3DQuickPress + SolidWorks
In Tooling Industries
IF YOU’RE NO ICE-CARVING CHAMPION, USE SOLIDWORKS.

You don’t need to be an ice-carving champion to convert cool ideas into innovative 3D designs. SolidWorks® software lets your team use DFMXpress design for manufacturability and assembly technology and the tol Analyst automated tolerance stackup tool to explore design alternatives more quickly. So you can achieve greater innovation and gain a competitive edge.

Redneck Engineering uses SolidWorks for visualization and virtual prototyping, cutting motorcycle concept-modeling time by 75 percent and development costs by 50 percent.

Learn about the advantages of SolidWorks at www.solidworks.com/ice
Precision Tool & Stamping, Inc. (PTS) is located in a rural area of Clinton, North Carolina, where you can find more tobacco fields than precision die shops. PTS is a locally owned company which controls the complete die design to production process.

PTS now uses over 23 world-class punch presses ranging from 15 to 600 tons. A completely equipped CNC facility is equipped to produce the dies to serve customers from industries like electronics, electrical appliances, lawn mowers, furniture and parts used in outer spaces. PTS has a very strong commitment to offer the best service, designs and products available. In order to achieve this, PTS needs to react extremely fast to customer needs without any errors. This is the ultimate goal of any conventional die shop. Being an ISO9000 certified company, PTS understands very well that communicating the metal die design in 3D at the earliest stage is extremely important to avoid errors in production. PTS is committed to spend much time and money to explore new methods in die design.

Tart Lee is the owner of PTS. Having committed himself in the die making industry for 33 years, Tart was a pioneer in applying computer-aided-drafting tools to the industry back in 1987. “Initially, I tried to do the die design in 2D CAD. There were problems and issues in the new tools. I had to go back to the drawing board to finish the job. It took several years for me to try out new software tools. I moved back and forth between the computer and drawing board before I finally made the migration from manual drafting to 2D CAD.

In 1991, I settled down in choosing AutoCAD as the design tool. I did make a number of macros in the system to automate the repetitive works which our die design needs that cannot be found in a generic 2D CAD system. The world is changing and the industries demand more in terms of speed and price. I kept on monitoring the innovation in CAD software. My first purchase of 3D software was back in 1997. I read the various CAD magazines, and I realized SolidWorks was getting very popular in the mechanical design industries. It was easy to learn and easy to use. We invested in the first seat that year and I started to test the feasibility of applying only SolidWorks to do the die design job in a timely fashion. The learning curve for me was almost three months to get myself competent to use SolidWorks to do the die design.

I understood that there were no standard 3D CAD tools to handle our specific needs in tool design. I had to adapt to using the tools available in 3D CAD to finish my design. SolidWorks helped me complete the design in 3D, although it required more time than my previous 2D design approach. Using 3D SolidWorks was justified because it reduces errors in the concept phase of the die design. Today, we cannot afford to make errors which result in loss of time and reduced profit”. Tart kept searching for better tools to speed up SolidWorks for die design projects. He decided to buy 3DQuickPress, a new solution partner of SolidWorks in progressive die design in March 2004 from a local SolidWorks reseller located in North Carolina. “After I got the training at the 3DQuickPress training center, I knew that I made the right decision to buy this new product. Of course, I can manage to finish all my work in SolidWorks alone in a quality fashion, but, with 3DQuickPress, I can now finish the job much faster. The overall gain in productivity was almost 30% after I implemented 3DQuickPress into my SolidWorks environment. 3DQuickPress makes everything a lot faster.

Strip layout design today is much easier. Hole series design is much quicker. User-defined features in 3DQuickPress added value to SolidWorks for all of our design projects. In my last 12 months of daily use of 3DQuickPress, I found the distribution and support team supporting 3DQuickPress resellers in North America, Strategic Technology Solutions, is great to work with. Their working attitude is the right solution to serve these very competitive industries.” Tart Lee grows with the US metal manufacturing industry and has devoted over 33-years in his career to apply new methods to make the US metal industries remain the most competitive entities in the world market. While the world metal manufacturers are still debating the benefits of using 3D for die design, Tart has shown leadership to the world by his success in producing quality die designs in 3D.

STS worked extensively with Precision Tool & Stamping during the first 12 months of their 3DQuickPress implementation. This successful partnership helped both Precision Tool and 3DQuickPress to further develop new design methods and techniques for 3D progressive die design. The level of automation and reuse of data has made the traditional 3D modeling approaches of other CAD solutions obsolete. 3DQuickPress is rapidly becoming the new catalyst for design success in the metal forming and stamping industries.
Powerful unfold
User friendly strip layout module
Efficient die set design
Output industrial grade drawings for manufacturing
Standard & user definable components without programming

Key Features:
- Powerful unfold
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- Efficient die set design
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Use The Power of 3D Design
LEADING TOOLING COMPANY IN INDIA

The company caters to tooling needs of International quality. The Company is an ISO 9001:2000, ISO 14001:2004 & OHSAS 18001:1999 certified establishment, Certified by TUV-NORD, Germany and belonging to world-wide well known GODREJ GROUP which is over hundred years old having a wide spectrum of engineering and consumer products like Machine Tools/Process Equipment, Refrigerators, Washing Machines, Office Equipment, Locks, IT Products, Soaps, Foods, Electric Motors, Construction etc. and enjoying reputation for excellent service after sales. Godrej Group is one of the largest industrial conglomerates in India headquartered at Pirojshanagar in Vikhroli, Mumbai. The group is worth US$ 1.875 billion in 2008. The Godrej Tooling is one of the largest and most sophisticated tool rooms in India. Established in 1935, the company has grown to one of the most organized and professionally managed tool room facilities capable of handling any challenge in design, manufacture, and testing of any kind of tool.

SEARCHING FOR THE BEST-IN-CLASS TOOL DESIGN

Within their sheet metal design group, they had been using 6 seats of Pro-E and 12 seats of AutoCAD. They planned to replace AutoCAD in a period of 2 years with new tool design software which would satisfy their needs for progressive die design as well as other varieties of tools. Godrej was expanding their business of large progressive dies for the export market in parallel to the expansion of new design facilities.

SUPPORT OF SOLIDWORKS LOCAL RESELLER

With a very short time frame and no representative in India, 3D QuickTools Ltd. could not deliver on-site demonstration to Godrej. Through the help of SolidWorks Asia Pacific and Addonix, SolidWorks reseller in Mumbai, a complete customer profile was revealed to 3D QuickTools. To better serve Godrej in the tooling context, Godrej would negotiate the deal directly with 3D QuickTools with strong emphasis in training and support.
Being a subscriber of Webex since 2004, 3D QuickTools worked out a smooth web meeting with Godrej Tooling. In 2005, 3D QuickTools was among the early birds to use Webex webmeeting to conduct business discussion and technical demonstration over internet. After we fixed some minor setup issues of computer speakers, microphone, and internet connection, a formal webmeeting was conducted on March 2nd. We demonstrated the full functions of 3DQuickPress over a distance of 4,306 kilometer and a time difference of 3.5 hours. By the time, Godrej had installed a big bandwidth to cater for their international business which was exceptional in India by that time. Godrej was satisfied with the first demonstration. It gave the basic understanding to Godrej’s tool designers the workflow of 3DQuickPress. Godrej started to conduct X-ray on 3DQuickPress. The contribution of internet was significant, especially in the areas of after-sales support. The technical support team in 3D QuickTools was able to understand the problems of Godrej on the usage of 3DQuickPress through email, ftp, and webmeeting. The support frequency was diminishing while Godrej’s tooling engineers became competence in using 3DQuickPress. Godrej planned to have the initial period of the 3DQuickPress deployment focused on customization and automation workflow to their tooling environment. Substantial custom libraries were initially built to path their future 3D efficiency.

Another more specific demo was requested by Godrej to answer a list of technical specifics. This second live demo was scheduled on April 4th. It took almost 5 hours which happened to be the longest live demo of 3D QuickTools. During the demo, further clarification was made on standard libraries, customization tools, Godrej specific standards, hole charts in drawing, specific drawing views, BOM customization, library driven punch clearances, and dimensioning practices in tooling industries. On the next day, the respond from Vinay J. Gandhi, General Manager & Head Engineering stated, “Our impression regarding the software is good.” After another round of questions and answers in deeper level on the features of 3DQuickPress, Godrej determined to install 4 seats of 3DQuickPress. A visit was invited to their plant on June 29th to discuss on the implementation of 3DQuickPress, number of initial seats, and training. Contract was officially completed on July 28th and one week training was conducted in early September.

The checklist composed over 30 specific technical features of 3DQuickPress.

### GODREJ EXPANDED MORE

By mid of 2007, Godrej Tooling expanded their usage of 4 seats of 3DQuickPress to 8 seats. Being the largest Indian tooling company using many SolidWorks and 3DQuickPress seats, the export business of automotive parts was increased steadily. Apart from this production design environment of 3DQuickPress / SolidWorks, Godrej maintains various CAD systems like 2 seats of Catia, & 6 seats of Pro/E. This facilitates Godrej to take jobs in different CAD formats.

Today Godrej’s 8 seats of 3DQuickPress and SolidWorks Professional are used in 2 shifts a day each with 16 tool designers. They work round-the-clock to catch the tight tooling schedule most manufacturers want and also deliver on time every time. Godrej also invested the top-of-the-line workstations with lots of memory and best graphics for their tool designers.

This is the reason why top world brands are delighted to be the customers of Godrej Tooling.
Research Tool & Die Works (RT&D) is a manufacturing firm with over fifty years experience in marine electrical systems hardware. Their modern plant in Carson, Los Angeles, California, serves as the corporate headquarters and state of the art manufacturing facility. It houses some of the most advanced fabrication equipment available. RT&D provides competitive die design and metal stampings such as cable trays, degaussing cable hangers, EMI Bonding hardware, light hangers, stuffing tubes, and more.

Kevin Perrault, Vice President of RT&D, acquired the 3DQuickPress software in April, 2005. “Manufacturing in US and California has declined a lot in the last ten years. With good ideas and experience in stamping, we continue to grow and expand our business coverage around the world. Being a global player in the metal stamping industry, we have to be fast, accurate, and cost effective. We are using all possible technologies to enable us to be faster and better than our competition. Before I started working full-time at RT&D, the company had invested in SolidWorks software.

In a testing period of six months, the tool designer learned how to use the software and tried to apply it in tool design jobs. The intricacy of the software is good for parts design, but requires much more specialization to do die design. My goal is to use SolidWorks as a day-to-day design tool. 3D part file communication is emerging as a standard communication protocol between our customers. SolidWorks is a good common interface, and to use it in the downstream application such as tool design is our next logical step. If we keep on using the same approach without change, we will lose out. Speeding up the production time is not an option. We managed to complete this 2D to 3D transition in a year.” RT&D is a full service shop housing tooling, press, and product services departments, and a staff force of over seventy. “In the stamping industry, the turnover rate is less than four years. Most of our staff have been working at RT&D over twelve years and many of them have been here for over twenty years.

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As designers, we’re able to do a larger volume of work and eliminate human error. As a company, we’re also making better use of our materials. The overall result is a significant improvement in performance.

Jay Suhsen, Manufacturing Engineer, Bermo, Inc.

If it starts out as sheet metal, Bermo Inc. makes it, whether it’s a staircase leading up to a Kenworth cab, a fan shroud for a Detroit auto maker, or any of a multitude of stamped, bent, punched, pressed, and extruded parts that go into Toro mowers, Polaris snowmobiles, or John Deere tractors.

The $26 million Circle Pines, Minn., company bids competitively for this work and profits when it can perform more efficiently and intelligently than its global competitors. In 2006, these imperatives led the company to adopt 3D CAD software from SolidWorks Corporation and 3D tool & die design software from 3D QuickTools Ltd.

These tools help Bermo deal with the complexity in manufacturing parts as ostensibly simple as, say, a bracket for a snowmobile suspension system. Although the order comes to Bermo as a 3D CAD model, the physical part will start out as a length of rolled sheet metal – steel, aluminum, brass, or copper – run progressively through a series of dies in massive presses applying up to 600 tons of force on the Bermo factory floor.

THE MANY FACETS OF UNFOLDING DESIGNS

Manufacturing engineers like Bermo’s Jay Suhsen need a way to virtually unfold the design into a strip that can be cut from the rolled sheet metal. They need to lay out the strip in a way that makes the most economical use of materials; create the tooling that will precisely bend, punch, stamp, extrude and cut the piece; and determine the optimum progression of processes to create the finished part.

In the old days, much of this work was done from two-dimensional plans, intensive hand calculations, and a heavy dose of what Suhsen terms “black magic.” None of it was straightforward. What looks to a consumer like a simple bend, for example, is a process that consumes space from adjacent planes, affecting .002-inch tolerances and distorting many part features.

“You can’t afford to stack up a lot of errors,” says Suhsen. “The flat blank needs to be very precise, and we don’t have time to develop multiple prototypes.”

Getting the flat blank right used to take an hour and a half and the strip layout two to three hours for a typical straightforward part. It required a lot of checking afterward and still allowed human error. Since there is no time for prototypes, Bermo would start production and check the first few parts. If they were okay, the press would keep running. If not, it was time to redesign the part and hopefully cut losses.

“Today, with SolidWorks and 3DQuickPress software, the flat blank can take less than a minute, the strip layout under an hour, and there are no errors,” says Suhsen. “3DQuickPress takes a part model designed in SolidWorks and virtually unfolds it on the computer screen into the flat blank. It unfolds models that most CAD programs couldn’t. We don’t spend time checking and double-checking any more because we haven’t found a single case where 3DQuickPress unfolding has been wrong. It’s just right the first time.”

ECONOMY MATTERS

The flat blank is only step one. The next step is virtually positioning multiple flat blanks on the unrolled sheet so they make the best use of the expensive material. Bad decisions here can cost thousands of dollars over a high-volume part run. Consequently, Bermo uses 3DQuickPress’s optimize command to position the flat blank in the strip in the most economical position possible, often automatically “nesting” parts – think of the yin yang symbol – to minimize waste. This spares Suhsen and his colleagues time, tedium, trial, and error. “We’re trying to pinch every penny to beat competitors, and this is one effective way to do it,” he says.

“3DQuickPress is always right.”
For small quantities, a run of 1,200 parts or fewer, Bermo sends unfolded part files to any of five 4,000-watt lasers using SigmaNEST® programming software. Because SolidWorks interoperates seamlessly with SigmaNEST, Bermo no longer has to convert files to neutral formats, which can introduce stray files and, consequently, more chance for error.

For high-volume runs of up to 100,000 or more parts, the first step after strip layout and optimization is deciding the progression of stamping, pressing, piercing, punching, and cutting the strip will undergo. Most strips undergo eight to 12 separate processes from blank sheet metal to finished part. 3DQuickPress automates this decision-making, helping manufacturing engineers plan the progression from die station to die station, with each action preserved in subsequent stations in the 3DQuickPress application. “If three holes were punched in station 3, those holes will be present in station 12,” says Suhsen. “You don’t have to draw the holes over and over at each station. With 3DQuickPress, I can simply drag and drop functions to the station where I think it works best. This is where the expertise of the engineer really matters, and 3DQuickPress handles all the busy work.”

At this stage, the engineer submits the strip and die progression to a rigorous team-wide design review. “The strip is the roadmap to success,” Suhsen says. “Put a bunch of people in a room scrutinizing it, and you come out of that room with a lot of good ideas. It used to take all day to incorporate their recommendations. Now I just drag and drop to incorporate their ideas.”

SMART TOOLS FOR INTELLIGENT DIE DESIGN

Finally, the engineer creates the tooling and dies to execute the die progression, selecting from a vast production-ready library (PRL) in 3DQuickPress populated at Bermo by Dayton tools. “They’re not just dumb library parts,” says Suhsen. “3DQuickPress grows selected tools to the size of the sketch and places them in the correct z (vertical) axis. Tooling selection associates with the original strip design as well as its place in the die progression. Click on a hole, for example, and the software automatically defines the correct punch, dictating the right part number and length. When the punch and die designs are complete, the SolidWorks/3DQuickPress data flows to the CNC-driven machines that cut tooling bases from two-inch-thick metal plates. These plates are then fitted with selected tools and precision-mounted on the press.”

When Bermo is making a part with especially complex drawn surfaces, Suhsen’s team uses another 3D QuickTools application. 3DQuickForm unfolds complex drawn surfaces such as the snowmobile seatback mount Bermo recently made. 3DQuickForm calculates curves, performs finite element analysis on the part, and assists the designer in determining the necessary tooling. “It’s pretty amazing when egg-shaped holes on the screen become perfect circles after the part is formed,” Suhsen says. In addition to automating strip, tool and die development, 3DQuickPress add specialized design capabilities to the SolidWorks environment, such as the ability to create a slot, set electrical discharge machining (EDM) start holes, close gaps, and replace splines – all automatically.

“SolidWorks and 3D QuickTools software have a symbiotic, seamless relationship,” according to Suhsen. “They have similar menus and feature managers, making it easy to run both at the same time and leverage existing knowledge from one application to the other. With 3D models being so complex these days, we need 3DQuickPress more than ever just to develop the strip. Before, if you couldn’t draw a product on paper, you couldn’t propose the product, so there was a limit to the complexity of part designs we unfolded. With the third dimension and solid modeling, things have gotten far too complex for the manual unfolding of parts.” As complexity soars, so do the benefits of using the right software.

“As designers, we’re able to do a larger volume of work and eliminate human error,” he says. “As a company, we’re also making better use of our materials. The overall result is a significant improvement in performance. That said, we’re still in the infancy stage. We don’t think we’re as good as we’re going to get. We’re still learning what these tools can do for us.”

Bermo relies on authorized SolidWorks reseller Symmetry Solutions Inc. and Strategic Technology Solutions (STS) for ongoing software training, implementation, and support.
Berkshire Manufactured Products, Inc. is a precision metal stamping, machining and fabrication company serving aircraft engine, aerospace, communications, medical and other markets in Newburyport, MA. Berkshire today has 2 buildings and 140 employees with exports to Asia, Australia, Europe, and Canada. Emphasizing “Capable, Integrated, Precise,” the company has been a primary supplier to domestic & international aerospace and jet engine industries since 1958. In 2004, Berkshire was named as one of the 24 companies in five New England states to supply components to the American-built US101 medium-lift helicopter, which is better known as “Marine One”. Applying leading manufacturing philosophies and being certified by AS9000, Berkshire delivers customers with competitive price and superb quality. Powerful CAD technologies have been well practiced and have kept evolving; the company and the tool design team continue to apply the latest CAD technologies to achieve competitive edge over competition.

CHANGE IN TECHNOLOGIES

Berkshire’s senior tool designer, Peter Meymaris joined the tooling industry 30 years ago. Together with Berkshire, he went through the rapid change of tool design technologies from 1980. “I learned mini-computer based CAD/CAM in 1981. My first progressive die design job was modeled all in mini computer. It took me 6 weeks. The system clawed but luckily I finished the project. PTC later gave a revolution to this design industry by offering parametric approach. After a decade, SolidWorks tuned up this approach to suit our need by offering a quick learning curve and 3D power,” said Meymaris. “I also used to design in Cadkey. The change from Cadkey to SolidWorks was a big one but this gave me a better foundation too. SolidWorks applies the latest technologies like parametric, configuration, and powerful assembly utilities.

Visualization and view management is very useful for me to debug in cases like a cam in a station. SolidWorks helps our company to take different jobs from companies using different CAD systems. The quality of the built-in translators of SolidWorks is good. This is important to contract manufacturers like us. Most of our works come from aerospace with complex shape. For nearly 20% to 30% of our works we need to use 3DQuickForm,a companion product of 3DQuickPress, to unfold. I can find the blank contour and the thinning within 5 minutes. More complex parts can take a few hours to unfold. I can directly apply the blank contour for the detail strip design. The integration of 3DQuickForm with 3DQuickPress makes it a pleasure to conduct the formability test right at every complex forming station. Before we implemented SolidWorks / 3DQuickPress design systems, we had a lot of guess work plus our bags of tricks. It was slow and incurred uncertainties. With SolidWorks / 3DQuickPress technologies, we can visualize the design, and the problems. Our time is used to figure out the best layout strategy rather than wasting it on the laborious work in modeling and drafting. 3DQuickPress uses the best-in-class strip design approach. Two years ago, the company introduced deep draw calculator. This added the empirical approach to conventional finite element method. Deep draw calculator is very practical for modeling symmetric parts. By combining both empirical method and finite element modeling, I have all the freedom to finish my job in time with accuracy.”

CONTRIBUTION OF TECHNICAL SUPPORT

Successful implementation of SolidWorks / 3DQuickPress involved much professional support from Computer Aided Product and STS. “STS gives fast and reliable support in 3DQuickPress. Everyone in STS has a very good attitude and they are great people to work with,” said Meymaris. In order to appreciate the powerful SolidWorks / 3DQuickPress software, Berkshire used a number of high end workstations from DELL Computer. All of them are equipped with lot of memory, a fast graphic accelerator, multi-core to achieve a good balance of graphics, CPU, memory and I/O. Meymaris shared his record in achieving 290 designs in 230 days as a result of experienced die design, good hardware, plus productive software like SolidWorks / 3DQuickPress. With more die makers implementing SolidWorks and 3DQuickPress in Massachusetts, Meymaris can now share and exchange experience with other 3DQuickPress users. Because of this Berkshire relies on authorized SolidWorks reseller Computer Aided Product, Inc and Strategic Technology Solutions (STS) for ongoing software training, implementation, and support. For more than 45 years, Berkshire has built a superior reputation for the manufacture of complex precision stamping and machined components. With more die makers implementing SolidWorks and 3DQuickPress in Massachusetts, Meymaris can now
Auto parts industries demand very high precision tooling and metal parts. We introduce 3DQuickPress in order to meet this requirement.

Kim Jin-il, Research Engineer, Nara Mold & Die Co. Ltd.

“Our production quality and time compression is improved much after we implemented 3DQuickPress. In particular, we optimize the tool design in the pre-production phase. Many try-outs and design errors are eliminated. We completed our full deployment of SolidWorks and 3DQuickPress this year. Our tool design in 3D can be evaluated to avoid manufacturing problems in a virtual 3D environment. It simply speeds up our production and reduces our costs,” said Mr. Kim Bo-whan. “Nara started to apply CAD/CAM technologies in 1984. Our company built up lots of experience in selecting the right CAD/CAM systems, as well as applying them in our unique production environment. Introducing 3DQuickPress to solve our tool design problem is proven now. Using the right tools to improve our production quality is the most straightforward approach,” emphasized by Mr. Kim Bo-whan.

3D IS THE COMMON LANGUAGE

“In tool design process, we are competing with time in seconds,” said Mr. Kim Jin-il. Before 3DQuickPress era, we rectified design errors only after we had finished our first try-out. It might require us to redo the tool design or die cutting in the worst cases. 3DQuickPress helps us to spot out errors three-dimensionally. The ultimate benefits bring us higher production rate at better quality,” said Mr. Kim Jin-il, senior die designer. “Auto parts industries demand very high precision tooling and metal parts. We introduce 3DQuickPress in order to meet this requirement. Nara has customers all over the world. They are inclined to 3D design than 2D approaches,” said Mr. Kim Bo-whan to elaborate the background of using 3DQuickPress.

Korean starts to apply 3D technologies to facilitate the manufacture of metal tooling recently. This trend is accelerating to react for the increase in projects coming in 3D formats nearly in all industries ranging from auto parts, electronics, etc. It is a natural request from product manufacturers to demand their tooling suppliers to use a compatible 3D system to communicate effectively that results a more responsive overall production process. 2D has been a standard for tool design in the past. It is a proven technology but inheriting the characteristics of tedious, complicated, and induced errors. To use 2D design and drafting tools to describe a complex metal part is difficult. In the contrary, 3D design tools yield 2D drawing output swiftly and naturally. Design errors in the die assemblies can be spotted out instantaneously. Users can do interference checking quickly in the virtual space.

Nara began to use the first seat of 3DQuickPress in February 2007. Its extensive usage yields a very high productivity in auto part production. Within 18 months of implementation, Nara was satisfied with the progress and expanded its usage to more tool designers. With the successful implementation of 3DQuickPress, other tool & die companies are paying attention to the benefits of 3D design processes. These benefits are not limited to auto parts industries, other industries like electronics, and electrical appliances also yield the same degree of benefits.
BACKGROUND OF NARA MOLD & DIE

Nara Mold & Die is specialized in tool & die business with major production capacity to serve the Korean domestic auto parts industries as well as export tooling for electronic parts. Established in 1999 as a LG spin-off company, Nara engaged in providing tools and dies to other LG’s subsidiaries. Once Nara established a decent management structure, the company headed for auto parts venture just in a few years from its start up. Following the business globalization of car companies and their world-wide sourcing policies, Nara received more business in export dies and molds. Auto parts sector has been boomed up to 70% of Nara’s total income which is much bigger than the original electronic parts business. Export mold and die increased to 60% of the company’s gross production.

The annual income was US$ 1 million back to 1999. Right after the first year operation, Nara reached the 10 folds milestone. By 2004, the export business increased to US$ 2 million. This marked Nara as an export oriented company. Nara selected 3DQuickPress as their tool design system because of the popularity of 3DQuickPress as a 3D tool design system in the industries.

Nevertheless, SolidWorks, as the 3DQuickPress platform, allows Nara to take 3D geometries from many CAD files in different industries. Being a Gold Product running on SolidWorks with seamless integration, 3DQuickPress is easy to use. Within 18 months of implementation, Nara also provided feedback on a number of key features which are important for auto parts tooling. Through the two-way technical exchange with Nara, it empowered 3DQuickPress with unique modeling features without sacrificing ease-of-use feature. This benefits the world-wide 3DQuickPress customers as well.

The Nara’s success story comes sooner with the presence of a committed service provider, WEBS. Being the Korean SolidWorks top reseller and 3DQuickPress support centre, WEBS delivered tailor-made trainings on SolidWorks and 3DQuickPress. WEBS also worked closely with Nara to develop tools in SolidWorks API to automate design workflow in Nara. As the top Korean die makers, Nara possesses the strength and vision to develop new ways of doing business in metal stamping industries. Accepting the changes and applying the changes to allow Nara to cater for the most stringent demand from customers. The open attitude of Nara will anchor the company as leader in the global die manufacturing industries.
Key Features:

- Handle complex blank shapes and forming features
- Support multiple-stage forming simulation
- Part unfolded to non-planar initial blank
- Support Flanging
The Hong Kong Polytechnic University

UNIVERSITY LEADS THE INDUSTRY TO USE 3D TOOLING DESIGN

POLYU - THE KEY TECHNICAL UNIVERSITY

The Hong Kong Polytechnic University is located at the center of Hong Kong, adjacent to the first tunnel linking Hong Kong Island and Kowloon Peninsula. Its predecessors, the Hong Kong Polytechnic, the Hong Kong Technical College, and the Government Trade School, were the motherland of the most successful industrial entrepreneurs in Hong Kong. The boom of Hong Kong manufacturing industries, which later triggered the flex of China manufacturing muscles, was mostly contributed by her engineering graduates.

3D TOOL IS THE TREND

Dr. L.C. Chan, Associated Professor of the Department of Industrial and Systems Engineering, formerly known as Department of Manufacturing Engineering, has been involved actively in metal stamping and tool design projects since he started his consultancy works in the Hong Kong Productivity Council. The key research areas of Dr. Chan are metal forming, precision tool design and process simulation. As early as 2000, Dr. Chan had envisioned there would be a need for students to learn 3D tooling design. Meanwhile, lots of manufacturers shared with him that the current 2D design in metal tooling had been saturated and reached its limits. Unless there were breakthrough technologies which can aid the tooling design capabilities, otherwise, the industries would soon lose the momentum to grow.

Later in 2002, Dr. Chan had conducted an intensive study on nearly all CAD systems on die design to see which is more potential and outstanding. Finally, he had chosen the locally developed die design software “3DQuickPress” as the preferable system to perform the standard 3D progressive die design. The first 20 seats of 3DQuickPress were then installed in the Digital Factory of the department in 2003 and practiced in the subject of Tool Design, which is a unique subject in the degree courses of BEng(Hons) in Industrial and System Engineering and BEng(Hons) in Product Engineering With Marketing, for learning and teaching purpose. Furthermore, the above subject together with the Advanced Mould and Design should be the one and only one serial topic delivered within the Hong Kong universities.

Almost the entire standard progressive stamping die design concept is illustrated swiftly in 3D SolidWorks-3DQuickPress environment. Equipped with the basic SolidWorks skill set, students can quickly unfold metal part and complete the strip development within a few hours after lecturing them with sufficient background knowledge in the subject of Tool Design. It has been proved to be highly effective and productive compared to that of students who have undergone the usual/conventional workshop training. By showing different 3D die structures, students are able to understand the general construction and characteristics of different parts of the die. No doubt the teaching efficiency is improved substantially.

In 2008, 68 students have opted to study this Tool Design subject in the first semester. The subject consists of 42 hours lectures including hands-on practice of SolidWorks-3DQuickPress and related studies. Advanced Mould and Die Design will also be conducted in the second semester for students to further develop a stronger aptitude towards tooling design whereas this subject normally has over 15 students to enroll. Based on the observations in last few years, students graduated from the above course with the option of Tool Design and the Advanced Mould and Die Design are able to secure their engineering related jobs faster than others in the similar discipline because of their stronger background knowledge in tooling design. From the factory owner’s point of view, students with tool design fundamental knowledge will be given higher priority to join their companies regardless of their ages and fields of study.
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About 3D QuickTools Limited

3D QuickTools Limited is the developer of 3DQuickPress, 3DQuickStrip, and 3DQuickForm to provide the most advanced and comprehensive 3D die design systems in the SolidWorks Gold Partner environment. The company has been providing high quality die design solutions since 1994. The flagship product, 3DQuickPress, is integrated with SolidWorks aiming at ultimate performance; ease of use and short learning curve to enable tooling engineers to use the power of 3D design. It provides solutions ranging from blanking development, strip layout design to die set structure design.

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