

On-demand digital sheet forming

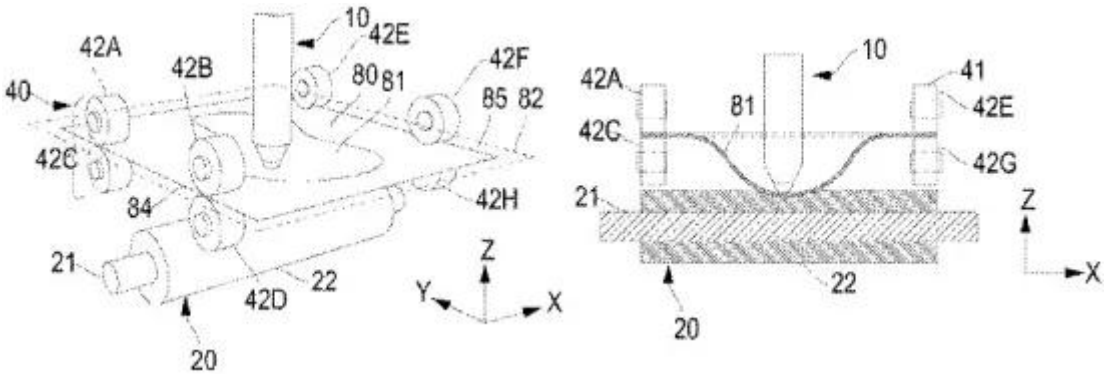
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Desktop Metal's Figur G15 is the first commercial platform of its kind to shape sheet metal on demand directly from a digital file. With the 'digital sheet forming' (DSF) technology Desktop Metal aims to make sheet forming as simple and agile as 3D printing or CNC machining of parts.

Incremental sheet metal forming eliminates the need for a traditional stamping press or custom tools, moulds, and dies – delivering sheet metal forming that is accessible, flexible, and cost-effective, even at low volumes.

Compared to the current methods for incremental forming of small batches of sheets (with a tool on one side or two tools working together), the hybrid DSF process is easier to control and programme, for greater quality, precision and robustness. In this process, a compressible, resilient, magnetic urethane support layer limits the stress which spreads across the sheet metal by the force exerted on the tool tip. This allows better prediction of plate deformation and increased accuracy. A CNC-controlled ceramic tool shapes the sheet in an innovative, supported construction zone with a force of up to 900 kg.

The use of a rigid tool with an opposing resilient support tool, both of which move linearly independently, also prevents possible wrinkles and cracks in the resulting workpiece and enables the formation of numerous, highly detailed shaped asymmetrical products. The double-sided DSF tool reduces tool head wear and ensures a pristine surface finish.

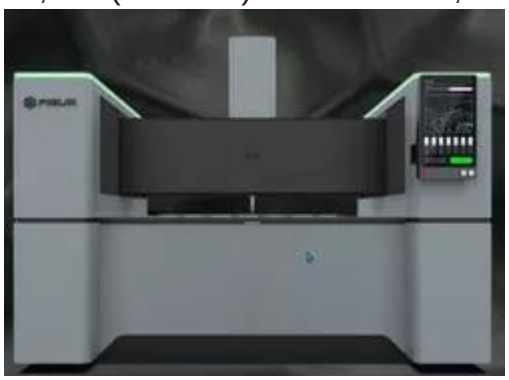


Source: EP3965976 A1

The Figur G15 has an XY forming area of 1450 x 1000 mm and can process forms up to 400mm in the Z direction. A wide variety of metals and sheet thicknesses can also be processed – including steel up to 2.0 mm thick and aluminium up to 2.5 mm. Different sheet sizes can be machined without the need to change tools or fixtures.

A patent application was filed for the innovative DSF technology. The machine will come to the US market in early 2023 and would cost between USD 500,000 (machine) and USD 600,000 (machine





Source: Figur - Desktop Metal

Sources:

- https://figur.desktopmetal.com/
- EP3965976 A1, Incremental sheet forming system with resilient tooling, FIGUR MACHINE TOOLS

Authors