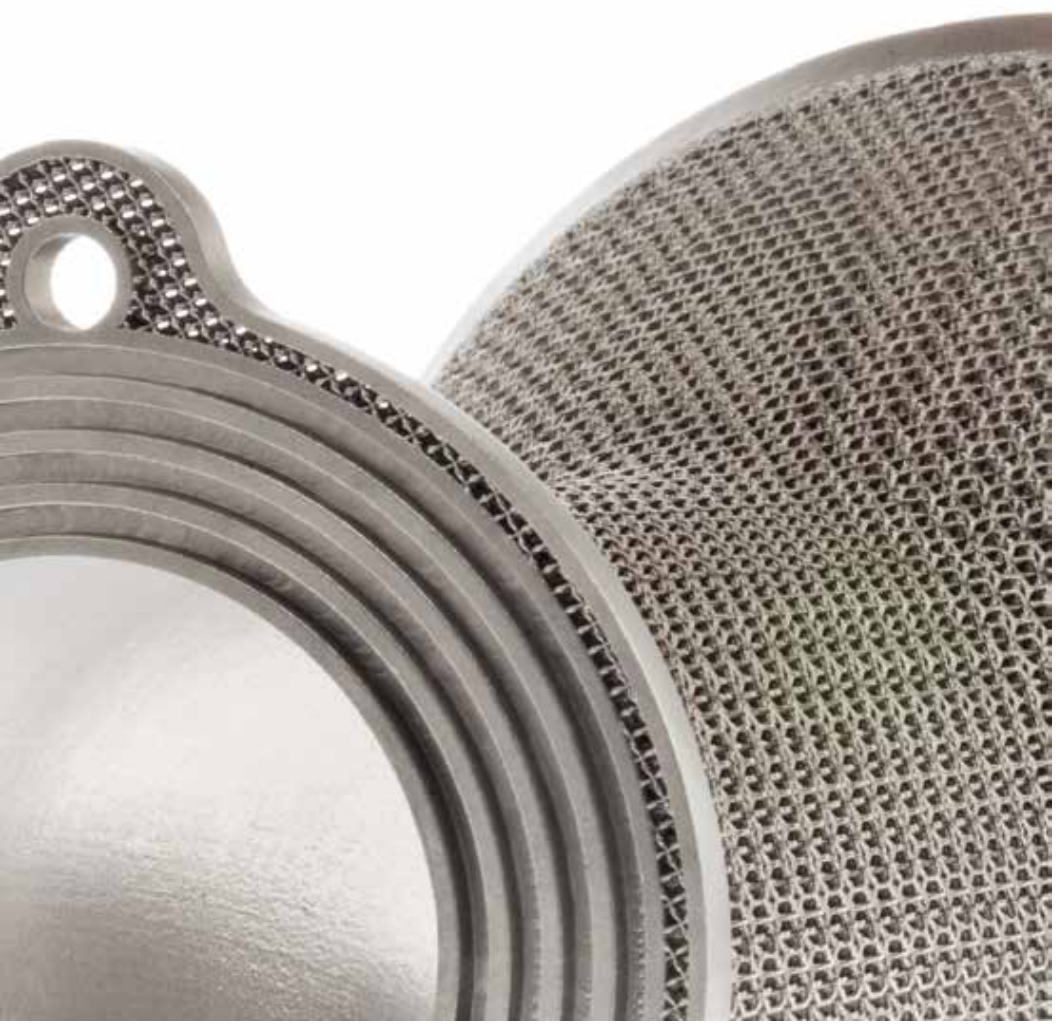
3be
SOLUÇÕES EM 3D

DIRECT METAL PRINTERS

Metal Additive Manufacturing with the ProX™ DMP Series



CONTATO@3BE.COM.BR | WWW.3BE.COM.BR

Go Further with Direct Metal Printing

UNLOCK YOUR PRODUCT'S POTENTIAL

With complete design freedom, direct metal 3D printed parts can be stronger, lighter, longer lasting and higher performing than machined or cast assemblies. Manufacture superior performing products, faster and at a lower cost than with traditional fabrication methods.

ACCELERATE TIME-TO-MARKET

Conduct R&D, prototyping and production all in the same system. DMP users around the world are designing faster and compressing production times. Transform complex assemblies that take hundreds or even thousands of hours to machine and assemble into a single high value part printed in hours or days.

STREAMLINE SUPPLY CHAINS

With DMP, you have complete control over your production, without relying on specialty components from suppliers. Print entire assemblies on-demand, with fewer components, as needed.

INCREASE MANUFACTURING AGILITY

Additive manufacturing requires no tooling, reducing overhead and increasing economies of scale. You are able to update designs and change your production mix to meet changing market demands.

DMP APPLICATIONS INCLUDE:

CONFORMAL COOLING

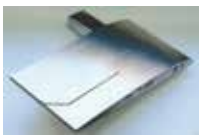
Direct integration of conformal cooling channels into this blow mold for 30% efficiency increase.

SIMPLIFIED ASSEMBLIES

Replacing a complex assembly, this single burner component contains nine under-cuttings and six internal cavities.

LIGHT WEIGHTING

Complex and thin-walled structures allow significant weight reduction for these jet engine fuel nozzles.



ENHANCED FLUID FLOW

For this turbine inlet guide vane, computed fluid dynamics simulation predicts a 70% reduction in shock intensity.

TOPOLOGY OPTIMIZATION

Topology optimized aerospace bracket reduces weight by 35%.

MASS CUSTOMIZATION

Designed to perfectly fit the obstructed zone, the reconstruction corrects the patient's facial asymmetry.

ProX™ DMP 100, 200 & 300

Automated production, exceptional quality

The ProX DMP 100, 200, and 300 share a common architecture to print exceptionally detailed, high quality parts in an automated and repeatable process that is ideal for R&D and serial part manufacturing at the tightest tolerances in direct metal printing.

Dental frames

Tire mold sipes

Aerospace airfoils

INDUSTRY'S BEST SURFACE FINISH
Reduced machining or polishing to get final parts.

EXCEPTIONAL MECHANICAL PROPERTIES
Roller compaction yields higher density and uniform mechanicals.

UNMATCHED PRECISION
Print the finest features with exceptional accuracy.

CLEAN & SAFE FOR MORE ENVIRONMENTS
Sealed powder loading and recycling prevents material contamination and increases operator safety.

COMPACT, COMPLETE SYSTEM
Requires less floor space and ancillary equipment.

PRINT IN MORE ALLOYS
Use standard alloys or run your own with the industry's most customizable parameters.

ProX™ DMP 300

ProX™ DMP 200

TECHNOLOGY LEADERSHIP
3D Systems' patented roller system spreads the powder and compacts each layer, enabling better heat transfer in the metal powder, steeper unsupported angles, more uniform and thinner layers (as thin as 5 microns).

ProX™ DMP 320

High precision, high throughput

The ProX DMP 320, developed from the outcome of nearly half-a-million prints, offers fast build turnaround times in demanding 24/7 production environments.

PRODUCTION READY
Designed for productivity with quick-swap build modules and fast powder recycling.

STRONGER MECHANICAL PROPERTIES
The lowest O2 during builds (25 ppm) for exceptionally strong parts of high chemical purity.

LOW OPERATING COSTS
Efficient consumables management and shared ancillary equipment lower the total cost of ownership.

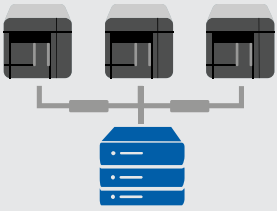
EXTENSIVELY TESTED MATERIALS
Thousands of hours of parameter optimization ensure predictable and repeatable print quality.

APPLICATIONS VERSATILITY
The ProX DMP 320's robust, streamlined print process means you can print virtually any geometry and avoid trial-and-error steps.

Increased functionality spinal implant

Monolithic complex extrusion with mixing channels

YOUR SCALABLE DMP FACTORY NETWORK
The ProX DMP 320 is easily scalable for high volume part production. A central server manages print jobs, materials, settings and maintenance for 24/7 productivity. Shared resources, including cooling and powder recycling systems, increases efficiency.



Centralized Process Management

Metal Alloys for the ProX DMP Series

Achieve the best part quality and mechanical properties with 3D Systems' ready-to-run materials* with extensively developed print parameters.

ProX DMP 100, 200 and 300 printers feature the most flexible build parameter control settings in the industry. These open systems offer you the option to develop parameters and run any material in addition to 3D Systems' ready-to-run alloys.

The ProX DMP 320 offers exchangeable manufacturing modules that support rapid material change or replenishment, in line with the printer configuration selected.

Lightweight aerospace component in Aluminum Alloy (AlSi12)

Gas burner with integrated cooling channels in LaserForm™ Ni718

High corrosion resistant impeller in LaserForm™ Stainless 316L

Optimized racing car oil pump pulley in Stainless Steel 17-4PH

Partials, copings and bridges production in Cobalt Chrome (CoCr)

Blow mold with conforming holes in Maraging Steel

Hip implant in LaserForm™ Ti Gr. 23

* Availability varies by printer model (see details on the last page).

3D Systems' Direct Metal Printing process builds up fully dense, chemically pure complex metal parts from 3D CAD data by melting fine powder with a laser beam, layer by layer, providing industry leading part quality, fine details, precision and repeatability.

ProX Direct Metal production 3D printers are the proven industry standard. You benefit from the experience of our truly global product support team, offering dedicated service and application engineers, to meet your rigorous quality requirements at facilities around the world.

	ProX DMP 100	ProX DMP 200	ProX DMP 300	ProX DMP 320
Build Envelope Capacity (W x D x H)	3.94 x 3.94 x 3.94 in (100 x 100 x 100 mm) 1	5.51 x 5.51 x 4.92 in (140 x 140 x 125 mm) 1	9.84 x 9.84 x 12.99 in (250 x 250 x 330 mm) 1	10.82 x 10.82 x 16.53 in (275 x 275 x 420 mm) 1
Metal alloys choice with developed print parameters:	Cobalt-Chrome CoCr Stainless Steel 17-4PH	Cobalt-Chrome CoCr Stainless Steel 17-4PH Maraging Steel Aluminum Alloy AlSi12	Cobalt-Chrome CoCr Stainless Steel 17-4PH Maraging Steel Aluminum Alloy AlSi12	LaserForm™ Ti Gr. 12 LaserForm™ Ti Gr. 52 LaserForm™ Ti Gr. 232 LaserForm™ Ni7183 LaserForm™ Stainless 316L3
Layer thickness	Adjustable, min 5 µm - max 100 µm Preset: 30, 40 and 50 µm			Adjustable Preset: 30 and 60 µm
Repeatability	x=20 µm, y=20 µm, z=20 µm			
Min. feature size	x=100 µm, y=100 µm, z=20 µm			100 µm
Min. wall thickness	150 µm	150 µm	150 µm	150 µm
Typical accuracy	± 0.1-0.2% with ± 50 µm minimum	± 0.1-0.2% with ± 50 µm minimum	± 0.1-0.2% with ± 50 µm minimum	± 0.1-0.2% with ± 50 µm minimum
Material loading	Manual	Semiautomatic	Automatic	Manual
Recycling system	Optional external system	Optional external system	Automatic	Optional external system
Interchangeable build modules	No	No	No	Yes

1Including build plate 2Set up A 3Set up B

DMP for in-space communication satellite engines – European Space Agency

Injector: simplified assembly from 5 to 1 part, optimized propellant flow

Combustion chamber: significant weight saving with a 12% volumetric density mesh

Expansion nozzle: reduced stress, minimizing the overhung mass