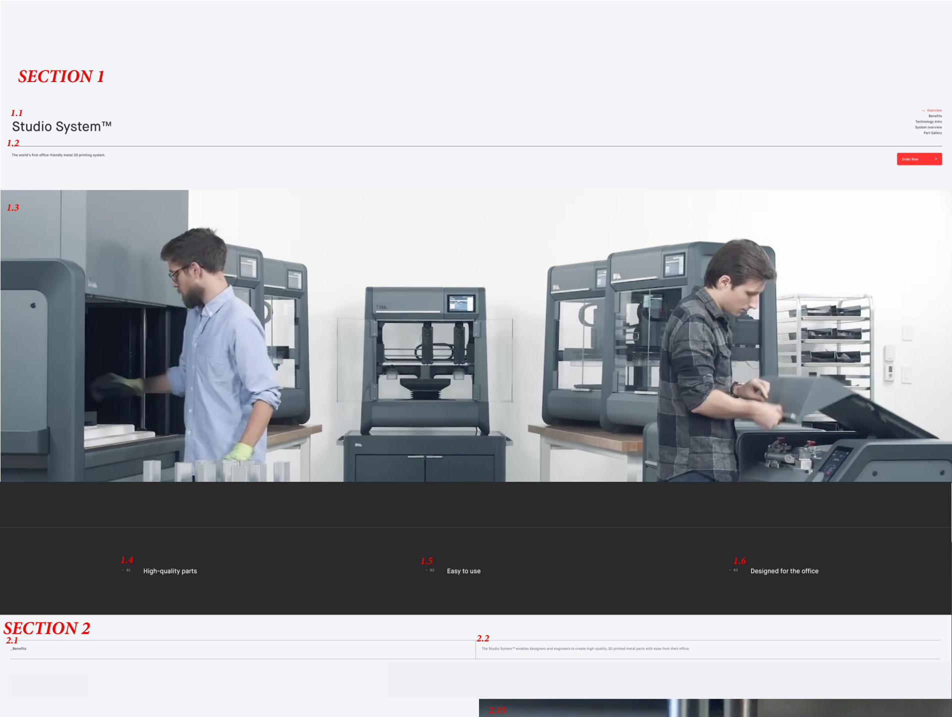


SECTION 1

1.1

Studio System™

— Overview
Benefits
Technology Intro
System overview
Part Gallery

1.2

The world's first office-friendly metal 3D printing system.

Order Now →

1.3

1.4 — 01 High-quality parts

1.5 — 02 Easy to use

1.6 — 03 Designed for the office

SECTION 2

2.1

_Benefits

2.2

The Studio System™ enables designers and engineers to create high-quality, 3D printed metal parts with ease from their office.

2.15

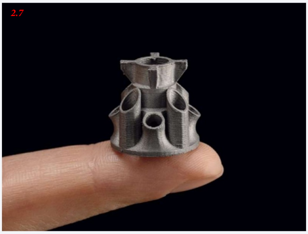
2.3 _Benefits
[01]

2.4 High-quality parts

25 Easily 3D print difficult-to-machine parts featuring complex geometry like undercuts and internal channels. Fabricate, the software at the heart of the Studio System™, automates complicated metallurgical processes to produce high-quality parts with densities and feature accuracy similar to casting.

2.6 High-resolution printing

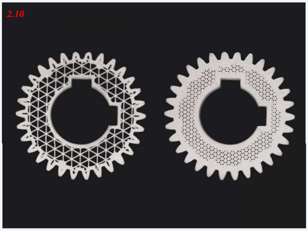
2.7



2.8 Interchangeable print heads - standard (400µm), high-res (250µm) - and layer height as low as 50µm allow users to optimize prints for build speed or print ultra-fine features.

2.9 Adjustable shell thickness

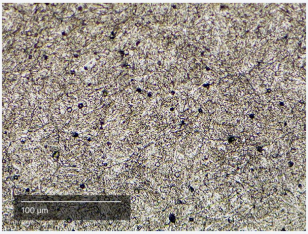
2.10



2.11 Adjust shell thickness and infill density to 3D print stronger parts or enable faster post-processing. Create walls up to 4mm thick and fully-dense parts (with no infill) up to 8 mm thick.

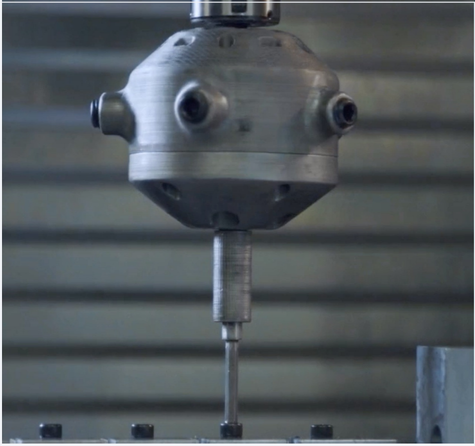
2.12 High density

2.13



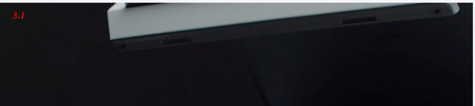
2.14 Achieve part densities of anywhere from 96 to 99.8 percent - similar to cast parts - through the use of high metal volume fraction media, high-pressure extrusion, and vacuum

Achieve part densities of anywhere from 96 to 99.8 percent - similar to cast parts - through the use of high metal volume fraction media, high-pressure extrusion, and vacuum sintering at temperatures of up to 1400°C.



SECTION 3

3.1



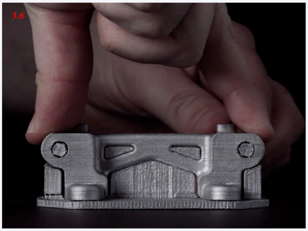
3.2 _Benefits
[02]

3.3 Easy to use

3.4 Designed to simplify the otherwise complicated powder metallurgy process, the Studio System™ makes 3D printing metal parts as easy as uploading a design and pressing print. No guesswork or calculations are needed - you design your part, and Desktop Metal's secure, web-based software does the rest.

AISI
4140
Low Alloy Steel

3.5 Separable Supports



3.7 The Studio System™ prints a Ceramic Release Layer between the part and its support structure. In the furnace, the binder in this layer resists sintering, transforming the Ceramic

---

3.8 Under 1-minute material changes

3.10 Change materials in under a minute with quick-release printheads and push-to-release cartridges. Unlike powder-based 3D printing systems, which require equipment cleaning, materials on the Studio System™ can be swapped in under a minute without cross-contamination between alloys.

3.11 Software controlled workflow

3.12
DM Furnace
Sintering

3.13 Fabricate, Desktop Metal's 3D printing software, orients parts for success throughout printing, debinding, and sintering—applying expert metallurgy to automate the entire process. With the Studio System™, there is no need to weigh parts or make manual calculations—simply upload your part and follow the onboard UI for step-by-step guidance.

SECTION 4

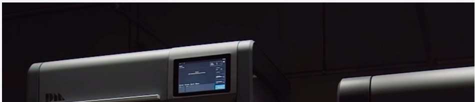
4.1 _Benefits
[03]

4.2 Designed for the office

4.3 The Studio System™ was designed from the ground-up to seamlessly integrate 3D printing into an engineer's workflow. By eliminating lasers and loose metal powders, the system is easy to use in your team's work environment—no third-party equipment or special facilities required.

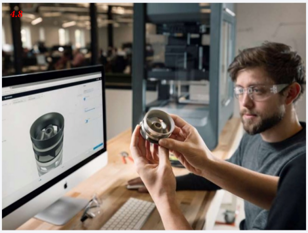
4.4 No loose powders

4.6 Inspired by metal injection molding, the Studio System™ uses materials that consist of a mixture of metal powder and polymer binder - no loose metal powers are used, making the process safe for the office. No special facilities or respiratory PPE needed.



4.7 Print from your desk

4.8



4.9 The easy-to-use design of the Studio System™ allows you to regain ownership of your prototyping pipeline with 3D printing. Entire engineering or design teams can use it to iterate on designs quickly, and monitor the process from within Fabricate to track the completion of your builds.

4.10 No special facilities requirement

4.11

4.12 Designed to fit through an office door, the Studio System™ does not require the construction of special facilities before operation, making it easy to start 3D printing metal parts.

SECTION 5

5.1

How it works

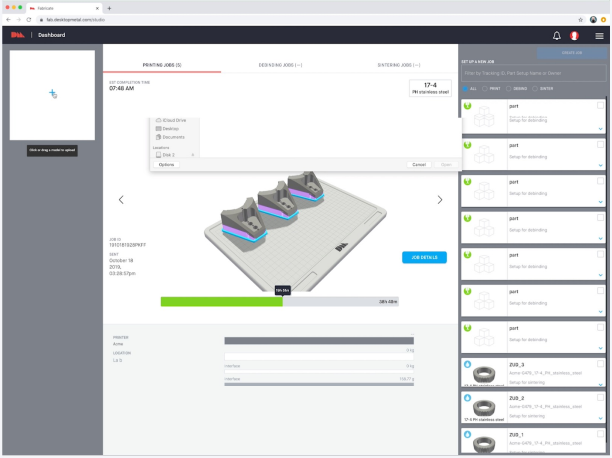
5.2

_Technology introduction

5.3

The Studio System™ leverages Bound Metal Deposition™ technology - a process based on MIM (metal injection molding) in which loose powders and dangerous lasers are eliminated in favor of bound metal rods - to shape parts layer-by-layer.

SEE 5.5 C - 5.8 C (Images or Videos)



Fabricate
fab.desktopmetal.com/studio

Dashboard

PRINTING JOBS (5)

EST COMPLETION TIME
07:48 AM

17-4
PH stainless steel

JOB ID
1910181928PKFF

SENT
October 18
2019,
03:28:57pm

PRINTER
Acme

LOCATION
La b

Interface 0 kg

Interface 158.77 g

SET UP A NEW JOB

Filter by Tracking ID, Part Setup Name or Owner

● ALL ○ PRINT ○ DEBIND ○ SINTER

part	Setup for debinding	☐
part	Setup for debinding	☐
part	Setup for debinding	☐
part	Setup for debinding	☐
part	Setup for debinding	☐
part	Setup for debinding	☐
part	Setup for debinding	☐
ZUD_3	Acme-G479_17-4_PH_stainless_steel Setup for sintering	☐
ZUD_2	Acme-G479_17-4_PH_stainless_steel Setup for sintering	☐
ZUD_1	Acme-G479_17-4_PH_stainless_steel Setup for sintering	☐

5.4 A/B/C

— 01 Prep

Secure, web-based software constructs build plans from STL or CAD files, automatically generating supports and control parameters based on part geometry and material.

5.5 A/B/C

— 02 Print

5.6 A/B/C

— 03 Debind

5.7 A/B/C

— 04 Sinter

SECTION 6

6.1

System overview

6.2A

6.2B

Printer

6.2C

Unlike laser-based 3D printing systems that selectively melt metal powder, the Studio System™ extrudes bound metal rods—similar to how an FDM printer works. This eliminates the safety requirements often associated with metal 3D printing while enabling new features like the use of closed-cell infill for lightweight strength.

6.2D

⊕ Details

6.3A

6.3B

Debinder

6.3C

The debinder prepares green 3d printed parts for sintering by dissolving primary binder. With a low emission design, it requires no external ventilation and is safe for an office environment. Automatic fluid distillation and recycling eliminates the need to refill between each cycle.

6.3D

⊕ Details

6.4A

6.4B

Furnace

6.4C

Fully-automated and sized to fit through an office door, the furnace delivers industrial-strength sintering in an office-friendly package. Built-in temperature profiles tuned to every build and material ensure uniform heating and cooling without the residual stresses introduced in laser-based 3d printing systems

6.4D

⊕ Details

SECTION 7

7.1

End-to-end solution

7.2

_System in use

7.3

The Studio System™ is a three-part solution that automates metal 3D printing. Tightly integrated through Desktop Metal's cloud-based software, it delivers a seamless workflow for 3D printing complex metal parts in-house—from digital file to sintered part.

7.4

VACUUM PRINT BED
4:12

[VIDEO]

SECTION 8

8.1

Scale up to a Studio Fleet™

8.2

_5x throughput

8.3

Built to scale, Studio Fleet can be configured to deliver 5x the throughput of the original three-part system for only twice the capital investment.

Common Scenarios
Low volume production of custom parts
Aftermarket or replacement parts
Pilot runs prior to mass production

8.4(SEE DECK LINK IN SPREADSHEET)

Extruder Nozzle

Used to mix two dense ceramic slurries, the nozzle directs flow and defines the shape of extrusion. The application requires a complex loft design and relatively low quantity. Given the strength, stiffness and thermal resistance requirements, the extruder nozzle must be made of metal.

In-house metal 3D printing is up to four times faster and 90% cheaper than CNC machining or selective laser melting (SLM). And instead of extrusion honing, parts are easily sanded in the green state to achieve critical surface finish on the nozzle interior.

—

System	Parts Per Week	Parts Per Month	Parts Per Year
Studio System	6	26	96
Studio Fleet (3x)	18	78	312
Studio Fleet (5x)	30	130	1,560

SECTION 9

9.1 (SEE DECK LINK IN SPREADSHEET

Part gallery

_Studio System™ applications

Studio System™ applications span a variety of industries including manufacturing, tooling, automotive, consumer, electronics, and oil & gas.

Extrusion Die H13

This die is used in the manufacture of extruded plastic framing.

Details ⊕

Rook Chess Piece 316L

One of six types of movable objects used in the game of chess.

Details ⊕

YE6 Burner Tip 316L

This burner tip is used to shape the flame in industrial burners.

Details ⊕

Putter 17-4 PH

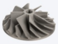
Custom designed golf putter is an example of the customization that is possible with 3D printing.

Details ⊕

Flower Nozzle 316L

This flower nozzle is used to atomize fluid in industrial equipment.

Details ⊕



Impeller 316L

This impeller is used to control the pressure and flow of fluids in equipment like pumps and compressors.

Details ⊕

Sheet Metal Embosser 4140

This custom embosser is used in sheet metal fabrication.

Details ⊕

Zipper Mold H13

This part is an injection mold insert for manufacturing zinc zippers.

Details ⊕

Skateboard Truck 17-4 PH

This part attaches wheels to a skateboard deck, and was optimized using generative design tools

Details ⊕

APG Thread Checker Fixture 17-4 PH

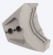
This fixture pushes a thread checker into a part on a manufacturing line.

Details ⊕

BattleBots Bot Support 17-4 PH

This part is a structural member for use in the bot's robotic arm.

Details ⊕



APG Chuck Jaws H13

This part is used to hold a workpiece in place during machining lathe operations.

Details ⊕

O-Ring End Effector 17-4 PH

This end effector is used to stretch and install O-rings on a hydraulic fitting.

Details ⊕

APG Coining Fixture H13

This fixture is used to achieve critical tolerances on metal injection molded (MIM) parts.

Details ⊕

Helical Heat Exchanger Copper

Used in chemical processing to cool a hot gas as it flows through a pipe.

Details ⊕

UHT Atomizer 316L

This part is a fuel atomizer for a steam boiler on a liquid natural gas (LNG) tanker.

Details ⊕

Octopus Ring 316L

Example of the unique jewelry that can be customized and scaled for a tailored fit.

Details ⊕

Lathe Gear 17-4 PH

This part is a replacement gear for vintage (circa 1940) lathe.

Details ⊕

Tri Manifold Alloy 625

This manifold is used to combine three flows into one common flow.

Details ⊕

Generative Piston Head 4140

Prototype piston head for a reciprocating engine, optimized with generative design.

Details ⊕

Pump Housing 17-4 PH

This is part of the housing for a hydraulic pump.

Details ⊕

Guitar tailpiece 17-4 PH

The guitar tailpiece anchors one end of the guitar strings.

Details ⊕

Cuff Ring 316L

Example of the unique jewelry that can be customized and scaled for a tailored fit.

Details ⊕