pro/ENGINEER, PRT (NX), and OBJ files. I have yet to encounter a customer or supplier with whom I couldn't share 3D files. After you get the model into KeyCreator, it becomes a native CKD file and then you can perform any necessary healing. You can repair models in many ways, and the software provides some excellent documentation to help in this area.

Once you import the model, the fun begins. You quickly realize that the designer doesn't have the slightest clue about making the part manufacturable. In most cases, you get mod-

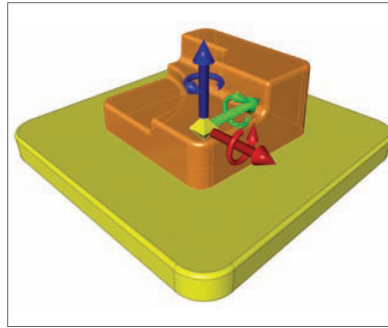


Figure 2. The 3D DynaHandle enables users to move geometry quickly, and as accurately as desired. In this example, the tool has been used to move the highlighted (orange) solid into the middle of the yellow plate.

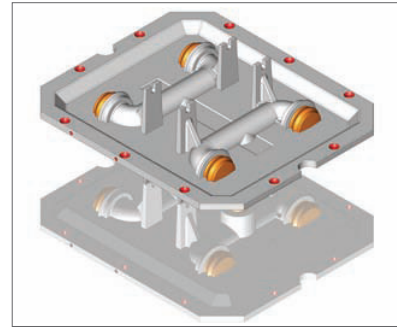


Figure 3. This tool, which began as a SolidWorks file, was imported and healed in KeyCreator in two hours' time. Tooling design was completed in another three hours.

els with no draft, little understanding of pull directions, and undefined or impossible parting lines.

At this point in this common scenario, you have a decision to make. Do you rebuild the model from scratch, or use the imported geometry as building blocks to create a new model? Or can you use the tools provided by your CAD software to alter the model to fit your needs, thus saving countless hours of work and headache?

With KeyCreator, the answer is unquestionably the latter (**figure 3**). No other mechanical CAD product that I have used or seen has the ability to interact directly with the geometry with such ease, and with little or no concern about how the model was created. This freedom allows me to get customers' castings delivered faster, more cost-effectively, and with fewer errors.

Final Thoughts

KeyCreator is a complete direct-modeling MCAD solution for creating everything from 2D drafting to 3D assemblies. Kubotek has done an amazing job of keeping flexibility and ease-of-use in its software. The unparalleled ability to use the data for what it is truly meant to represent — geometry — is something I value every day. In my opinion, KeyCreator could be used in any design or manufacturing facility that relies on solid modeling. I rely on the software for many tasks, such as weight estimating for quoting, producing tool path—ready models for my suppliers, and conveying ideas to nontechnical audiences.

I find myself among the fortunate group of CAD users who get to make their own decisions about which tools they use. At the very least, I would encourage any CAD professional to compare KeyCreator with his or her current package. I think many people will be pleasantly surprised. As for me, Kubotek KeyCreator V9 will continue to be my tool of choice. ❏



Joshua Stollar has been a casting engineer since 2004. He specializes in solid modeling, casting design assistance, tooling design, general plant engineering, and information technology for Multi-Cast Corp. in Wauseon, Ohio.