SIEMENS

AUTOMOTIVE

Advanced Anmol Metcomp Pvt. Ltd.

Achieving higher-quality designs with less manual effort and fewer revisions to reducing design time by 40 percent

Product

NX

Business challenges

Visualize intricate components in 2D

Meet customer demands for high-quality components with shorter delivery timelines

Improve bid response accuracy and timeliness

Explore multiple die configurations or optimize designs

Manage numerous 2D drawings quickly without miscommunication

Keys to success

Automate strip layout, punch design and die structure

Simplify complex progressive die design understanding using 3D visualization

Use NX 3D models to convey design intent

Use NX to enhance and simplify sheet metal part design

Results

Reduced design time by 40 percent

Achieved higher-quality designs with less manual effort and fewer revisions

AAMPL uses NX to enhance and simplify sheet metal part design and deliver quality and innovation with shorter lead times

Advancing precision and innovation in sheet metal manufacturing

Committed to innovation, precision and sustainable growth, Advanced Anmol Metcomp Pvt. Ltd. (AAMPL) continues to drive advancements in metallurgy and the automotive industry, making a significant contribution to India's industrial landscape.

In an increasingly competitive market, AAMPL has focused on boosting productivity, enhancing accuracy and improving downstream processes to stay ahead. Although the range of products and dies they manufacture is extensive, AAMPL primarily serves the automotive sector as a direct-to-original equipment manufacturer (OEM), Tier 1 and Tier 2 supplier. Annually, the company builds hundreds of dies and produces millions of stamped parts, including components for fuel injection systems, sensor brackets and electric vehicles (EVs).

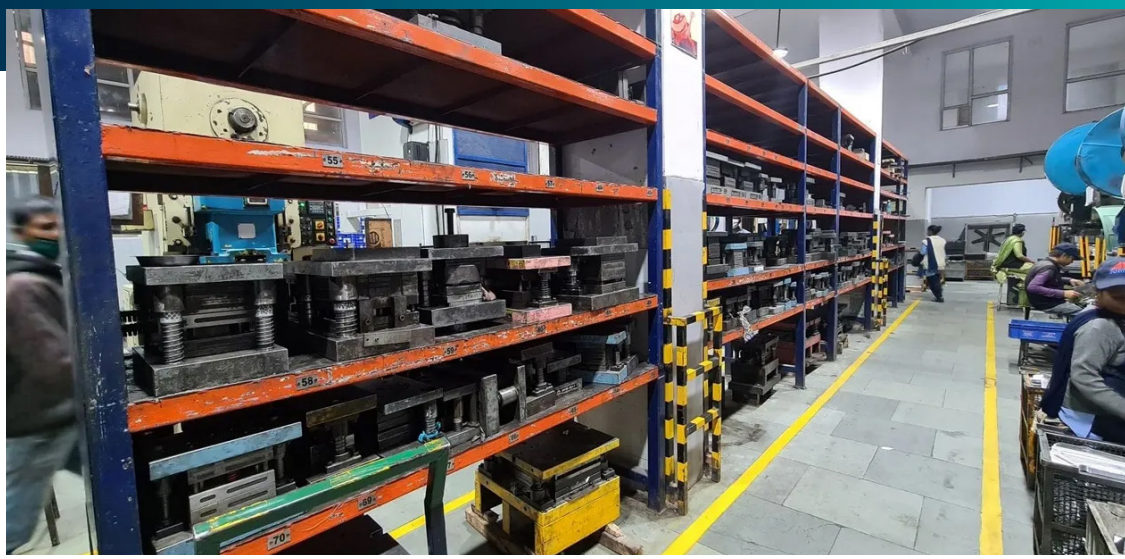
AAMPL excels in precision tool design for various manufacturing processes, such as injection molds, progressive dies and custom semiautomatic tooling. The company consistently takes on complex projects, meeting the demands of the automotive industry and other sectors with high-quality, reliable solutions.

However, AAMPL encountered several challenges while using 2D computer-aided design (CAD) for designing progressive dies, particularly as products became more diverse and complex. To overcome these challenges, AAMPL used Siemens Digital Industries Software's NX™ software, which is part of the Siemens Xcelerator business platform of software, hardware and services.

Results *(continued)*

Enabled faster product delivery, improving bids and profitability

Enhanced collaboration with streamlined communication and clear visual documentation



"With DDSPLM's support, we can leverage the NX progressive die wizard to capture the expertise of senior designers and automate strip layout creation, helping us minimize material waste, especially when using expensive nonferrous or precious metals."

Md. Azim
Deputy General Manager
AAMPL

Overcoming 2D CAD challenges

Using a 2D design approach, AAMPL struggled to accurately represent intricate components, making it difficult to visualize fit and clearance issues. This often led to assembly complications and multiple design revisions before beginning production, increasing costs and workloads.

Managing numerous 2D drawings for a single project was time-consuming and prone to miscommunication, especially when conveying design intent to customers or internal teams. Lacking an efficient way to explore multiple die configurations or optimize designs hindered innovation and slowed down the development process.

Additionally, 2D CAD limitations made it impossible to introduce comprehensive bill-of-materials (BOM) for mass production and prevented seamless integration with structural analysis tools. The inability to reuse 2D product data also created inefficiencies when generating product manuals or marketing materials. These challenges collectively made it difficult for AAMPL to meet customer demands for high-quality components with shorter delivery timelines.

Transitioning to 3D CAD to meet evolving manufacturing demands

Realizing that its former 2D CAD solution could no longer keep up with modern manufacturing complexities, AAMPL decided to switch to 3D CAD to meet its growing design challenges. The company's engineers rigorously tested and evaluated various solutions available on the market.

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"With Siemens software, we confidently meet tight deadlines, ensure 100 percent quality and accelerate the design of complex tools, giving us a competitive edge in the industry."

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With the support of Siemens partner DDSPLM, AAMPL identified NX as the ideal solution. DDSPLM provided comprehensive demonstrations of the NX progressive die wizard (PDW) tools and conducted tailored training sessions to ensure a smooth and immediate transition from their previous software. This empowered AAMPL to keep pace with industry demands and drive innovation forward.

AAMPL selected NX to help achieve several critical goals, including generating error-free solid models for better shop floor communication and reducing the need for excessive drawing details. This transition significantly improved data exchange with suppliers and customers, enabling the company to accelerate time-to-market and capture additional market shares.

Leveraging NX to minimize waste and improve efficiency

Implementing the NX progressive die wizard revolutionized AAMPL's progressive die design process. The software automates many repetitive tasks, such as strip layout creation, punch design and die structure generation, saving valuable time and reducing the burden of manual work.

Previously, the strip layout process took a week; now it is completed in just one day. The company achieved this efficiency because engineers no longer need to model each individual component, as the software automates many tasks and offers scalable parts and assemblies from an extensive library. Once the strip layout is ready, engineers can quickly insert operations such as piercing, bending, coining, embossing, lancing and other design elements.

"NX, with its revolutionary progressive die design capabilities, is a highly effective solution to the competitive challenge we face," explains Md. Azim, deputy general manager at AAMPL. "With DDSPLM's support, we can leverage the NX progressive die wizard to capture the expertise of senior designers and automate strip layout creation, helping us minimize material waste, especially when using expensive nonferrous or precious metals. Using the 3D strip layout simulations gives us immediate feedback, allowing us to fine-tune designs efficiently. Plus, with NX 3D models, we can easily identify problem areas and clearly communicate design intent to others; it's far more understandable than 2D."

By leveraging 3D visualization, AAMPL engineers can easily comprehend complex assemblies, spot potential fit or clearance issues early and prevent costly manufacturing errors. Using NX integrated validation tools allows for real-time simulation and checks, ensuring greater accuracy and minimizing rework. With powerful capabilities like feature recognition, bend tables, direct unfolding and one-step unforming, leveraging the NX die wizard optimizes straight break and freeform

Solutions/Services

NX Progressive Die Wizard
siemens.com/nx

Customer's primary business

Advanced Anmol Metcomp Pvt. Ltd., founded in 1998, is a leading sheet metal manufacturing company. Supplying global OEMs, AAMPL specializes in precision-engineered sheet metal press and machining components for two-wheelers, four-wheelers and EVs. Producing nearly 2 million parts monthly, their expertise ensures cost-efficiency, reduced lead times and high accuracy.
aampl.in

Customer location

Faridabad, Haryana
India

Siemens partner

DDSPLM PRIVATE LIMITED
ddsplm.com/

sheet metal part design. Additionally, it helps generate intermediate forms and flattened blanks for complex parts, ensuring accurate designs and streamlined manufacturing processes.

Transforming design efficiency and business growth

By integrating the NX progressive die wizard, AAMPL engineers experienced a significant boost in efficiency and design quality. Additionally, thanks to the template-based workflows and libraries of standard components, designers can quickly apply proven design elements, ensuring consistency across multiple projects. With the NX associative and synchronous modeling features, design changes became easier to manage since updates automatically apply to all related components. This streamlined process enhanced collaboration, improving communication between design and manufacturing teams and reducing misunderstandings via clear visual documentation.

Although they are highly skilled in 2D CAD, AAMPL's die designers initially faced time delays due to the need for detailed drawings. However, with support from DDSPLM and their increasing familiarity with NX and the progressive die wizard, they reduced design time by 40 percent, resulting in a notable improvement in quality. Looking ahead, AAMPL is excited to leverage the artificial intelligence (AI) capabilities in NX to further optimize its design process and save more time.

"Using NX solutions has transformed our design process, enabling us to deliver precise strip layouts, faster cost estimates and improved profitability," says Azim. "With Siemens software, we confidently meet tight deadlines, ensure 100 percent quality and accelerate the design of complex tools, giving us a competitive edge in the industry."

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