

INDEPENDENCE from Longer Lead Time, Hard Tooling & Design Complexities in Rapid Prototyping



Complex structures, Interlocking & Enclosed parts have many limitations while designing & require a lot of hard tooling while manufacturing.

Not Anymore !

Magna Digitech has stepped into the direct metal printing domain leveraging **Bound Metal Deposition** technology using **Studio Plus System** from **Desktop Metal™ USA** - The first of its kind in India.

Get your components in a matter of days & have complete freedom in your designs

We are all Ready to Serve You!

Table Size - 300x200x200 mm

Part Size - 240x160x160 mm

Part Gallery



We would like to take this opportunity to walk you through the different stages of printing

Pre-Processing		Based on the inputs from the 3D model, various design aspects like thickness, tolerances, metal characteristics are analysed & the files for metal printing are prepared through Studio System Software generating supports and control parameters
Printing		The parts are printed directly by our Bound Metal Deposition printer layer by layer, which involves extrusion of bound metal rods. This ensures production of parts with quick development time, assuring design freedom. Green Part is the output of this process
Debinding		The part is then immersed in debinding fluid, dissolving primary binder and creating an open-pore channel structure throughout the part, preparing it for sintering. Brown Part is the output of this process
Sintering		Sintering causes the metal particles to densify thereby creating a solid structure the part is heated to temperatures near melting, the remaining binder is removed and metal particles fuse together causing the part to densify up to 98-99.8%. The parts are now ready to use..
Finishing		Magna Digitech's finishing services includes Hand finishing, Grid blasting, Shot-blasting, Vibropolishing, REM's ISF® -Isotropic Super finishing
Machining		To meet your specific needs Magna Digitech can provide close tolerance finishing with our technology suite of machining simulation software, modular fixturing 5 Axis Machining Centre and CMM

Materials Available

Materials	17-4 Stainless Steel	316L Stainless Steel	H13 tool steel*	4140 steel*
Micro structure				
Functionality	<ul style="list-style-type: none"> Mildly corrosive environments High-strength requirements. 	<ul style="list-style-type: none"> Corrosion resistance Performance at both high and low temperatures 	<ul style="list-style-type: none"> Abrasion resistant Exceptional hot hardness. Resistance to thermal fatigue cracking Stability in heat treatment 	<ul style="list-style-type: none"> Toughness High fatigue strength Abrasion resistance Impact resistance
Applications	<ul style="list-style-type: none"> Machinery Chemical processing Food processing Pump components Valving Fasteners Jigs and fixtures 	<ul style="list-style-type: none"> Chemical processing Petrochemical processing Food processing Laboratory equipment Medical devices Marine Jewelry 	<ul style="list-style-type: none"> Extrusion dies Injection molds Hot forging dies Die casting cores, Inserts and cavities 	<ul style="list-style-type: none"> Jigs and fixtures Automotive Bolts/Nuts Gears Steel couplings

Density of printed parts is 98-99% when compared to the 95% density of castings

* Materials will be available from **November 2020** or earlier

Advantages over Traditional Manufacturing

Characteristics	Direct Metal Printing	Traditional Manufacturing
Manufacturing Complexity	Undercuts & internal channels are easily printed	Difficult to manufacture complex parts
Cost	Affordable for Rapid prototyping	Significantly higher for low volumes
Delivery	Quicker transition from the design stage to the production of the final part.	Tooling & machining increases the lead time
Flexibility	Can be iterated multiple times with no changes in the equipment by modifying the design alone	Each new part or change in part design, requires a new tool, mold, die, or jig to be manufactured
Design Freedom	Can fabricate any shape	Form & Shapes limited by the tools & moulds
Environment	Can operate in a greener way creating less waste	Wastage of metal is high

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