

# Xerox® ElemX™ 3D Printer



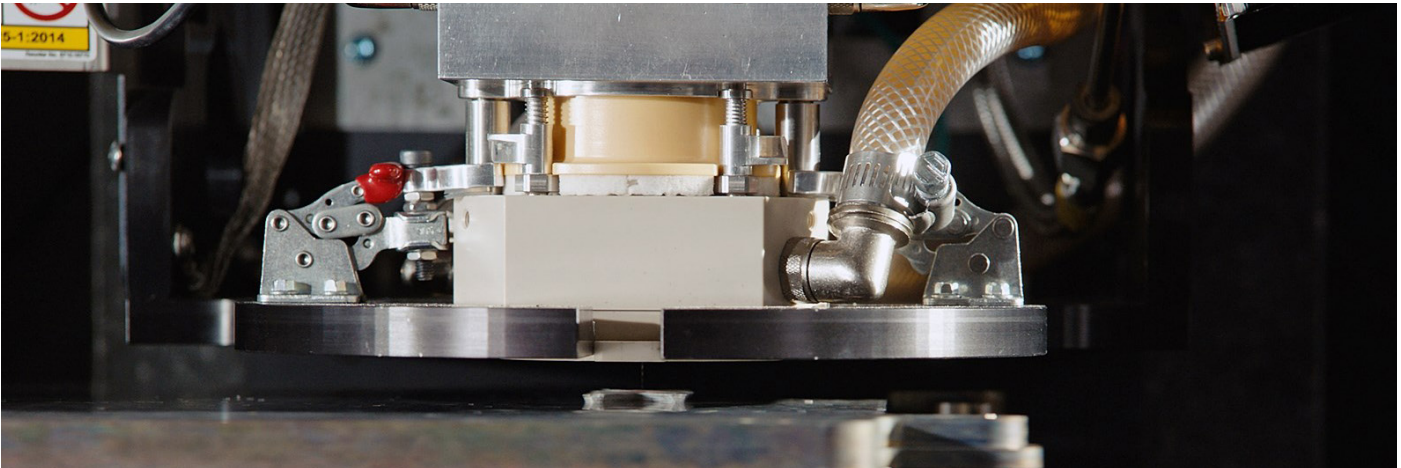
SIMPLER. SAFER. STRONGER.

**xerox**™



# New Dimensions of Possibility

What are the elements of a resilient supply chain? Both agility and accuracy are essential to overcoming logistical challenges. At a time when now can't wait, the ability to deliver production-grade parts in hours is possible with a new, revolutionary technique: Liquid Metal AM.



## LIQUID METAL AM IS THE SCIENCE THAT POWERS ELEM X

- Similar to inkjet printing whereby individual droplets are accurately deposited onto the base material.
- Liquid Metal AM describes a process in which tiny metal droplets are fired from a nozzle at high speed to form layers that are then built up into homogenous parts.
- The process is achieved via magnetohydrodynamics, using Lorentz forces to methodically jet individual molten metal droplets through a nozzle with exactness.

## ALUMINUM ALLOY WIRE FEEDSTOCK

- ElemX can achieve nozzle melt temperatures above 800° and can reach deposition rates up to 400 droplets per second.

- In-situ monitoring and in-process correction ensure accurate, repeatable and reliable results.
- The information collected can be used to create detailed digital twins of printed parts.

## THE FASTEST PART-IN-HAND METAL 3D PRINTING TECHNOLOGY AVAILABLE

- Once a part is finished printing, the build plate is removed from the printer and placed in a water tank for immediate part removal.
- The thermal expansion mechanics of differing metals allows the aluminum parts to immediately release from the build plate.



# On-demand Manufacturing with ElemX

Most metal 3D printing technologies get in the way of operational resilience rather than supporting it. They're often complex, requiring multiple steps, machines and processes to achieve results — not to mention the costs, training and safety requirements needed for hazardous material handling, such as facility modifications.

**ElemX was designed to add a new dimension of efficiency to 3D printing.**



**WITH INTUITIVE ONBOARDING, ADDITIVE MANUFACTURING HAS NEVER BEEN FASTER, SIMPLER OR SAFER. HERE'S HOW:**

- ElemX jets up to 0.5 lbs/hour and is one of the faster metal printers on the market.
- Operating like a true wire-fed metal AM printer without the need for excessive post processing steps to get the final

part, the total time from print finish to part in hand is less than 5 minutes.

- With no hazardous powder or special PPE required, even novice operators can be trained to use the ElemX printer safely and with minimal training.

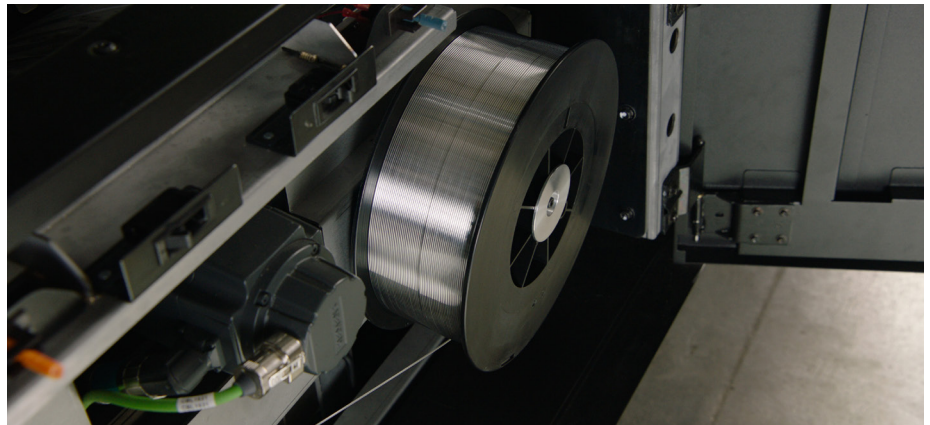
XEROX ELEM X 3D PRINTER SPECIFICATIONS	
Maximum Build Volume	300 x 300 x 300 mm
Optimal Build Volume	300 x 300 x 120 mm
Material	4008 Aluminum (A356)
Dimensional Accuracy	XY +/- 0.6 mm   Z +/- 0.5 mm
Minimum Layer Thickness	0.24 mm
Density	>99%
Printer Dimensions (L x W x H)	9.3 x 4 x 7.3 ft/284 x 125 x 221 cm

## Materials

Commodity aluminum wire fills the gaps left by other 3D printing materials and technologies. 4008 Aluminum (A356) is a standard casting alloy used for many industrial applications where strength and heat resistance properties are necessary. It's also more affordable and sustainable compared to 3D metal powders.

### HASSLE-FREE POST PROCESSING

By using aluminum wire, there are no special material handling requirements or additional equipment necessary. As a result of the thermal expansion of dissimilar metals, metal printed parts release from the build plate when soaked in a water tank – no sintering, debinding or shrinkage.



### ELEM X TENSILE DATA: A356/4008 – T6 CONDITION

PROPERTY	CASTING A356 BASELINE	ELEM X (PRINTED/HEAT-TREATED/MACHINED)	
		HORIZONTAL	VERTICAL
Ultimate Tensile Strength (ksi/MPa)	≥34/234	42/289	39/269
Yield Strength (ksi/MPa)	≥24/165	26/179	26/179
Elongation At Break	≥3.5%	12%	8%

# It's All About the Applications

From prototyping to spares and repairs, ElemX can impact every stage of the product life cycle. Immediately produce fixtures for the factory floor and reduce long lead times for production or spare parts without sacrificing quality or performance.

Casting requests can take weeks or months and become quite expensive depending on process or quantity. 4008 Aluminum (A356) with ElemX is an affordable and realistic alternative to the manufacturing status quo and can solve challenges across a variety of applications and industries.



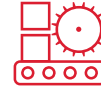
**MILITARY & DEFENSE**

- Replacement Castings
- Heat Sinks
- Heat Exchangers
- Electronic Enclosures
- Pump Housings
- Actuator Brackets



**RESEARCH & ACADEMIA**

- Manufacturing Aids
- Automation Systems
- Intake/Outtake Manifolds
- Subassemblies
- Housings
- Fuel Adapters



**INDUSTRIAL MANUFACTURING**



**AUTOMOTIVE**

- Custom Aftermarket Parts
- Bleed Air Valves
- Spares On-Demand
- End Effectors
- Jigs & Fixtures
- Valve Covers



**AEROSPACE & SPACE**

## Xerox® Elem™ Additive Solutions

Xerox Elem is focused on delivering solutions to manufacturers that increase their supply chain flexibility and resiliency. In today's volatile, ever-changing markets, adaptability and flexibility are no longer a nice-to-have — they're a must.

That's why Xerox Elem Additive Solutions are designed to empower organizations to produce the parts they need, when and where they need them.

See it in action.



Brave the elements.

Market volatility. High expectations. Even higher costs. Tackle supply chain complexity and stay operational regardless of what's happening in the world with on-demand manufacturing. How far can ElemX take you?

Find out at [xerox.com/3dprinting](https://xerox.com/3dprinting).