Benefits of 3D Die-Design Add-On Software

Article submitted by Raymond J. Proeber, president of Accurate Die Design, Inc., New Berlin, WI, describing his company's use of add-on software for 3D solid modeling. The design firm also is the U.S. Technical Center and distributor for Logopress3 die-design software.

In 2002 we jumped into the world of 3D solid modeling. It soon became apparent that we had desperately missed all of the tools made possible through the use of a die-design add-on package for our 2D CAD software.

Fortunately, in 2003, new SolidWorks add-ons hit the market, geared toward die design. We selected Logopress3 for our die-design business.

So what does a die-design software add-on bring to the mix that a raw 3D modeler, such as SolidWorks, does not? Foremost, the ability to accurately unfold 3D-modeled parts, regardless of the CAD software used to model them, and regardless of whether they have gussets or ribs running through the bends, varying material thicknesses, etc. The unfolded or flattened part allows the designer to create, within minutes, a strip layout. And in seconds users can modify the strip layout—changing the progression or stock width, or adding or deleting a station or a part in the strip. Just return to the original part after having created the strip layout and apply partial bends or overbends, for example, and watch the strip layout update automatically.

Recently, I demonstrated to designers how a multiple-stepped round drawn cup could be processed in seconds, with each intermediate draw completely and accurately defined.

The strip layout created via the add-on software quickly can be inserted into a die-set template, and because most 3D CAD software is parametric, the size of the die set can be adjusted easily around the strip layout. Parametrics also allow the software developer to create an entire library of guide posts, bushings and other die components in spreadsheets. So die designers need not organize components nor build large libraries of solid models, nor access websites of die-component suppliers.

The organization of die components in spreadsheets and the creation of all necessary holes and subsequent locating of the components are quite transparent to the add-on-software user, as compared to performing these functions via a raw 3D CAD package.

Because off-the-shelf 3D CAD packages are meant to be used by engineers and designers across many fields, they can't be expected to cut all die clearances through the entire stack of plates in a die automatically—including die taper or step relief—as can a specific die-design add-on software package. Nor can they be expected to manage the insertion and subsequent mounting of form punch-

es in a fluid motion as can be expected with the add-on.

With the die design modeled, the add-on software allows users to enter the press stroke, stripper travel and strip lift, resulting in animation of the strip moving through the die. Meanwhile, the add-on software checks for strip interference or collisions. Of course, during die design is when these mistakes should be caught, not after die build.

Accurate Die Design, Inc.: 262/938-9316; www.AccurateDieDesign.com

Auto-Parts Stamper Installs New ERP System

Nagata Auto Parts Canada, Co., Ltd., London, Ontario, is installing new ERP software from ShopEdge Software Inc., Kitchener, Ontario, Canada. The Nagata stamping and subassembly facility comprises an 8000-sq.-m plant, 90 employees, a pair of transfer presses (250 and 400 ton), a pair of progressive-die presses (200 and 400 ton) and a 300-ton transfer press. It also houses several arc-welding robots and resistance-welding machines, as well as a complete machine shop.

ShopEdge software, which integrates the business processes of metal-stamping operations, was recently updated with a remote help feature, which enables ShopEdge to connect directly to its customers' computers to help sort through any problems that arise.

ShopEdge Software Inc.: 519/579-1212; www.shopedgesoftware.com

Catia-Based Software Nests Sheet Blanks

Forming Technologies Inc., (FTI) Oakville, Ontario, Canada, announced at the recently held COE 2007 Automotive Industry Workshop in Dearborn, MI, the global release of Catia ProgNest R18 CAA V5. ProgNest is the only tool in Catia for nesting sheetmetal blanks on progressive-die strips. ProgNest produces as many as nine progressive-die configurations, and calculates accurate cost evaluations based on nesting layout, carrier location and dimension. All results are stored in the standard CatPart file for ease of use of PLM integration.

This is the latest solution fully integrated into Catia CAAV5 environment and is installed on R16, 17 and 18.

ProgNest automatically calculates the best progressive nesting layout to optimize material utilization based on coil width and pitch, and other constraints. Users can produce fully optimized nesting layouts for one-up, two-up and mirrored progressive-die configurations.

Forming Technologies Inc.: 905/827-2997; www.forming.com