UNISTEEL®
The precision component specialist

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Uni-TechSpace

Innovations in Stamping Technology

A member of SFS

Metal stamping technology in Unisteel has evolved greatly over the years. Today, manufacture of ferrous and non-ferrous metal components with complex profiles can be easily achieved with metal stamping. Metal stamping is a cold forming process that comprises of different cutting techniques like blanking, coining, stamping, trimming; and forming operations such as bending, drawing, extrusion, embossing, flanging, and upsetting.

Depending on the product size and geometry, Unisteel utilizes vertical mechanical presses, ranging from 25 to 300 Tons, together with link-motion drive technology to provide custom progressive and transfer stamping solutions for its customers.

Unisteel expertise in Stamping

Integrating automation into processes has been one of the key differentiators of Unisteel's stamping technology. Introduction of blank feeders that check and orientate blanks to be fed into the tool assembly, part unloaders that arrange the pressed parts tidily onto trays and tool controllers that are programmed to monitor and control the press operations via sensors and actuators are some of the many automation solutions offered to customers to optimise the overall production.

Another expertise of Unsiteel is the 3-dimensional transfer system for stamping. This technology enables parts to be lifted and transported with vertical clearance from the die offering endless possibilities in tool design and forming operations.

These cutting edge technologies in stamping open up new opportunities in formable products with more streamlined production process that shorten the lead time and value add to customers' overall supply chain management.

Case study 1
In-Mold Riveting

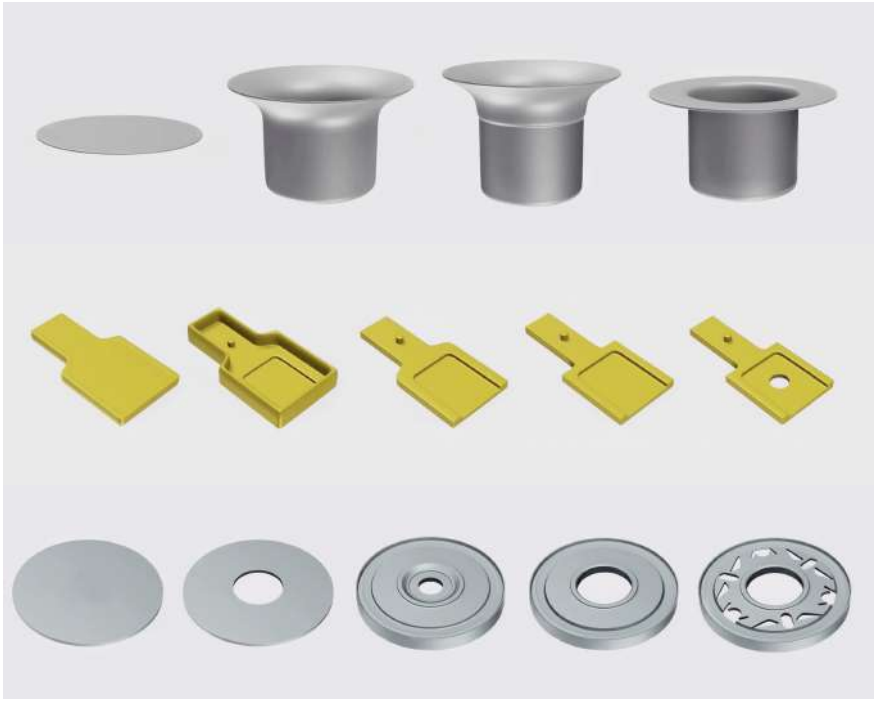
In-mold riveting is a special technique developed by Unisteel to optimise the assembly of 2 different workpieces. Unlike traditional riveting which uses an additional small tonnage press or an assembly machine for assembly work, Unisteel's in-mold riveting leverages on multiple stamping machines and transfer techniques to integrate the assembly process with stamping. This technology not only resolves the inefficiency and low yield issues found in the traditional method but also reduces human handling during the production process.

Using an integrated riveting step in the stamping tool assembly, in-mold riveting allows the secondary workpiece to be assembled to the main workpiece on the stamping strip. The stamping production and assembly can now be automated and completed in a single process to increase repeatability and productivity and reduce defects due to human error.

Case study 2
3D Transfer Technology

3D transfer technology is the newest technology of Unisteel. As an extension of the 2D transfer technology, 3D transfer technology has an additional 3rd vertical axis transfer movement that enables up to 360° rotations of workpieces to support special processes such as milling for boring holes and chamfering and forming on different regions of the parts without any human intervention.

Components with irregular complex profiles can now be manufactured by metal stamping with 3D transfer system in Unisteel. One example is the high volume production of brass power connectors. The extruded pins of the power connectors are secured in the dies by the transfer system to prevent tilting during the stamping and trimming processes. The rotary actuators then rotate the parts so milling operation can be done on the opposite side of the pins.

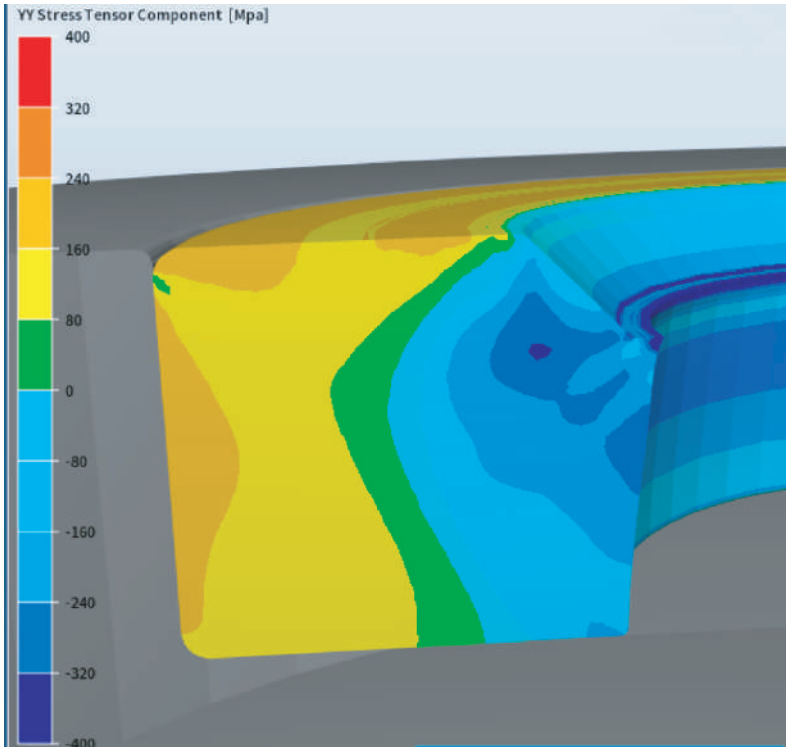


Progression of metal components in different shapes

Key Supporting Capabilities

Tooling design and manufacturing is an important part of any manufacturing process. Unisteel develops its own unique in-house tooling capabilities to ensure consistency in the quality of the tools and reduce turnaround time on new production. Our goal to obtain maximum production, minimum cycle time and prolonged tool life is accomplished by our specialised toolmaker.

In addition, Unisteel offers a broad variety of analysis and simulation tools to assist customers in product design and process optimization. With these tools, design errors can be eliminated prior to mass production and hence, risks and time spent on trial and error can be greatly minimized.



Example of part simulation

Summary

When you choose Unisteel for precision stamping services, you work with a team of dedicated engineers who care about your products.

The advantages for working with Unisteel:

- **No one solution is the same.** Unisteel offers custom design and manufacturing solutions that satisfy our customers' needs and product requirements
- **Manufacture with the highest standards.** Unisteel's exceptional quality control measures mean we uphold the highest industry quality management standards.
- **Integration of different technologies into one solution.** Every part can be manufactured in different ways. Unisteel helps customers to explore the optimal maufacturing processes with the combination of different technologies.
- **One stop manufacturing service.** Unisteel provides one stop service from product prototyping and tool design to mass production and surface treatment.

For more information on how our process can help in your parts or products, feel free to approach us at ***sales@unisteeltech.com***