

Challenges of Adopting Large Metal Printers

Additive Industries
September 2024

Kartik Rao
Strategic Marketing Director



Additive
Industries



01 Our Market

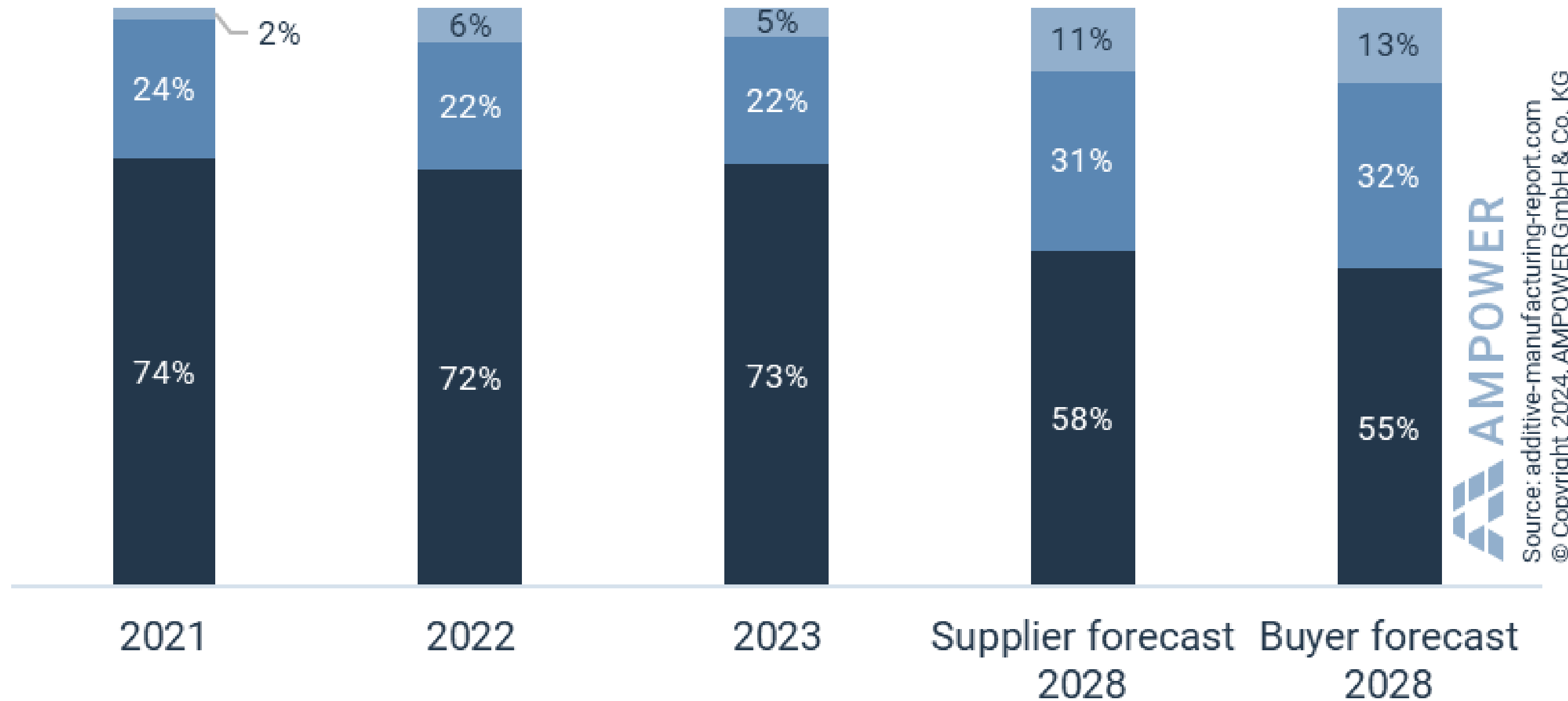


The Metal AM PBF System Market

The largest market segment by value is the “large” frame market between 350 and 599mm build size.

Distribution of metal L-PBF platform size by units 2021 to 2023 and supplier and buyer forecast 2028 [share of units]

- Very Large (≥600 mm)
- Large (350-599 mm)
- Small and Medium (<350 mm)



AMPOWER
 Source: additive-manufacturing-report.com
 © Copyright 2024, AMPOWER GmbH & Co. KG

Projected Market Size (2028)

€751M

€1,100M

€477M



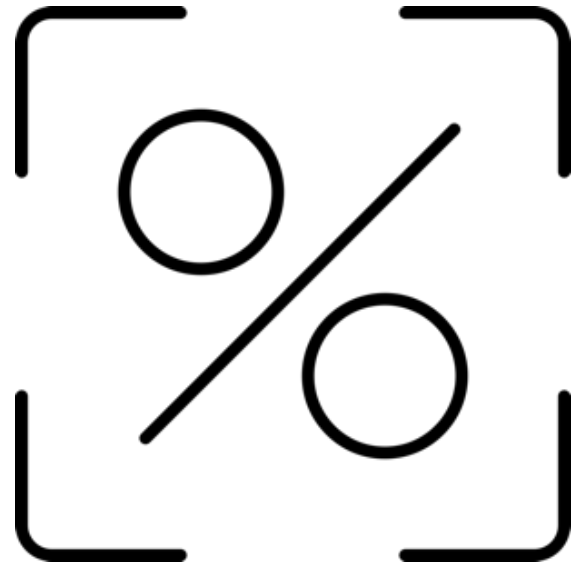
02 Adoption



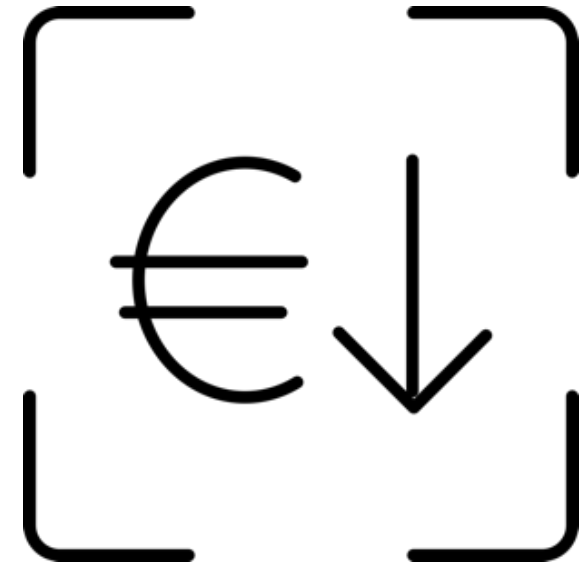
Market Challenges

Factors Adding Risk to Return on Investment

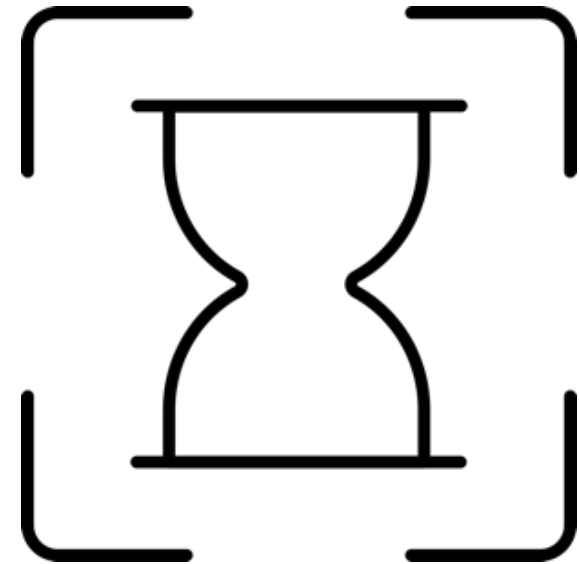
1 High Interest Rates



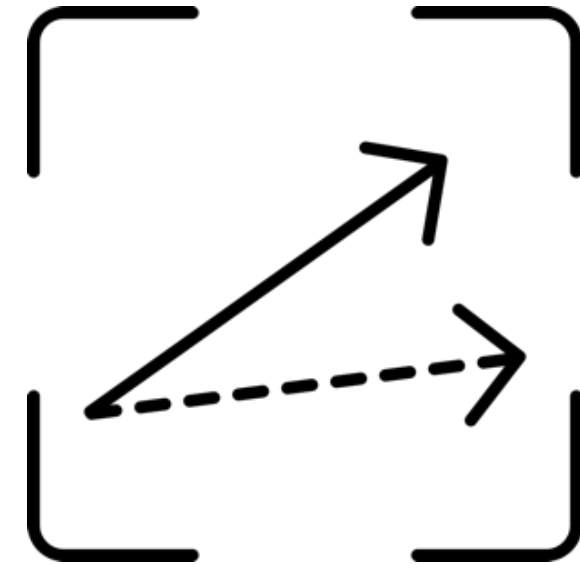
2 Depreciation



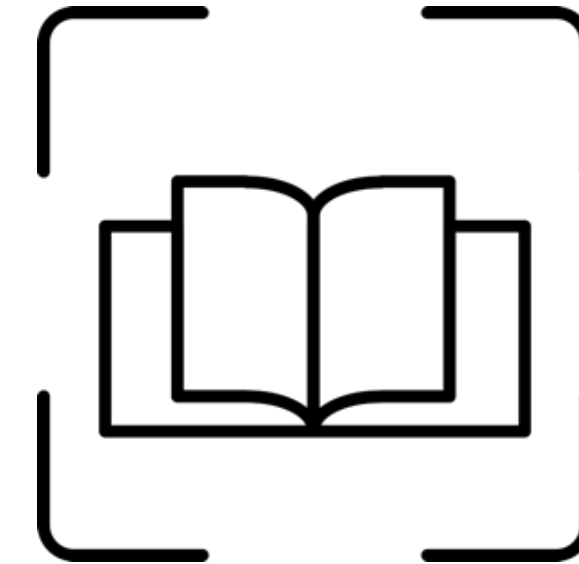
3 Extended Development Timeline



4 Lower Production Volumes



5 Learning vs Production Platform



How do users adopt Large PBF Systems?

Assuming companies opt for in-house production, they are typically confronted with two main choices, each with their own risks and benefits.

Option A

Buy a smaller printer

- Cheaper learning platform
- Reduce initial financial risk

- But...
- Highly manual
- Limited scope to improve productivity
- Limited cost reduction per part with scale

Option B

Buy a larger printer

- Expensive learning platform
- Lower adoption risk with wider range of applications

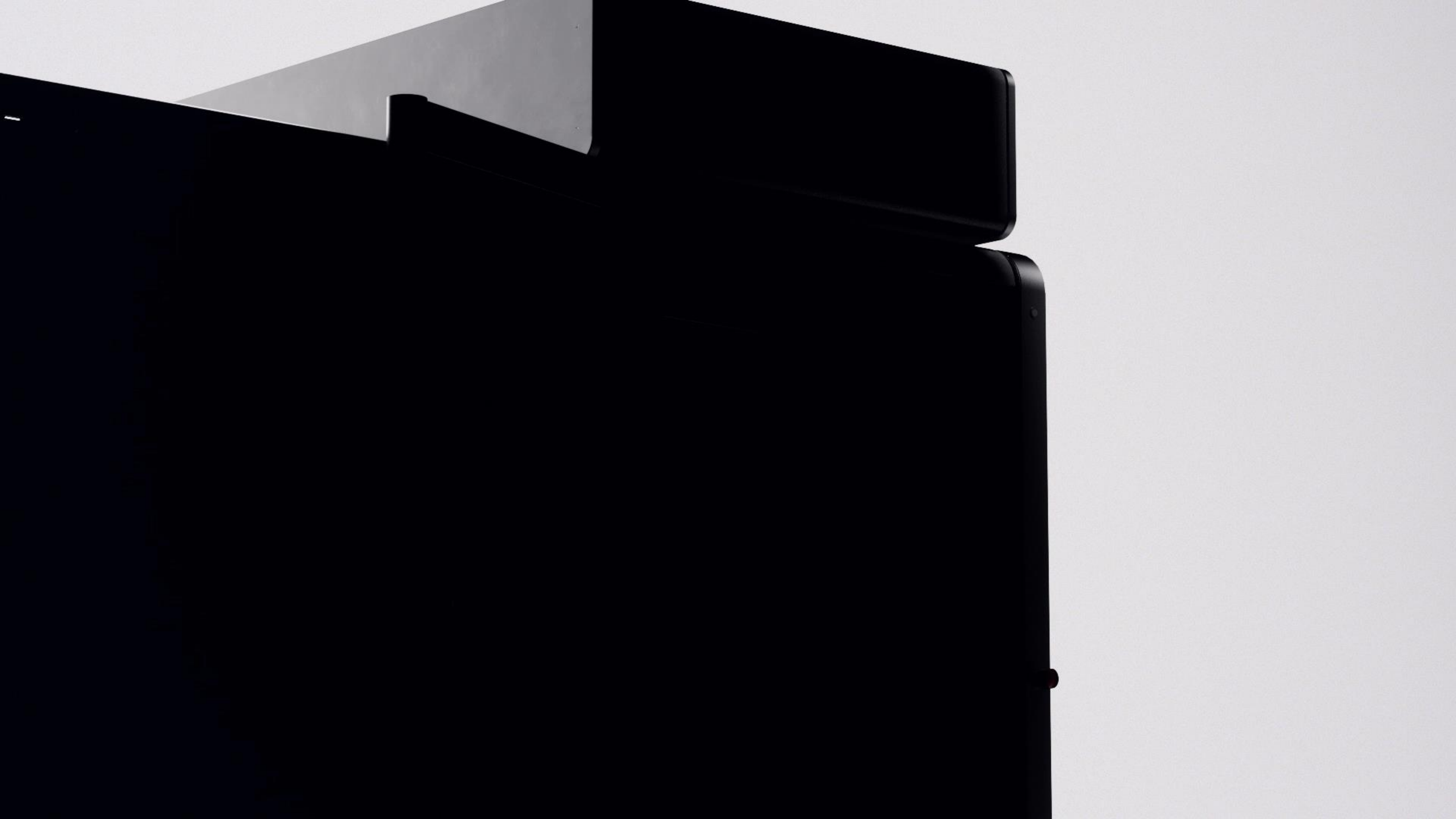
- But...
- Higher financial risk

What if you could have the best of both worlds?



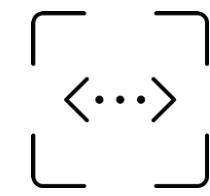
03 MetalFab 300 Flex



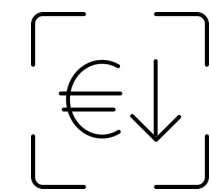


Introducing MetalFab 300 Flex

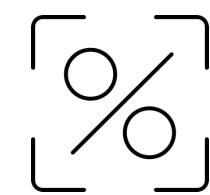
Your Flexible Gateway to Metal AM



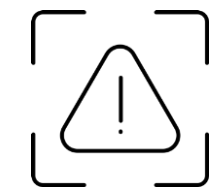
1 Flexibility of size on demand



2 Affordable access to large frame printing



3 Certainty of a proven & reliable system architecture



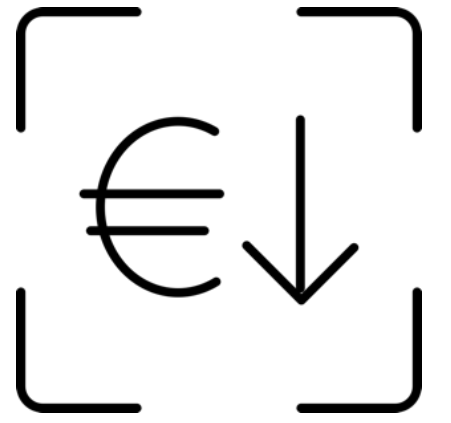
4 Controlled & safe operation, handling & powder management

Flexibility of size on demand

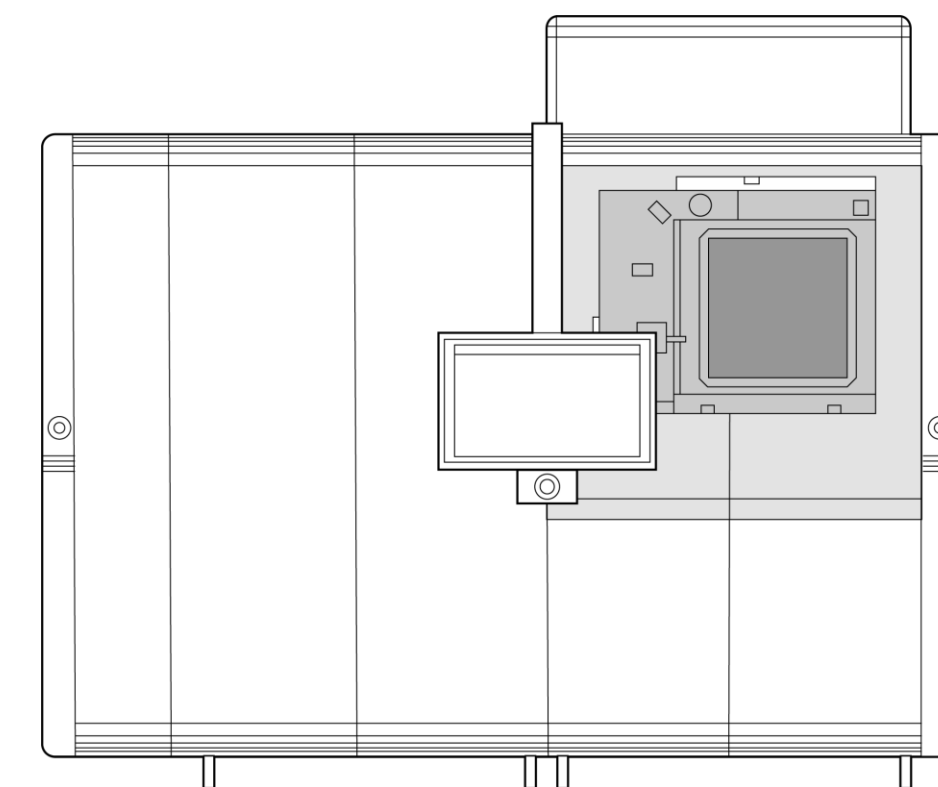
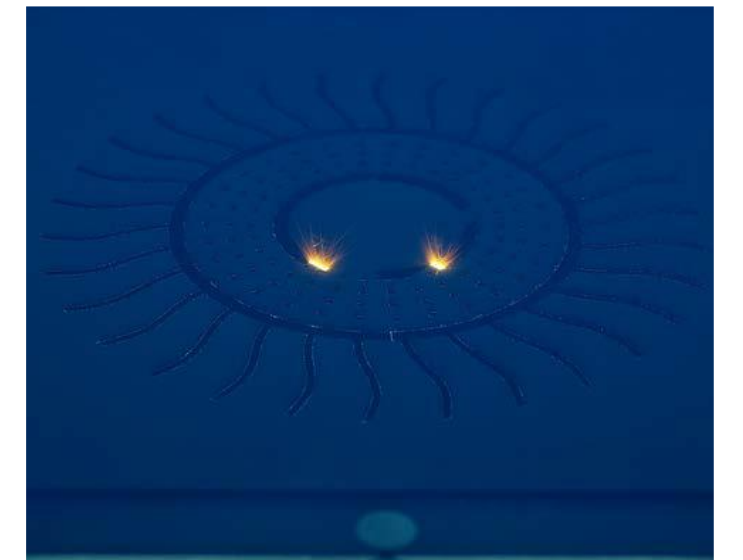
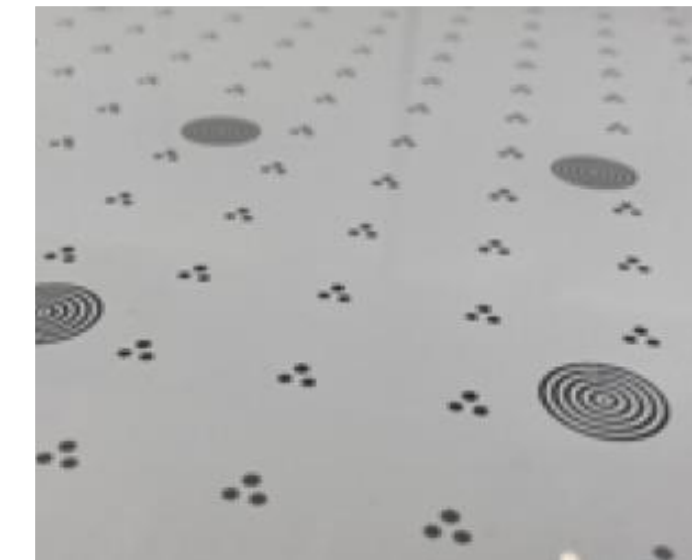
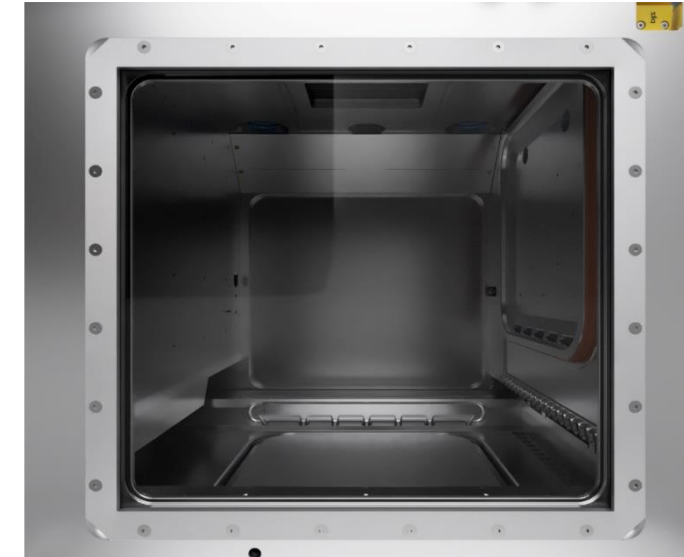
- Offers a unique, adaptable build volume
- Expand from 300x300x400mm to 420x420x420mm on demand via license
- No need to develop/qualify new process parameters
- Allows for production of large parts when needed without long term financial commitment
- **Removes the need to choose between a medium and large system at the start of the AM journey**
- **Avoids the challenge of a diverse system fleet**



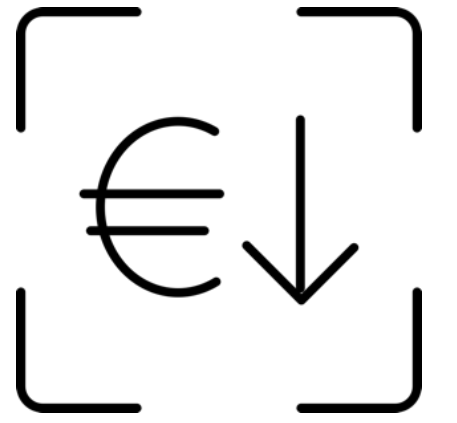
Certainty of a proven and reliable **system architecture**



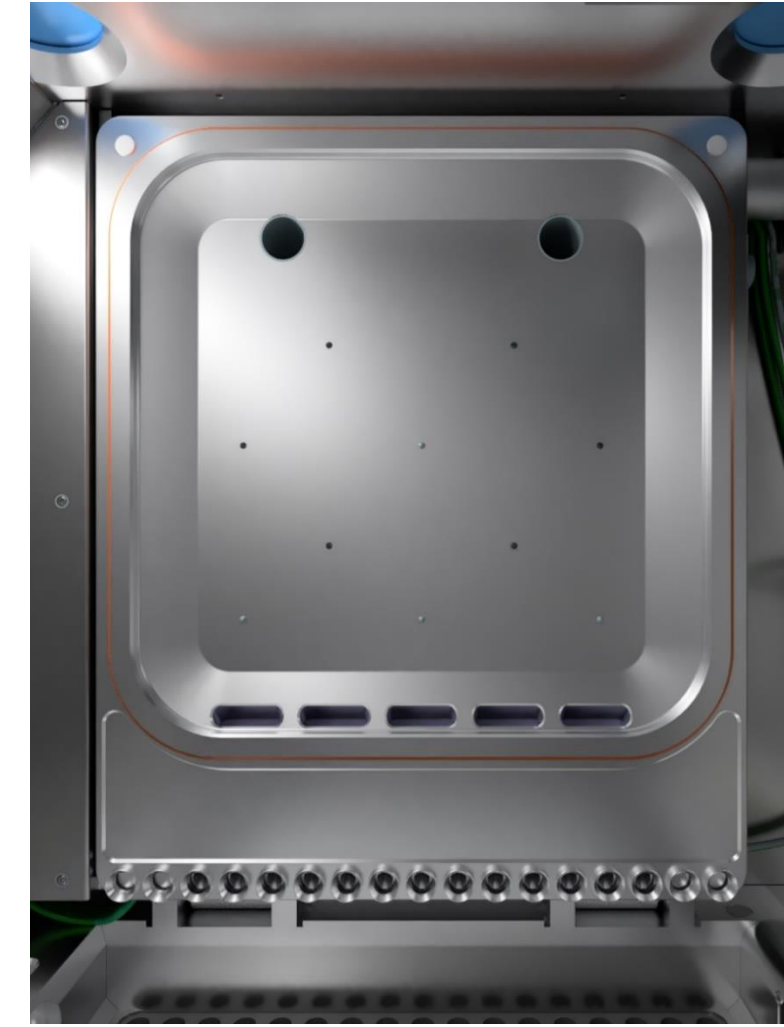
- **Proven:** Over 1 million production hours across the fleet
- **Productivity:** Many customers demonstrating high OEE (>95%)
- **Reliability:** Proven process parameters provided to customers
- **Simplicity:** Automated laser calibration and build plate levelling
- **Consistency:** features, software, parameters and hardware all common across a range of modules enabling scalability



Integrated powder handling for product quality, cost reduction, facility cleanliness and **safety**



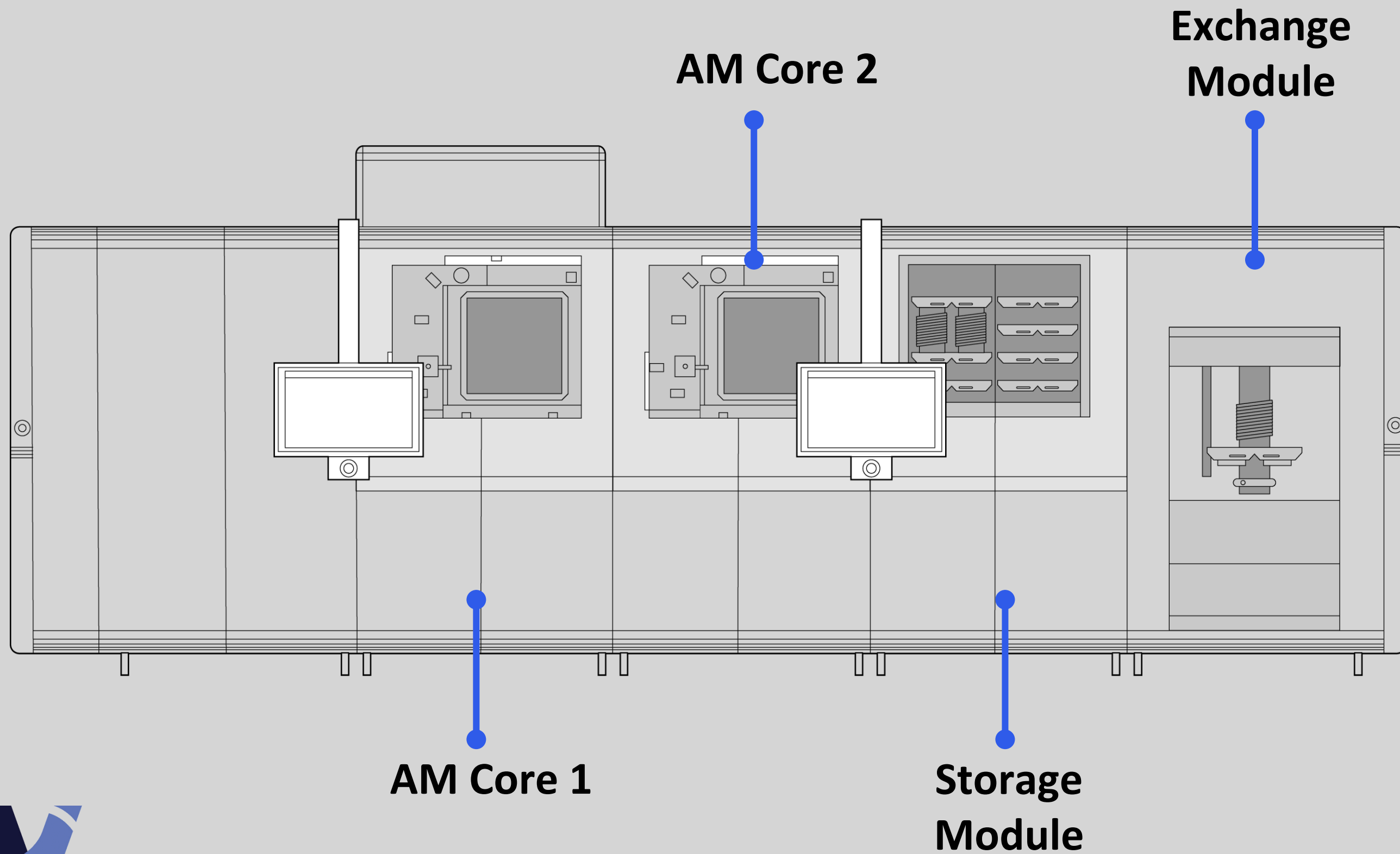
- Operators do not come into contact with metal powders.
- **Closed-loop extraction:** Integrated closed-loop powder extraction and sieving under controlled inert conditions
- **Permanent filter solution:** No paper filters – all fine explosive particles are passivated by chalk coated permanent filter solution and safely handles with hazardous waste procedure
- **Build plate handling tool:** Build plates loaded, unloaded and moved around facility safely with build plate handling tool
- **Powder load tool:** Controlled inert loading and unloading of powder



Automation and Modularity

De-risking our customers growth

Continuous job operations with a high degree of automation increases part productivity and reduces cost.



OPERATIONAL MAINTENANCE
Customised scheduling for operational maintenance
(8 consecutive builds before required)

START PRINT IN AM CORE 1

Once finished the optical module moves to AM Core 2.

START PRINT IN AM CORE 2

Whilst powder from build in AM Core 1 is extracted automatically.

EXCHANGE MODULE

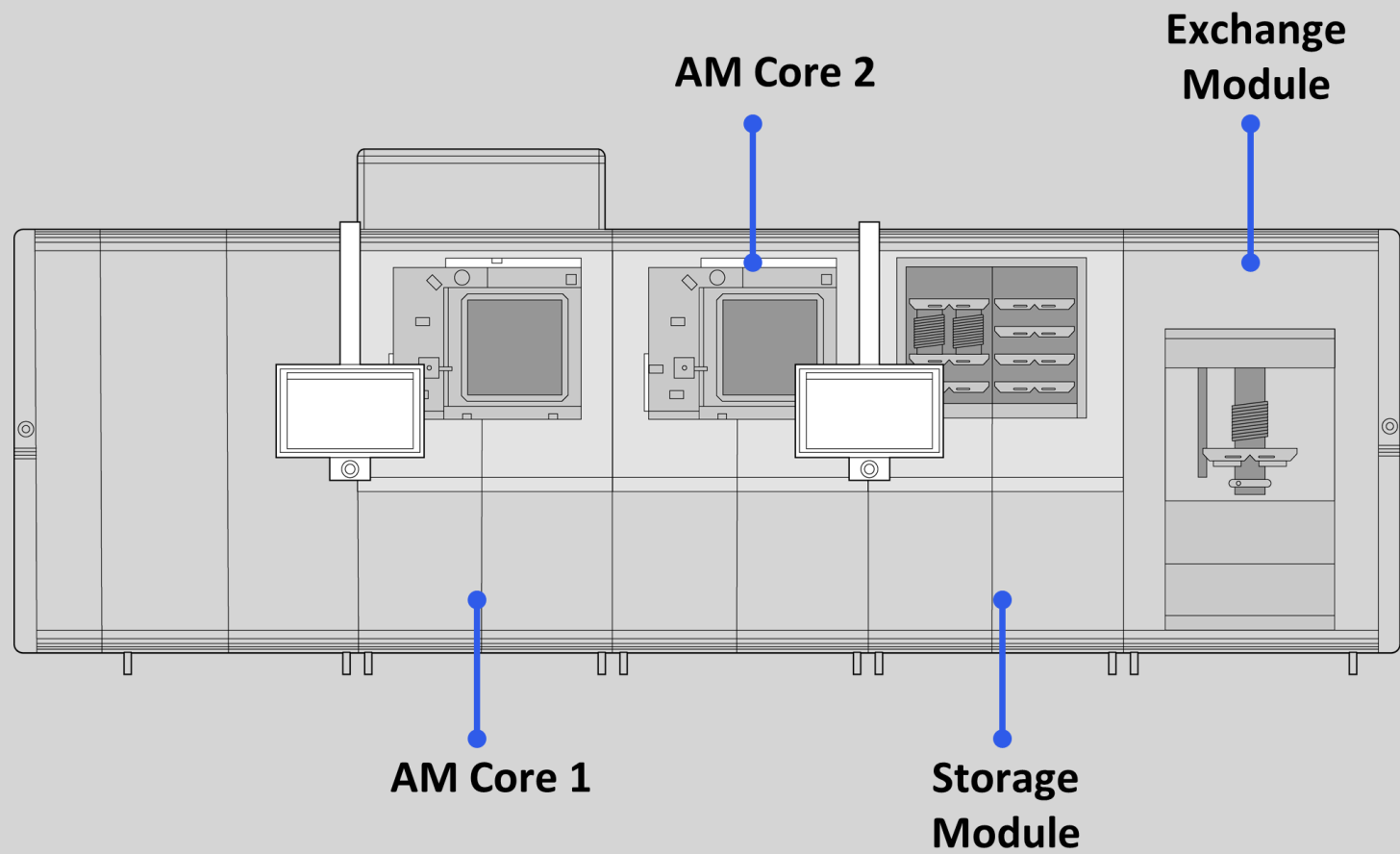
Safe removal of parts. Vacuum cleaner and air gun included.

STORAGE

Use storage module for storing finished build jobs and empty build plates.

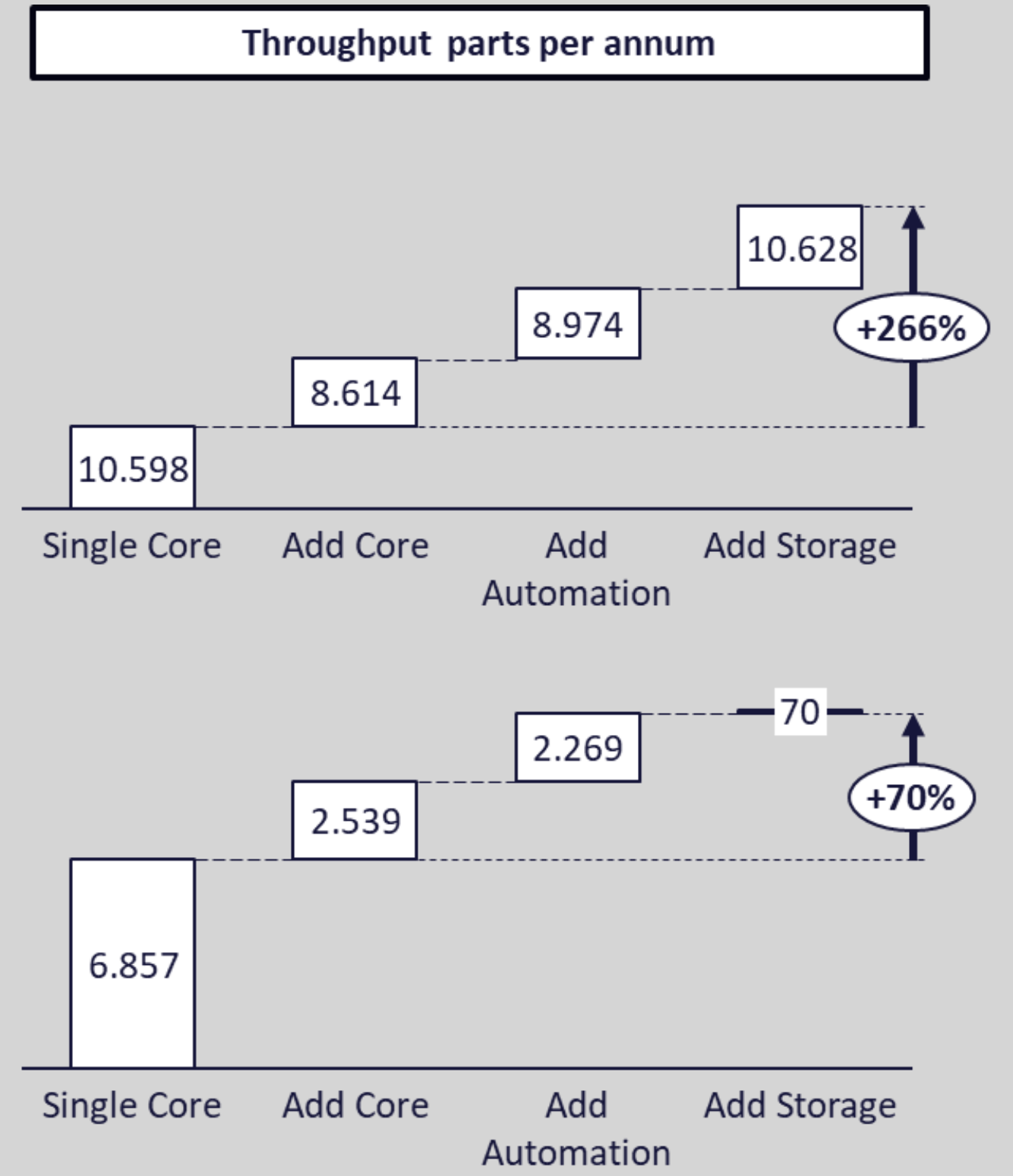
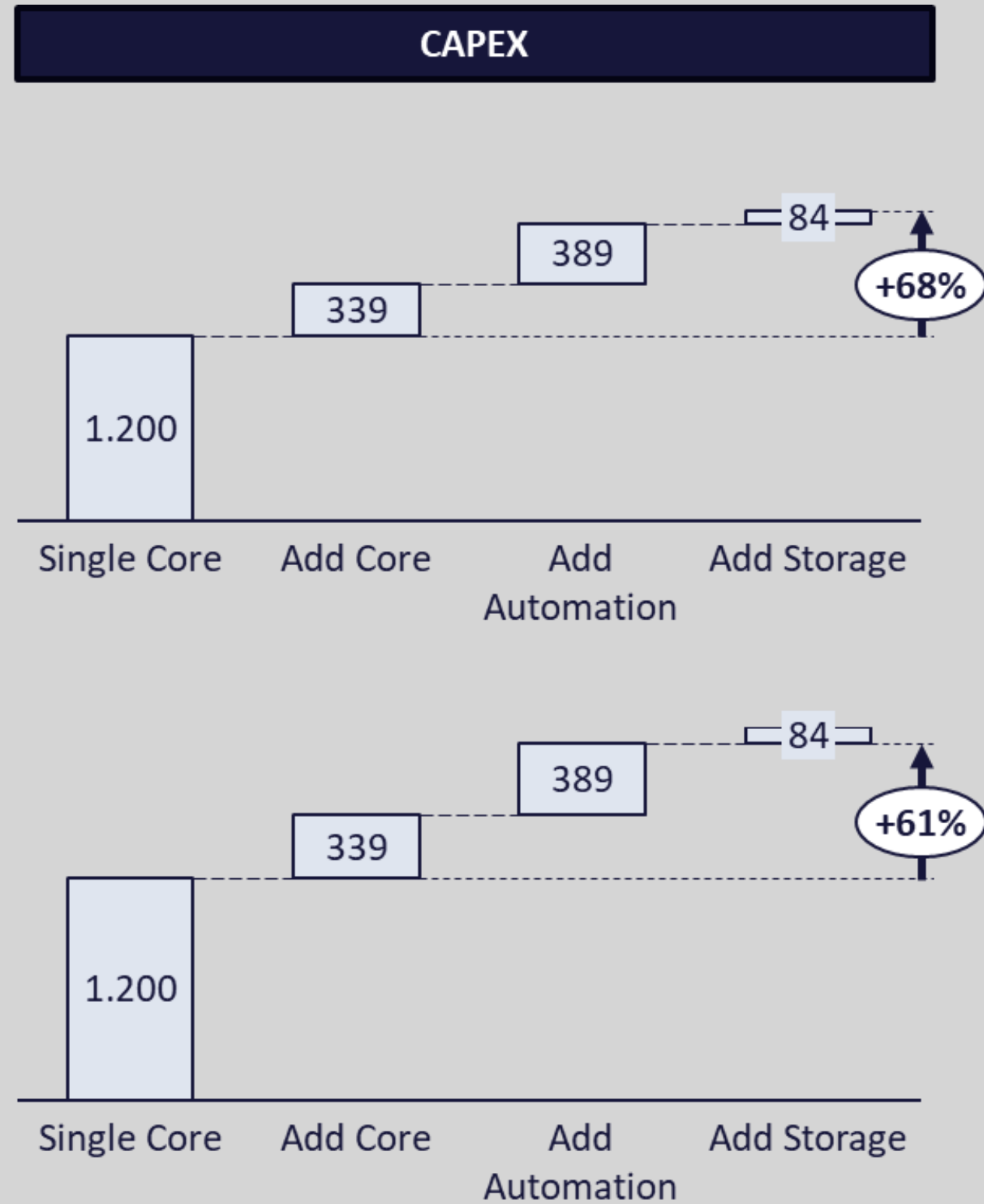
Small investments in automation yield large increases in output through serial production

Continuous job operations with a high degree of automation increases part productivity and reduces cost.

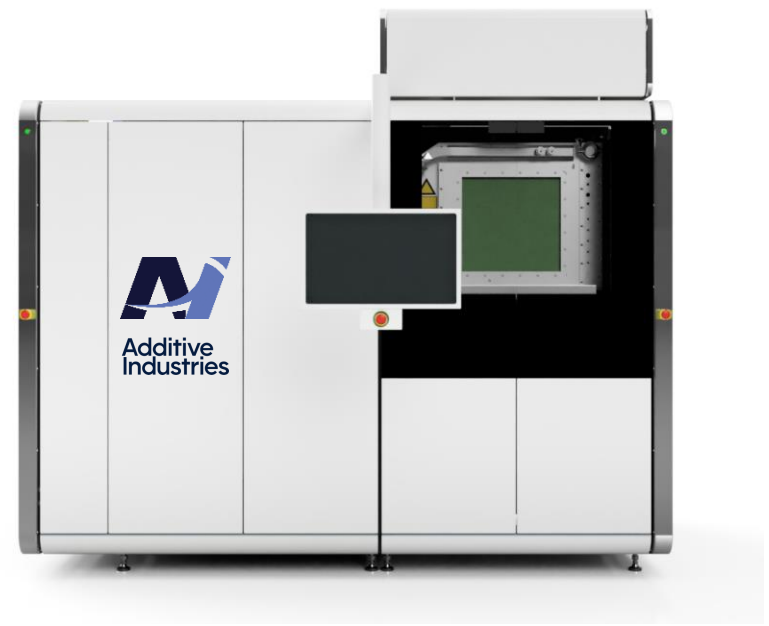


<10 hour build
Operator availability
8/5

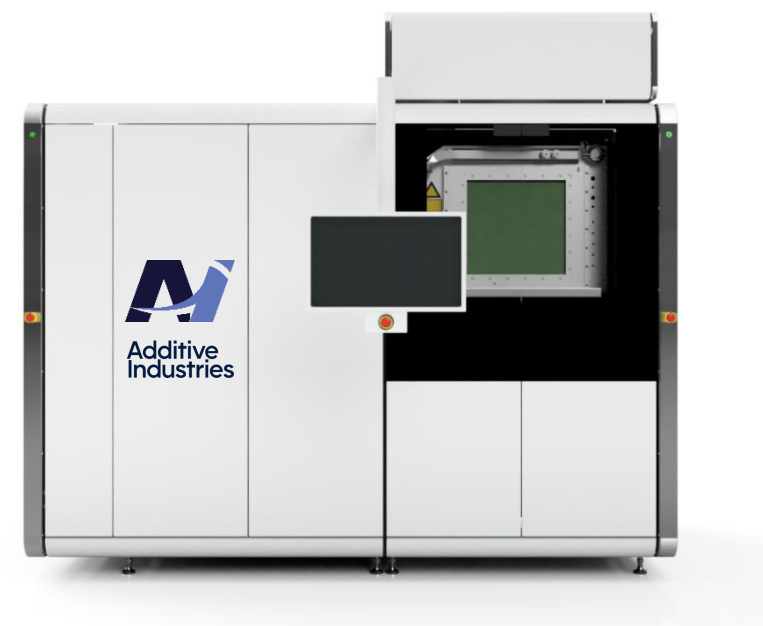
<24 hour build
Operator availability
8/5



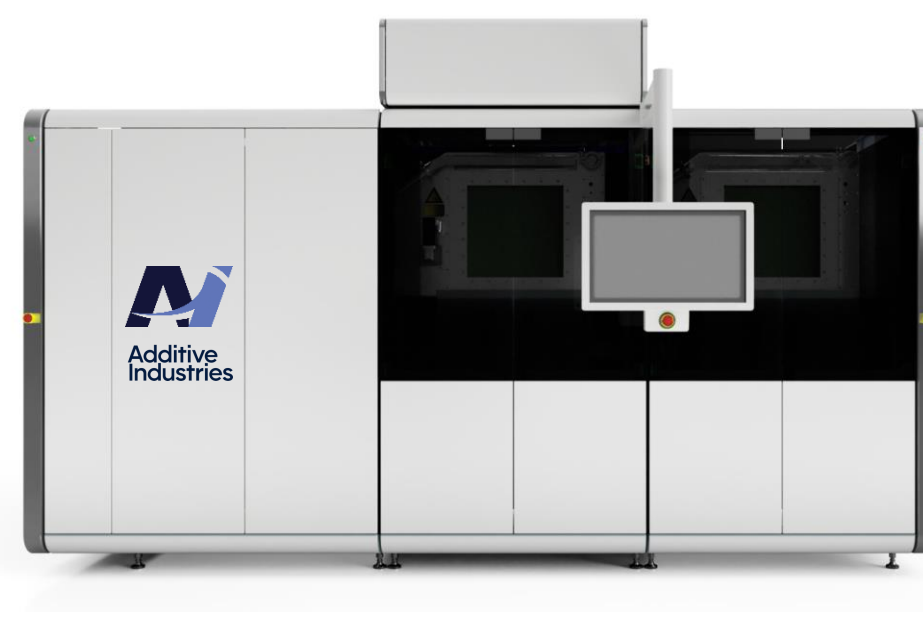
Additive Industries New Portfolio



MetalFab
300 Flex



MetalFab
G2 Core



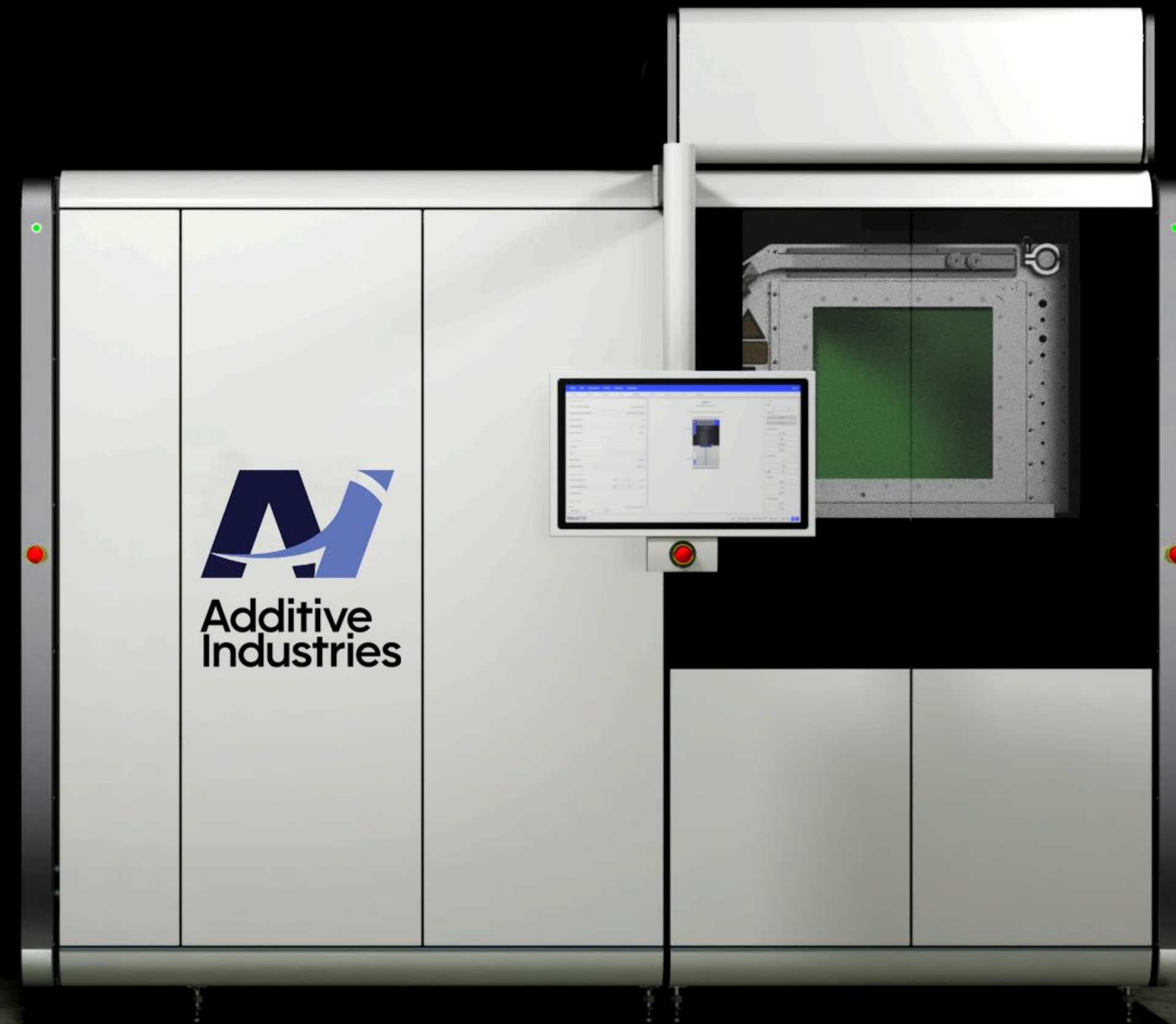
MetalFab
G2 Dual Core



MetalFab
G2 Continuous Production



MetalFab™ 300 Flex



Thank you!