

KeyCreator 4

Nonparametric modeler offers alternative to history tree.

By Mike Hudspeth, IDSA

TODAY NONPARAMETRIC MODELERS sound like dinosaurs. Everyone has to have constraints, right? Well, as Kubotek proves, perhaps not. KeyCreator (formerly CADKEY) has never had them, and Kubotek isn't planning on adding them any time soon.

There are many times when a designer needs to just get the job done without hassling with dimensional or geometric constraints. Nonparametric modeling techniques such as those in KeyCreator 4 can do just that. The downside is that changes and variations can be somewhat more involved. KeyCreator 4 has an impressive array of capabilities—this is a serious tool for serious design (figure 1).

Modeling without constraints can be liberating. So-called hack-and-slash techniques can get a designer to a model configuration faster than almost any other way. They're especially good for conceptual modeling. The ability to merely delete construction geometry undoubtedly keeps file sizes smaller. This requires a different mindset altogether. Instead of taking the time to build intelligence into the model, users just create geometry. That's what Kubotek means by geometry-based design. Other 3D modeling vendors refer to it as explicit modeling.

File Management

KeyCreator 4 imports and exports an impressive array of file formats. This makes working with others who use another package fairly easy. Users can import and export old CADKEY files as well as SAT, SRF, DXF, DWG, IGES, STEP, Parasolid, SolidWorks, Inventor and STL files. Upgrades add even more options, including Unigraphics, CATIA V5 and Pro/ENGINEER. Users can export graphics files to insert images of designs into Word or PowerPoint.

KeyCreator 4 provides some nice PDM (product data management)-like capabilities.

File Locking lets users specify whether to open a file as read-only or exclusive-write access, so if someone else tries to open the same file, KeyCreator 4 tags it as busy and the other user has to open it as read-only. It's similar to check-out and check-in procedures found in other programs. Though not a long-term PDM solution, it's a great way to safeguard data.

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Figure 1. KeyCreator is an advanced solid/surface modeling solution that provides fast, easy modeling and editing functionality and a robust suite of translation tools to work with data from any of today's other popular CAD/CAM tools.

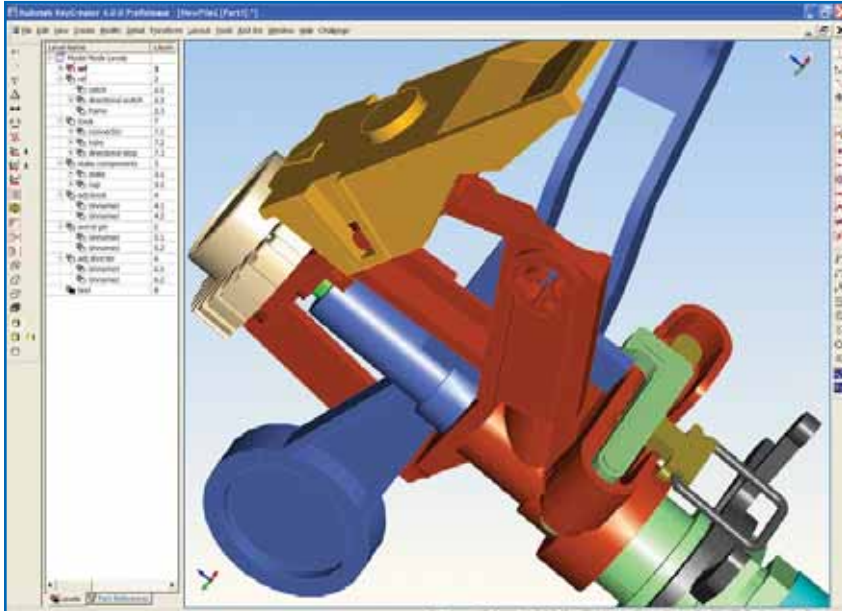


Figure 2. Levels (the Kubotek term for layers) are easy to use. The level manager displays information such as name, number and number of entities. Levels can be grouped in a way similar to Explorer folders, so it's easy to track what goes together. Unlike many modeling packages, KeyCreator supports unlimited nested levels.

New Capabilities

KeyCreator 4 brings many new capabilities to the design table. The new Segment Spline function can be very handy for converting a spline into a series of lines and arcs. Be careful with this, though—the original spline isn't converted. New entities with the same properties as the spline are created on top of it and the original spline is retained. This can make manipulation somewhat dicey. To cut down on any confusion, change layers, or levels as KeyCreator 4 calls them, before segmenting the spline, so the new segments end up on the new level (figure 2).

Speaking of levels, users can now change object attributes by level filtering—for example, change everything on a certain level to green. One of the most useful tricks KeyCreator 4 has are the Blank and Unblank commands. With them, users can turn entities on and off without touching levels. It's not a new concept, but it's a good tool. I often want to work on something that's on the same level as

something else, but can't see it because another part is in the way. Blank lets me turn off the obscuring object for a moment.

Another new function is surface-to-surface deviation that measures the

distance from one surface to another. It throws a user-specified number of points onto the surface along the U and V grid lines and measures from each point to the other surface. In this way, users can determine the positional as well as the angular deviation between the two surfaces.

KeyCreator 4 has the ability to create sheet-metal parts with parallel, planar walls that fold and unfold (figure 3). There are several ways to specify a bend. Users can create a bend using the Create Sheet Metal Bend command. They can give an angle, a position and pick a face to match, and then specify a bend radius and axis type. They can even make several bends at once—this is handy when all the bends are the same. To edit the bends, the Edit Sheet Metal Bend command brings up essentially the same menu as the Create command.

KeyCreator 4 has also enhanced its already respectable drafting capability.

KEYCREATOR 4	
Nonparametric Modeler	
OVERALL PRODUCT: A	
<p>This version: B Ease of Use: A Features: B+ Installation: A Customization: . B Interoperability: A Third-party add-ons: C Help: B Innovation: C+ Value: A</p>	<p>to model; nonparametric; good drafting capabilities.</p> <p>Cons: Nonparametric; terminology can be confusing.</p> <p>Price: \$3,495</p> <p>Kubotek 800.372.3872 www.kubotekusa.com</p>
Pros: Simple and fast way	

Enhanced Drafting

KeyCreator 4 has also enhanced its already respectable drafting capability. The Quick Hatch function lets KeyCreator 4 identify and hatch user-selected closed boundaries, including islands. A user selects a hatch and clicks the Quick Hatch button on the Select Hatch Pattern menu, then picks inside a closed boundary. KeyCreator 4 identifies the open area and selects all the entities that bound it. It's very easy.

In KeyCreator 4, detail dimensions are associative to the model geometry. As such, they depict the actual size of the part. Through the course of time, though, some dimensions can become unassociated because of modeling changes and edited dimensions. We won't get into the pros and cons of editing dimensions. It happens, sometimes with good reason, and we all have to deal with it. Auto Re-associate Dimensions goes through the drawing and looks for dimensions that are hanging. KeyCreator 4 applies whatever

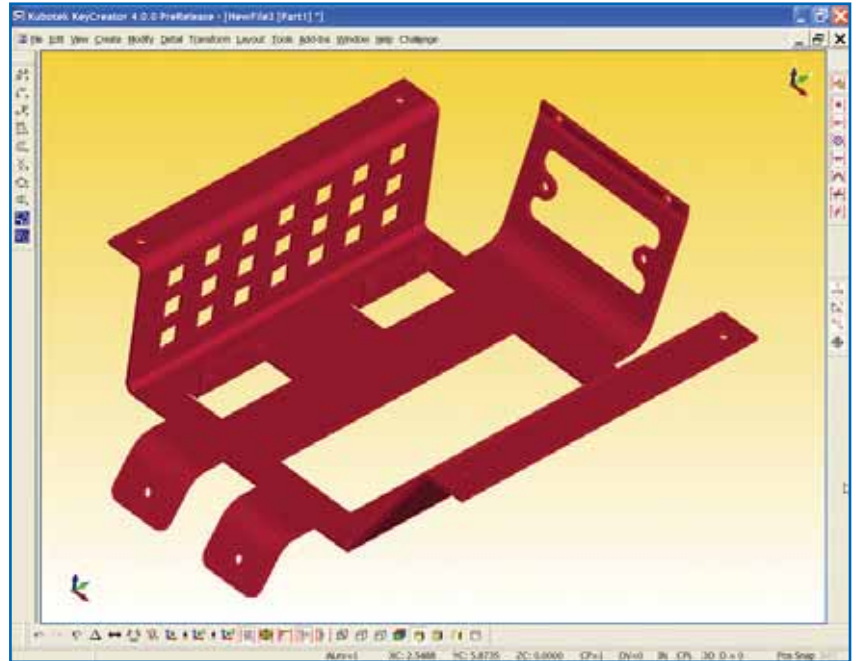


Figure 3. KeyCreator 4 can fold and unfold sheet-metal parts.

tolerance is specified to find position points for the dimensions. Users can also specify whether to reset the dimension to the actual model dimension or to keep any edited text it may find.



Figure 5. The Detail Settings dialog box lets users choose a range of settings such as dimension fonts, note fonts, leader types and arrow styles.

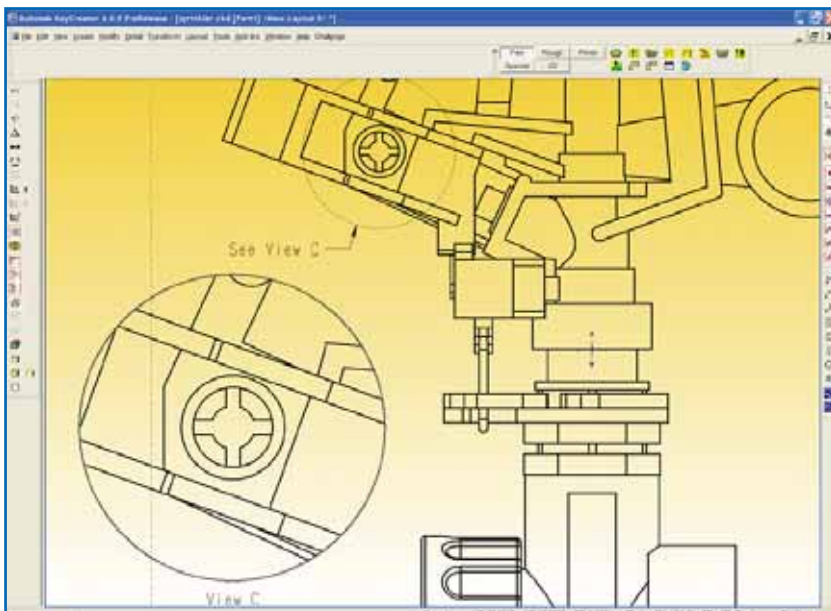


Figure 4. The detail view shows complex parts of the model that might otherwise be hidden.



Be sure to review the drawing before releasing it. Computers can do a lot, but they still can't read your mind.

KeyCreator's Detail Settings dialog box manages settings for dimension and note fonts, leader types and the like (figure 5). The new Detail Callout creates detail views. Use it to zoom in on a small portion of a model when something is too small to be seen easily. In addition, there is an Explorer View Window utility, which is similar in that it lets users dynamically view a magnified area of a drawing (figure 4). Place it anywhere on the drawing and zoom on any part of the drawing. Again, this isn't a new concept, but it's quite useful when working in large drawings—certainly a welcome addition.

KeyCreator 4's terminology can be a bit confusing, mainly because different CAD programs tend to call the same things by different names. For example, some programs call blends rounds and others call them fillets. I found some of the terminology in KeyCreator 4 confusing, such as calling drawing views instances. Those new to modeling won't have any trouble figuring it out—us older users who expect certain things will have the most confusion.

Last Word

What's the final word on KeyCreator 4? It's good design software. If users don't want to bother with parametrics, it just might be for them. It's reasonably priced (starting at \$3,495) and is expandable. Check it out—you'll like what you see. ■

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{ ORVILLE & WILBUR }



Some products just seem like they were made to work together. Kubotek, a leader in CAD/CAM technology, has developed **KeyCreator™**. Evolved from the award-winning **CADKEY®** software, KeyCreator's powerful translator and direct feature editing capabilities fully integrate with your current CAD software to deliver one powerful partnership.

Whether for conceptual design, or to smoothly transition your models to manufacturing and production, KeyCreator can read and quickly modify **ALL** of the varied formats you encounter.

KeyCreator is a seamless extension to your parametric platform or a full-featured, stand-alone solution that can help streamline your product development process while reducing costs.



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