

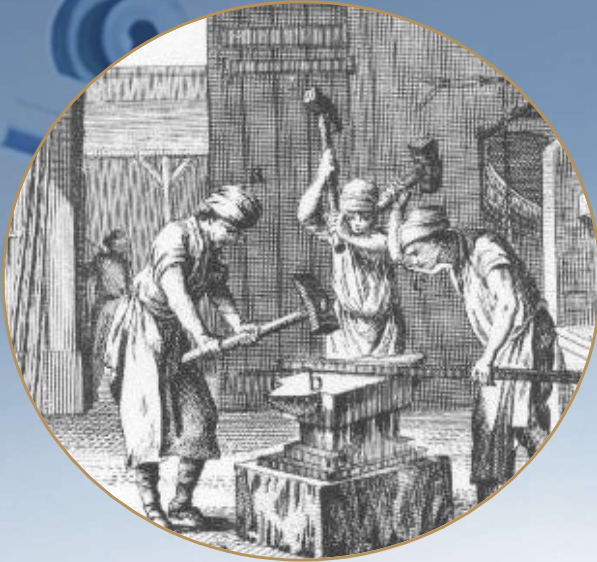


# Company Presentation

January 2023



# We are innovating the future of metal alloy manufacturing



## Forging then

High labor and energy input



## Forging now

High capital and energy input



## Rapid Plasma Deposition® (RPD®)

Disruptive technology

# A parts manufacturer with proprietary additive technology



## The Perfect Storm

- Global shortage in aerospace grade Titanium
- Increasing production demand
- Recession fears limiting investments in production

## Solid platform for growth

- Global leader in additive manufacturing
- Established forged equivalent material spec
- Fully built production facility in New York

## Rapid revenue growth

- On-contract with Airbus (1Q 23) and Boeing
- On-contract with US Defense contractor (2Q 23)
- On-contract with ASML supplier

more than **50%**  
Material savings

**700 MT**  
Production capacity

**USD 150m**  
2026 Revenue Target

# Inserting 3D printed parts in existing industrial supply chains



## Energy Intensive Forming Methods

Casting, Forging, or Milled Plate



**12 : 1**  
Raw-material-to-  
final-part ratio



*70% Raw Material Reduction*

*Standard  
Machining*



## Additive RPD® Technology



*Near-net-shape  
value-added form*

**4 : 1**  
Raw-material-to-  
final-part ratio





700 MT annual  
capacity ready  
for production

### Plattsburgh, New York, USA

- World's largest additive manufacturing facility, focused on manufacturing customer parts
- 620 MT annual capacity across 31 RPD® machines
- Separate qualification facility for Defense

### Eggemoen, Ringerike, Norway

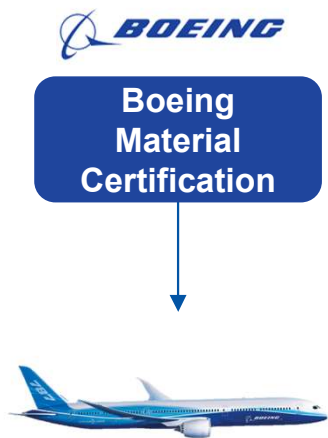
- Focused on research and development of new technologies for additive manufacturing
- 80 MT annual capacity across 4 RPD® machines
- Own metallurgy lab

# Our 3D printed Titanium parts already flying

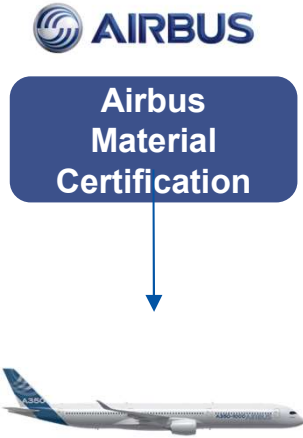


## Established in Commercial Aerospace

Aerospace Materials Specification (AMS)  
7004 / 7005

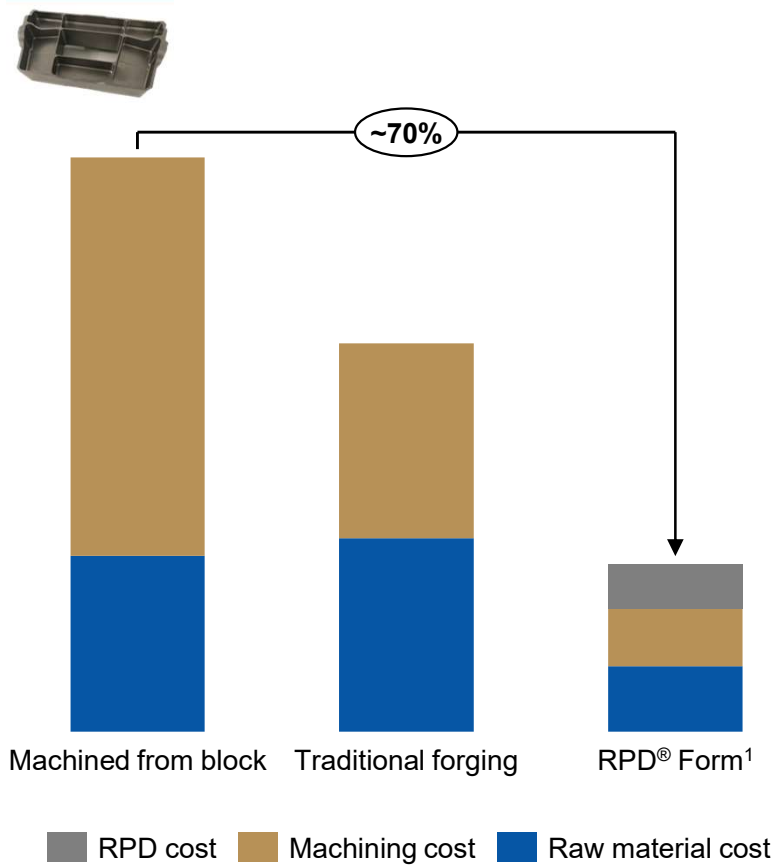


Boeing 787

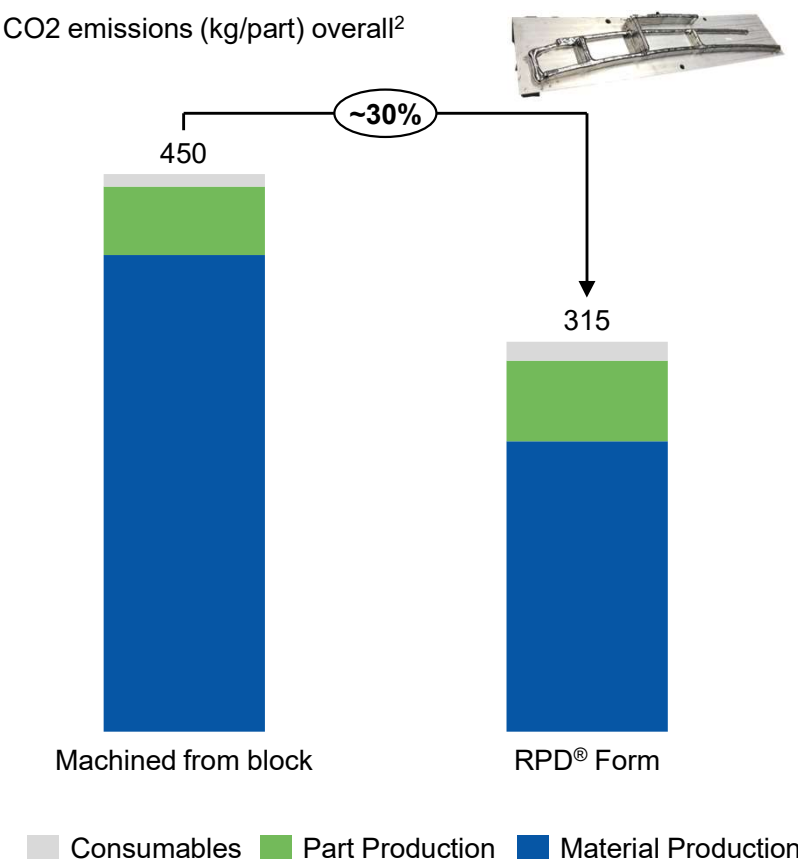


Airbus 350

## Cost reduction - illustration



## Environmental impact reduction




# In-Production: ASML Carrier Tray




## Less CNC machinery required

Legacy block


220kg Forged Block



6kg Finished




15 000 kg additional machining required per year



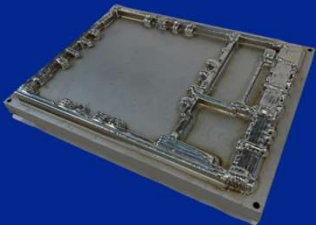
Saves 2 CNC machines, or USD 10 million capital investment

6kg Finished

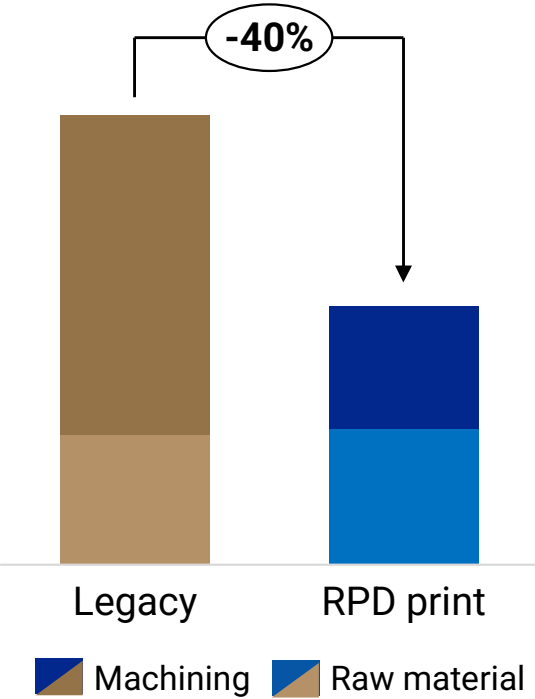


Norsk Titanium

80kg RPD® Print



## Less cost '000 USD



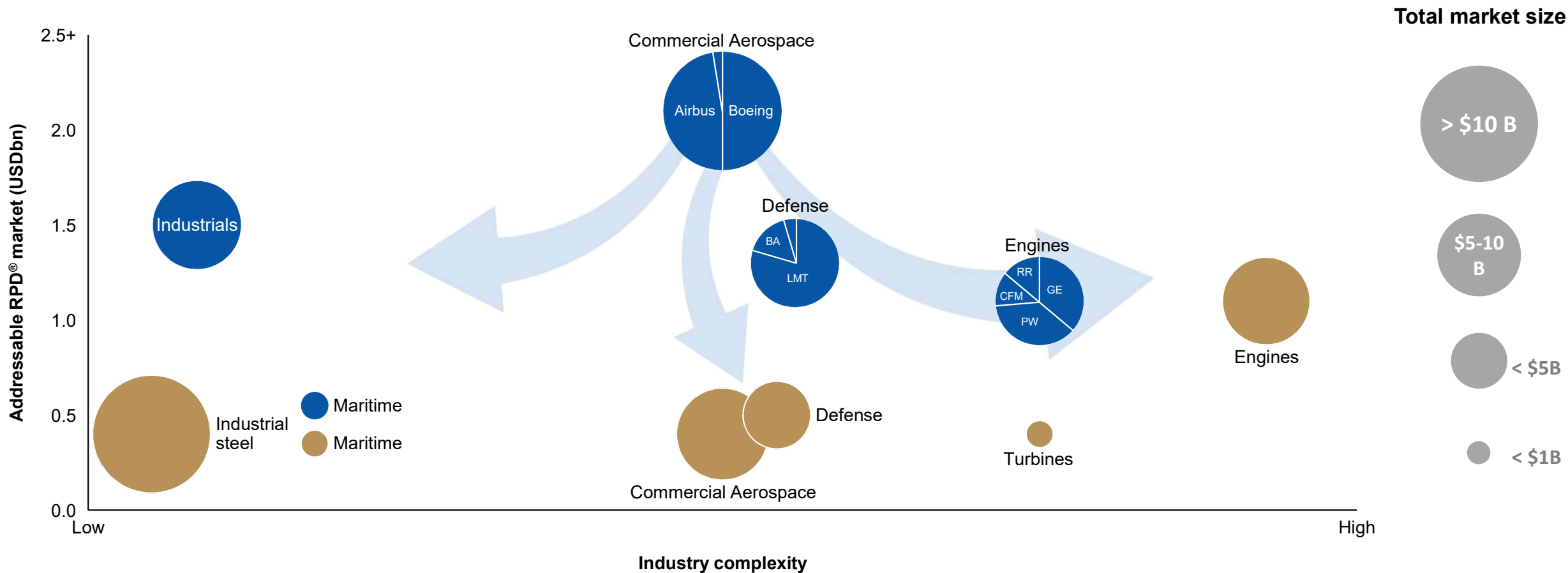


# Commercial aerospace enables us to go anywhere



## Large potential market for 3D printed parts

● Ti6-4, Titanium Alloys    ● Other Alloys



Source: Management estimates  
1) Defense Ti6-4: LMT=Lockheed Martin, BA=Boeing  
2) Engines Ti6-4: GE=General Electric, RR=Rolls-Royce, CFM= CFM International, PW=Pratt & Whitney



# Current progress: Commercial aerospace



## Airbus

Production orders through Airbus tier-1 supplier pending final qualification with Airbus expected 1H 2023:

- 1<sup>st</sup> order: Two part numbers to be installed (~300 pieces on order)
- 2<sup>nd</sup> order: Recurring production for two new parts in discussion
- 3<sup>rd</sup> order: Recurring production for one large part in discussion

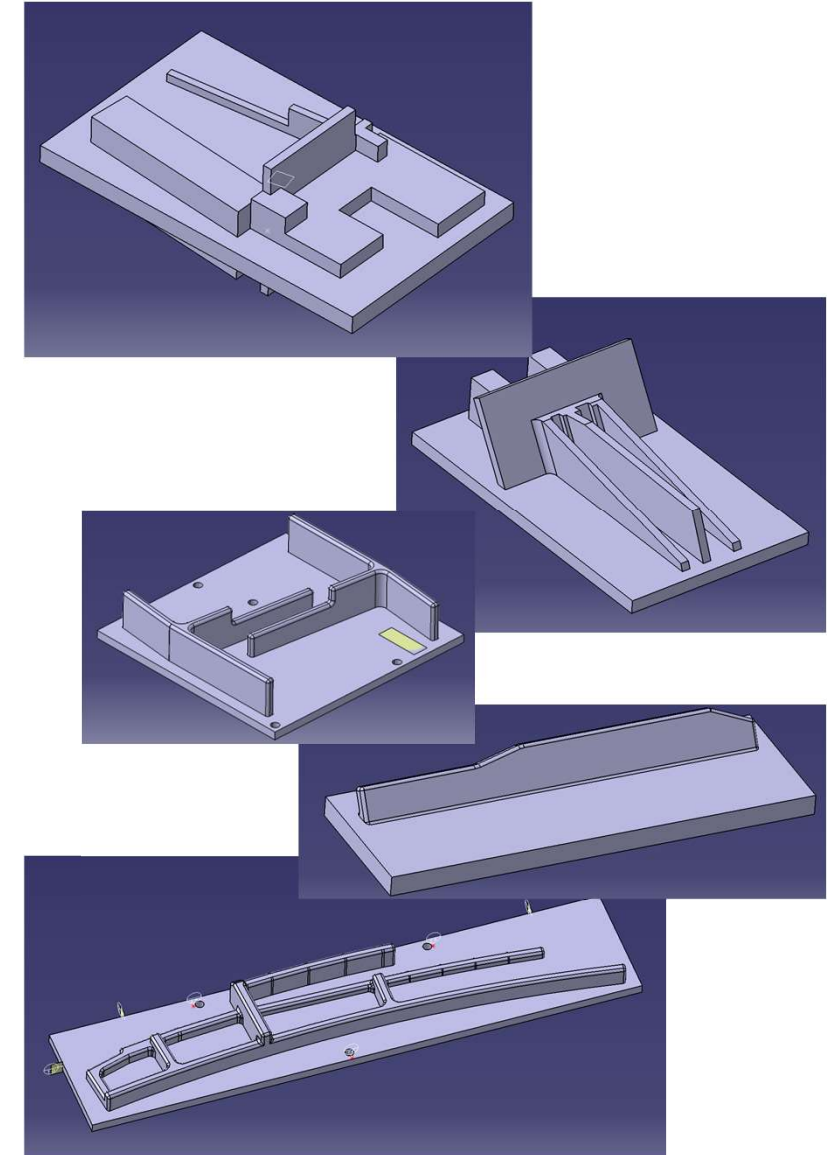
Initiated discussions with additional Airbus tier-1 supplier to transition parts into production

## Boeing

- 7 part numbers on-contract for the Boeing 787 Dreamliner
- Proprietary applications in development

## Safran

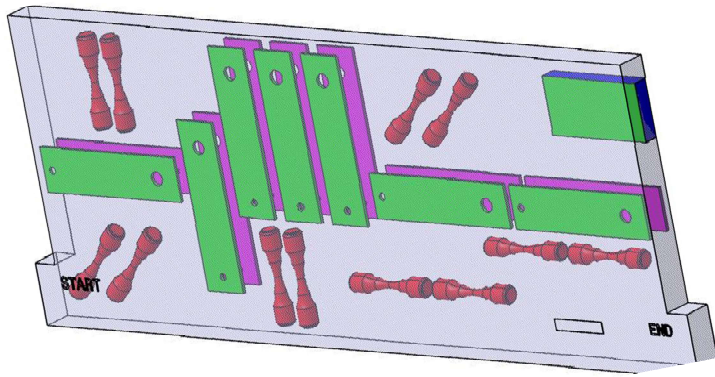
- High level 2023 development plan
- Next steps; detailed scope and agreement



# Airbus machine qualification status

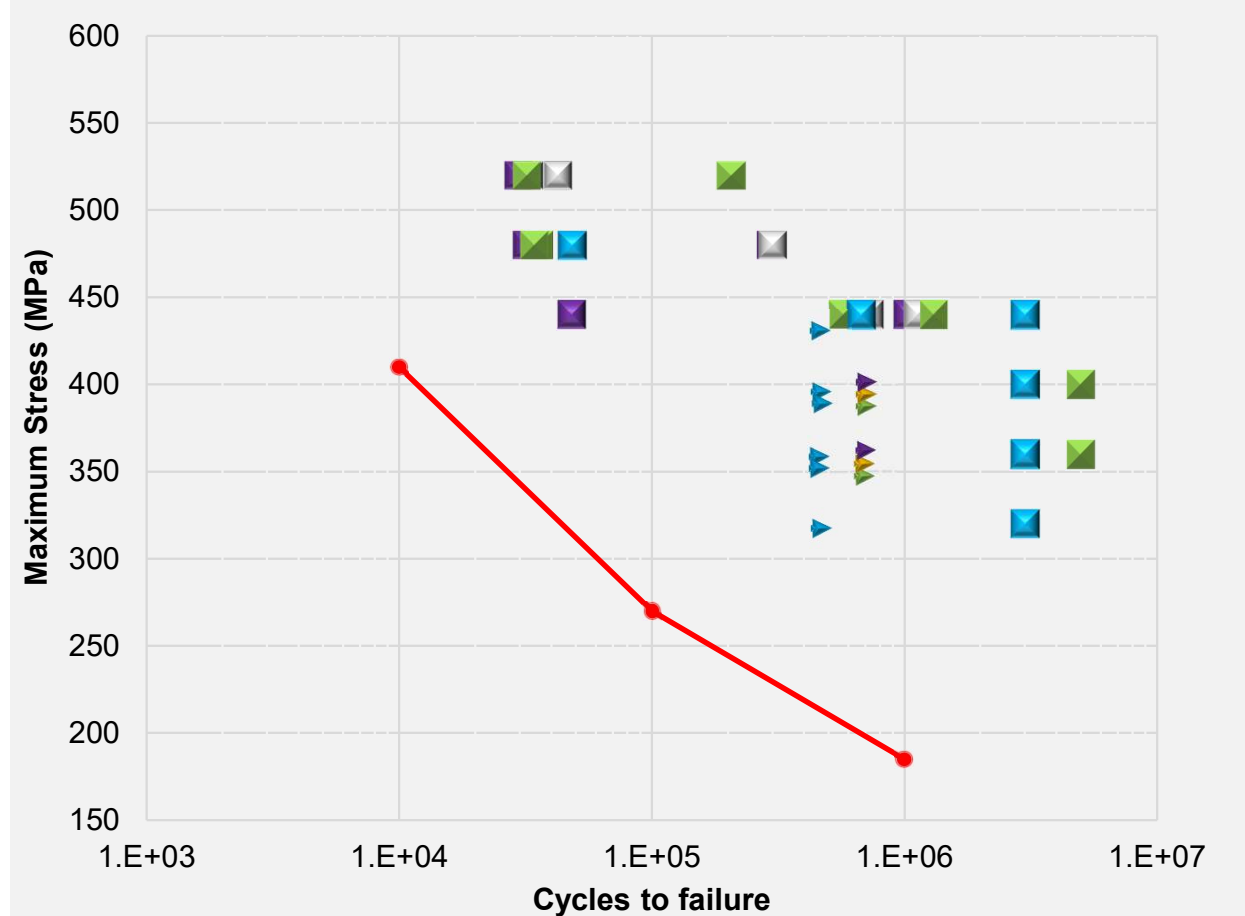


## Test Plan Summary



- ~250 Test Points
- Airbus approved supply chain & test house
- Testing progressing as planned

## Typical Fatigue Results



# Current progress: Defense



## US Department of Defense Prime #1

- Basis of qualification established
- First production deliveries this year
- Specification published
- On approved supplier list



## General Atomics

- Continued support from AM organization; Goal remains to replace legacy primary structure components
- Development part delivery 2Q23

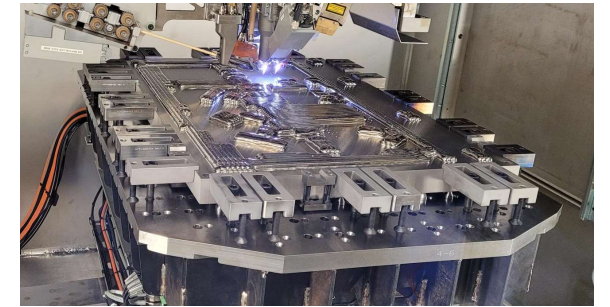


# Current progress: Industrial & emerging markets



## ASML

- First model of carrier tray in production
- Working under contract to deliver second generation of carrier tray RPD form
- New model carrier tray development to start next month
- Second ASML supplier, relationship established



*First Carrier Tray at PPC, Dec 7*

## Other Significant Pipeline Opportunities

- Developing RPD® form optimized components for eVTOL applications
- Long term opportunity; 8,000 annual deliveries
- MRO development in evaluation with European Defense customer; first customer funded MRO effort
- Energy, automotive, heavy machinery applications in study with new customers



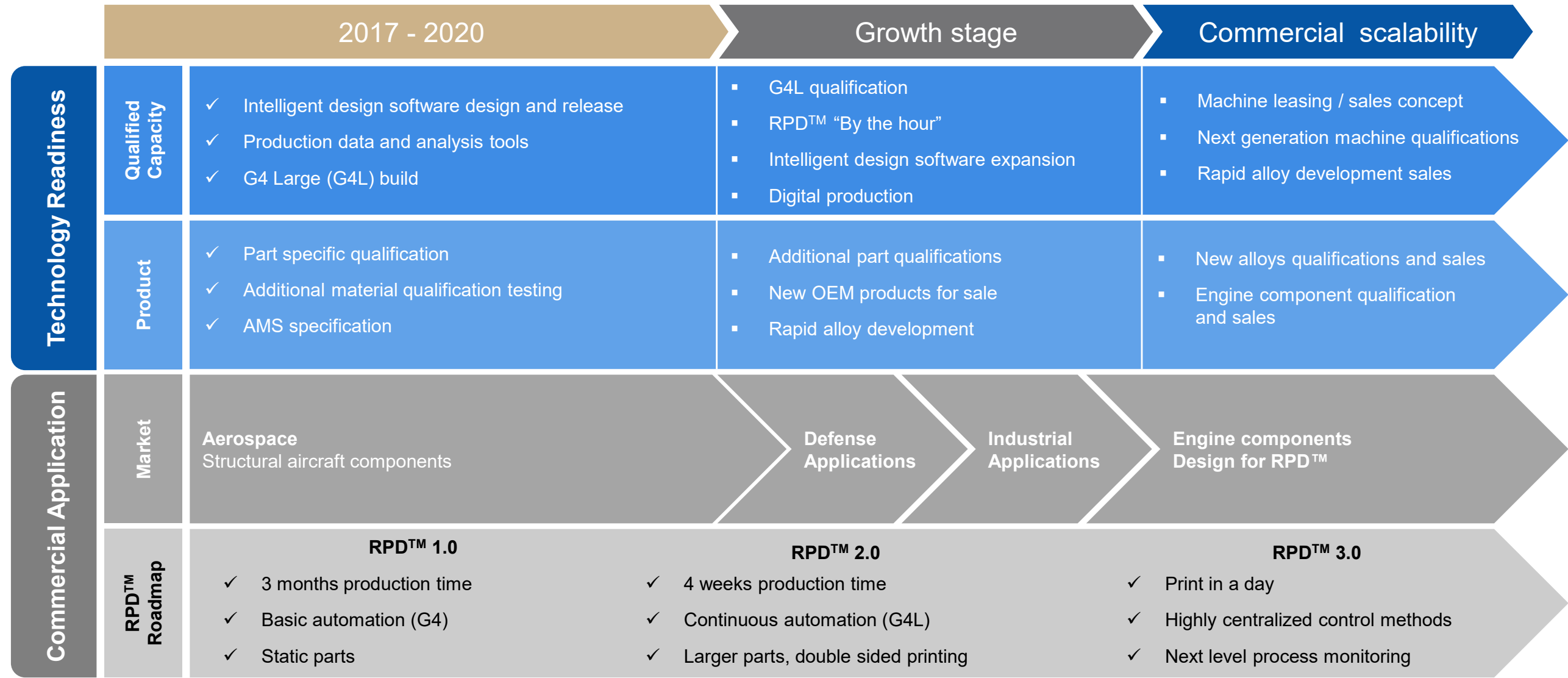
*eVTOL*



*European Defense Repair part*



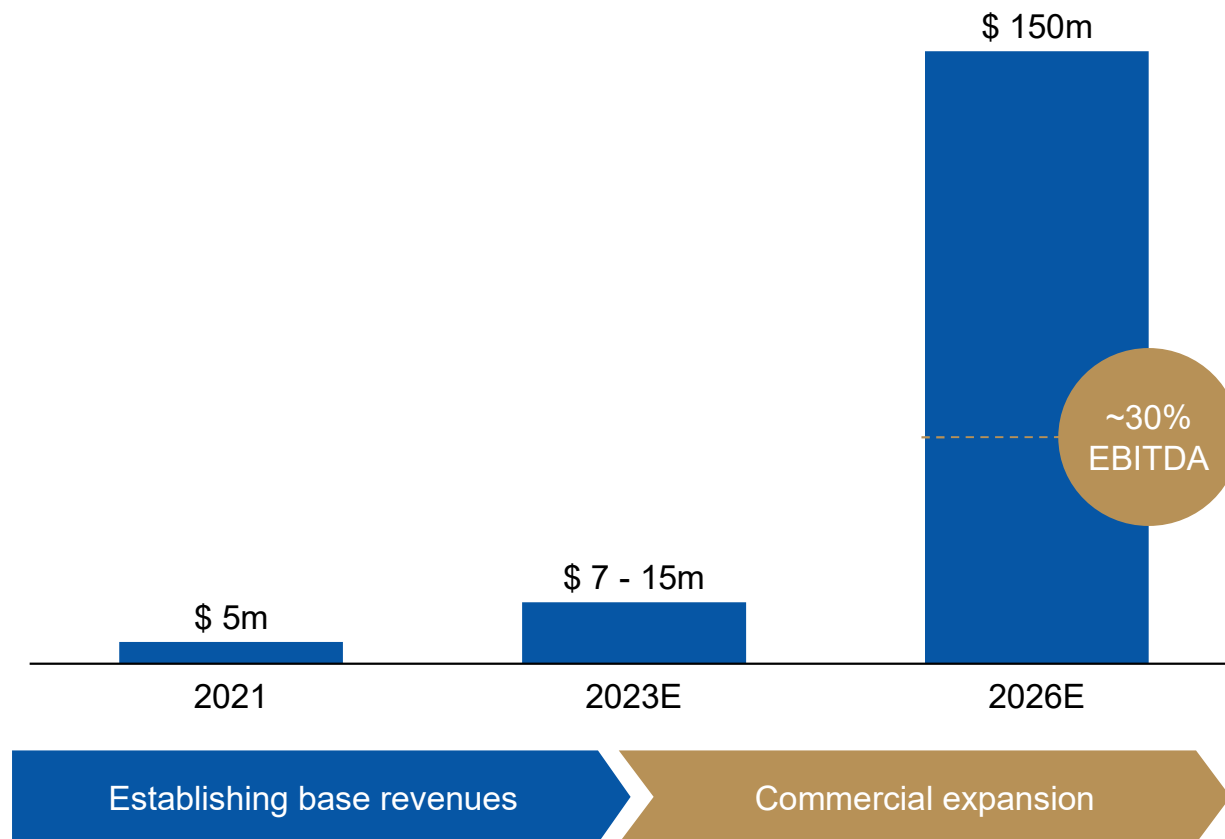
# Well defined and structured path to diverse growth



# Progressing towards long-term targets



## Long-term revenue targets



Revenue expansion pending product qualifications, contract awards and deliveries of produced parts

### ■ Technology adoption in 2023

- Revenue from programs currently in development and qualification

### ■ Mass additive manufacturing by 2026

- Expansion within Commercial Aerospace, Defense and Industrial industries
- Utilizing only ~50% of current capacity

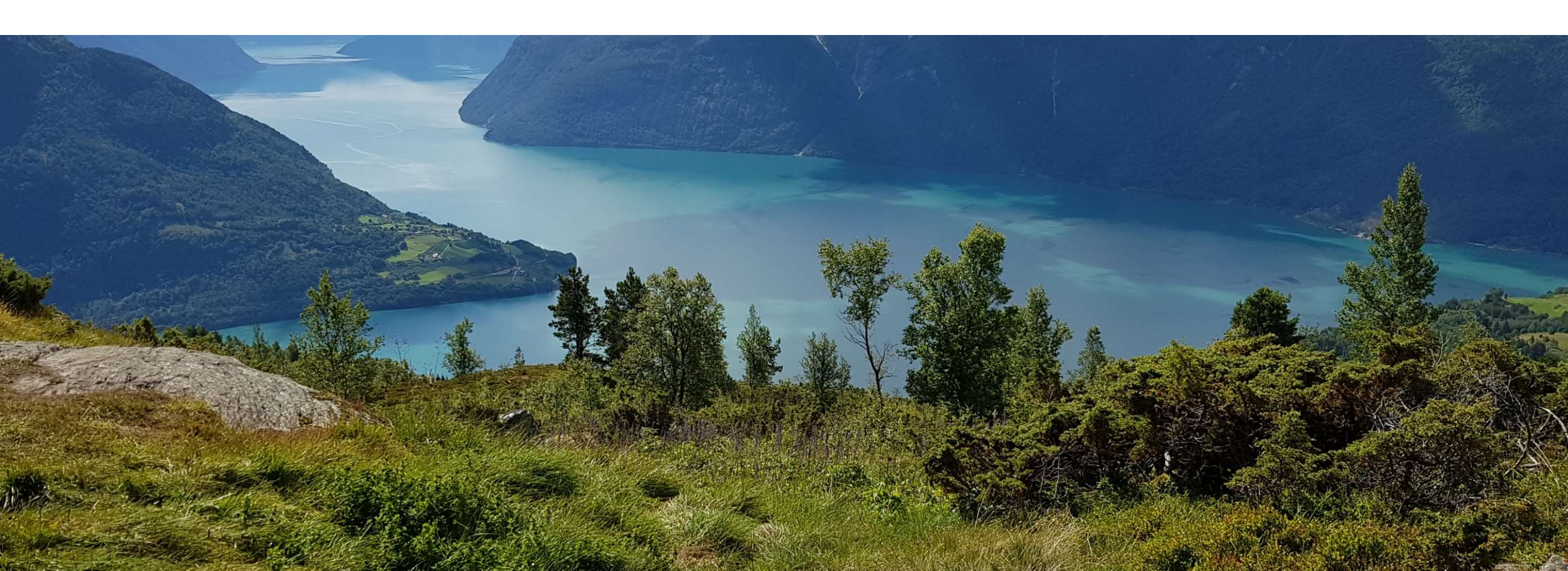
Establishing a long-term target EBITDA margin of ~30% beyond commercialization

# Key stakeholders have invested USD 390m over 15 years



Capitalization Table	#	Shareholders	Investor Type	Current Ownership		Investment (in \$ millions)
	1	Norsk Titanium Cayman Limited	Mgmt. / Board	<div></div>	37.8%	
	2	Scatec Innovation AS	Mgmt. / Board	<div></div>	25.0%	
	3	Triangle Holdings L.P. (Fortress)	Mgmt. / Board	<div></div>	13.4%	
	4	Disruptive Innovation Fund, L.P. (Rose Park)	Mgmt. / Board	<div></div>	6.8%	
	5	FERD AS	Institutional	<div></div>	3.8%	
	6	MP Pensjon PK	Institutional	<div></div>	2.0%	
	7	Avkast Invest AS	Institutional	<div></div>	0.9%	
	8	Sauar Invest AS	Institutional	<div></div>	0.7%	
	Total of top-8 shareholders			<div></div>	90%	
	Remaining Shareholders			<div></div>	10%	
Total			<div></div>	100%	\$265	
Additional Investment	#	Investor	Investor Type	Market Value		Investment Value (in \$ millions)
	1	New York State	State Agency	n.a.		\$125
Total Investment						
						Total Investment (in \$ millions)
					\$390	





# An additive process designed for our greener future

Each RPD machine saves 2 GWh in energy consumption representing 1,100 MT of CO<sub>2</sub> emissions annually<sup>1</sup>

## Less Material

RPD® process delivers a near net shape preform with significant raw material savings.

## Efficient Forming

The Merke IV® additive machine uses less energy to produce the desired shape

## Less Machining

Near net shape preforms require less machining time, reducing energy consumption, coolant use, and tool wear

<sup>1</sup>) Source: <https://www.eia.gov/tools/faqs/faq.php?id=74&t=11>



# Norsk Titanium by the numbers

	<b>USD 400m</b> invested		<b>USD 70m</b> market cap.
	<b>100+</b> employees		<b>35 machines</b> experience
	<b>US &amp; Norway</b> locations		<b>700 tons</b> capacity
	<b>15 years</b> experience		<b>3 markets</b> presence

Norsk Titanium’s additive manufacturing technology is a game changer for manufacturers



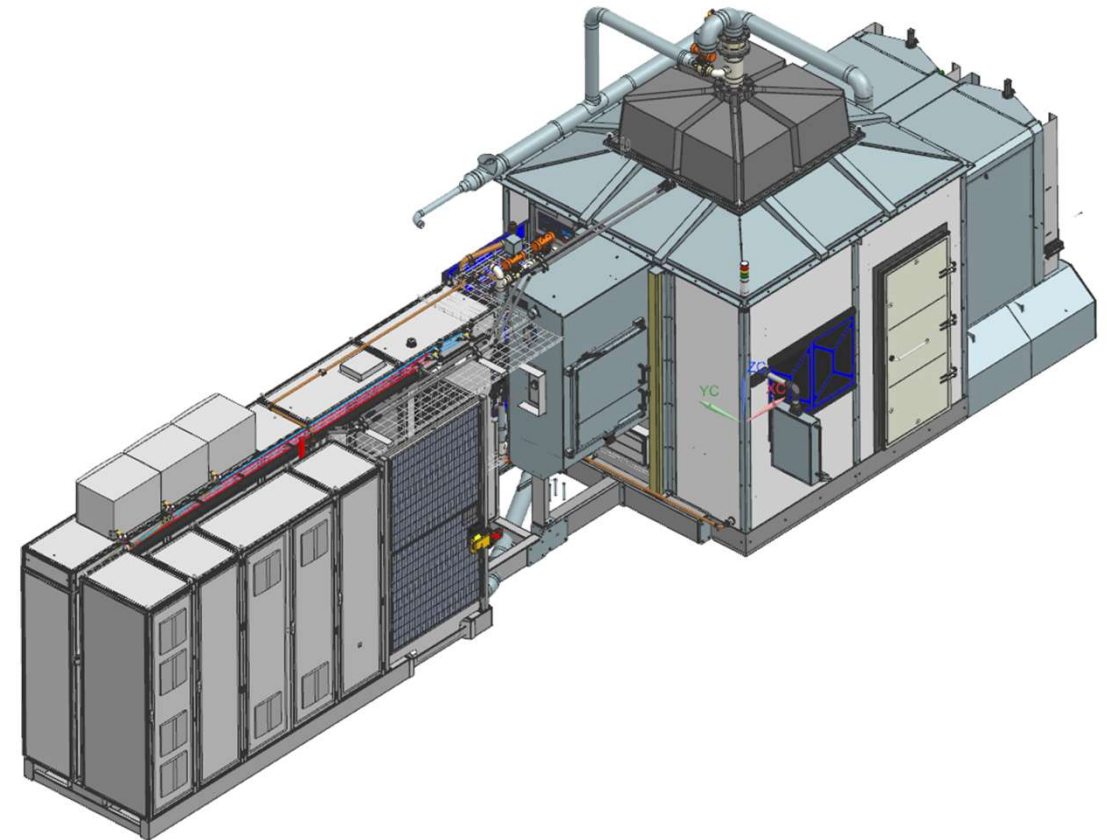
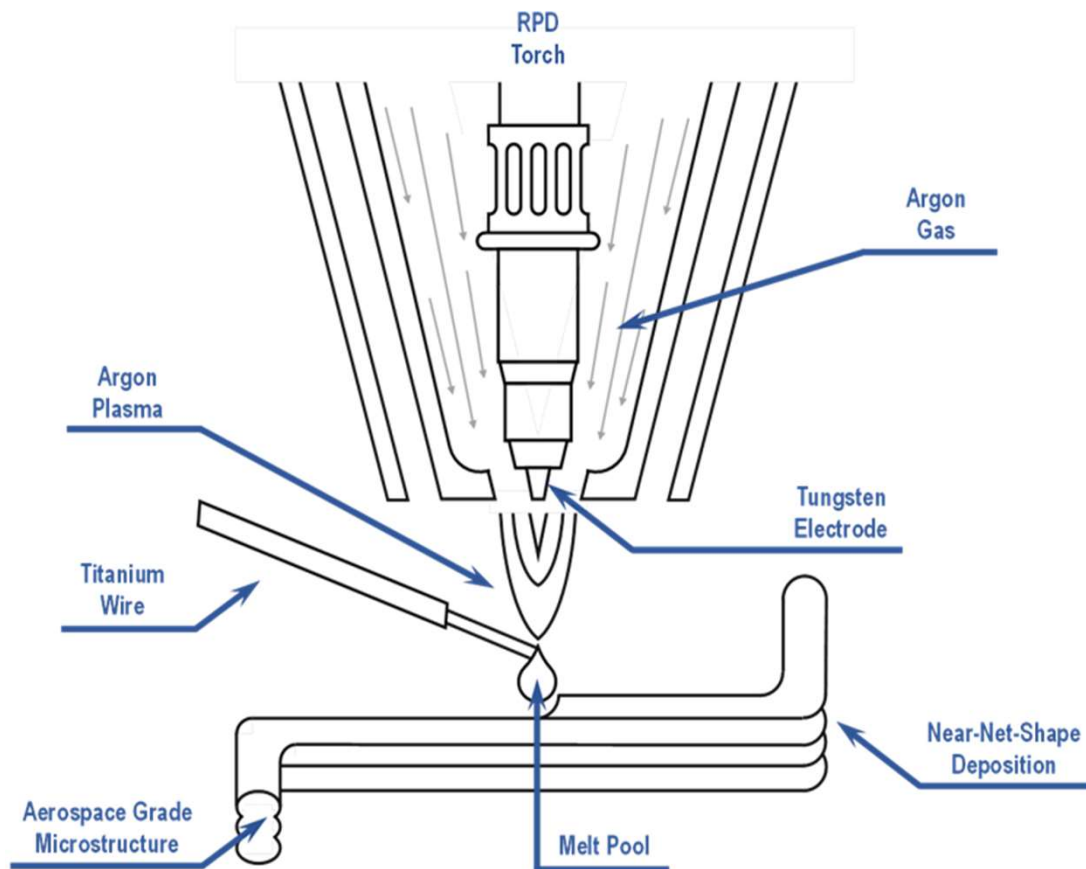


# Appendix

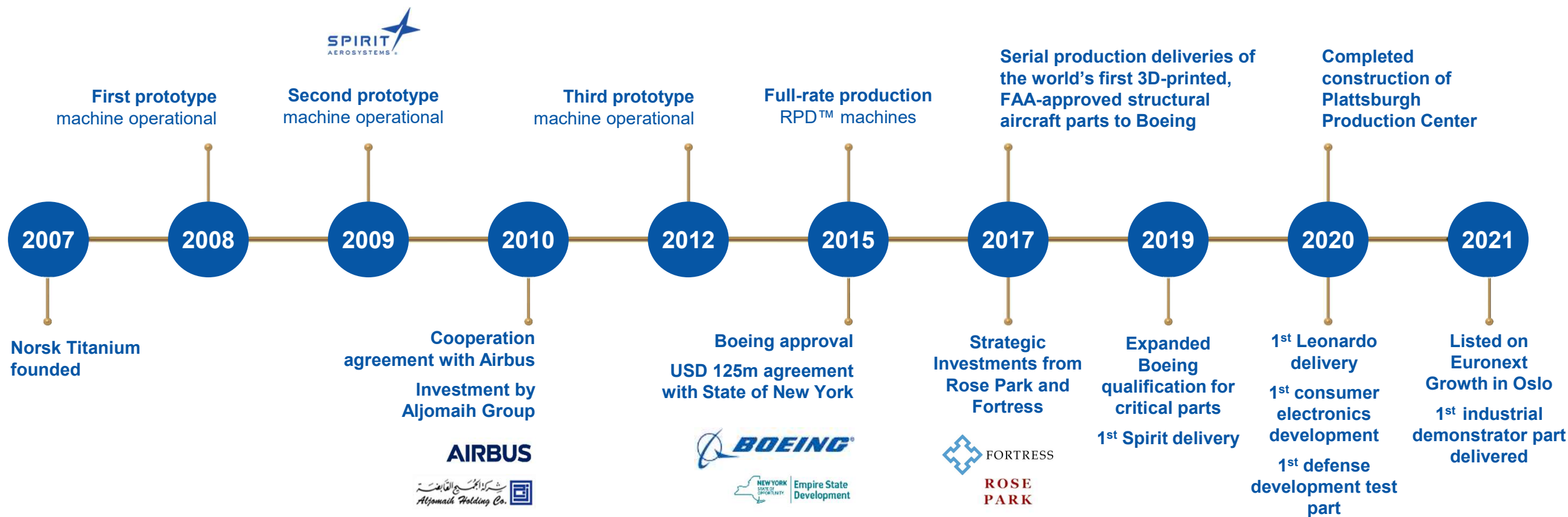
# Norsk's Rapid Plasma Deposition (RPD®) technology



## Norsk's RPD® process

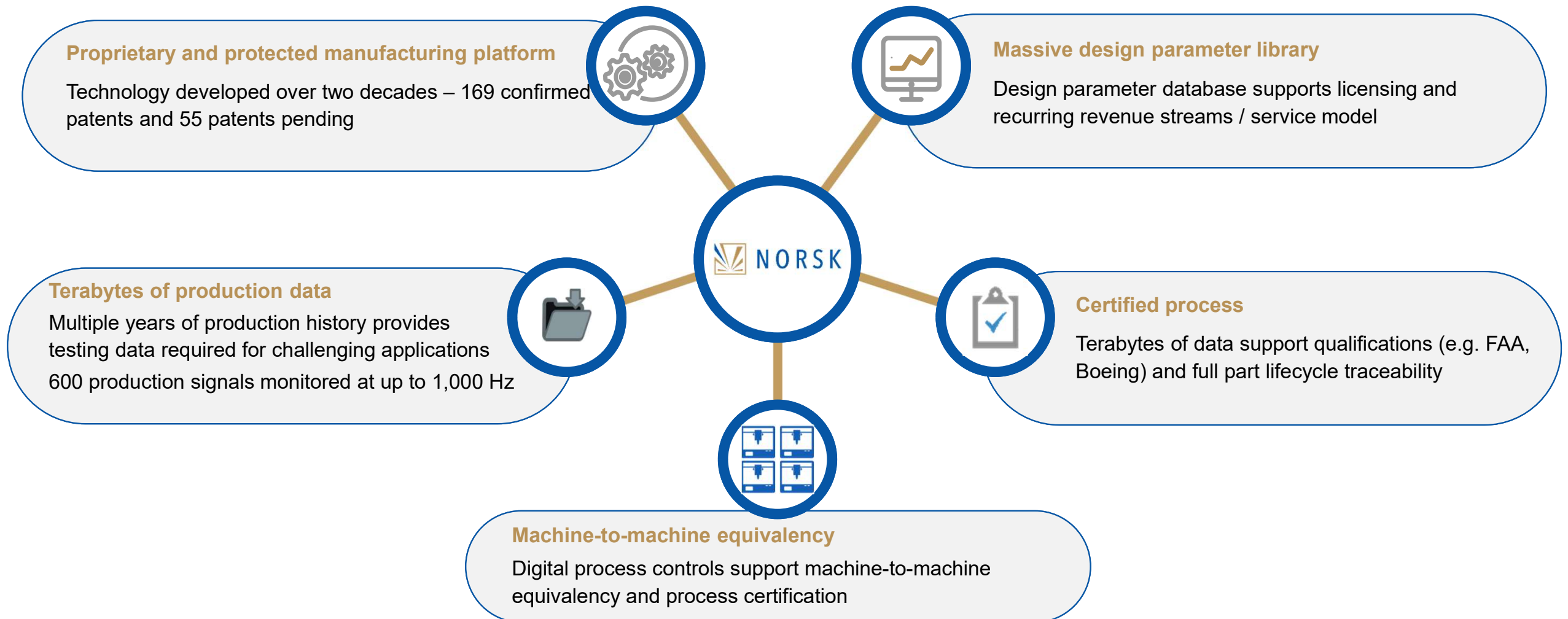


# Matured RPD<sup>®</sup> technology setting industry standards





# Technology platform enabled by a digital backbone



# Global technology leader additive manufacturing for metals



**Material specifications**

Superior metallurgy published by SAE<sup>1</sup> and AMS<sup>2</sup>



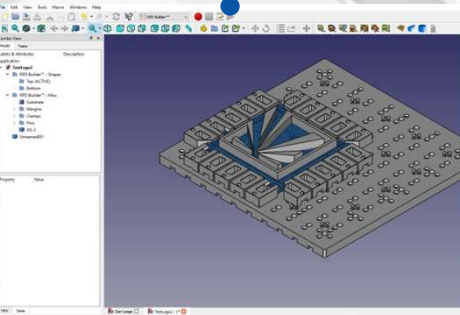
**State-of-the-art machines**

Strong global patent portfolio  
Machine-to-machine qualification



**Innovative RPD Builder™**

Software Development Kit enabling customers to independently design parts



**Data platform driving automation**

Quality assurance and distributed production



**Driving Industry 4.0**

Scale to produce cheaper parts in custom batches



1) Society of Automotive Engineers (SAE)  
2) Aerospace Material Specification (AMS)

# RPD<sup>®</sup> technology helps solve titanium supply challenges



Select Commentary

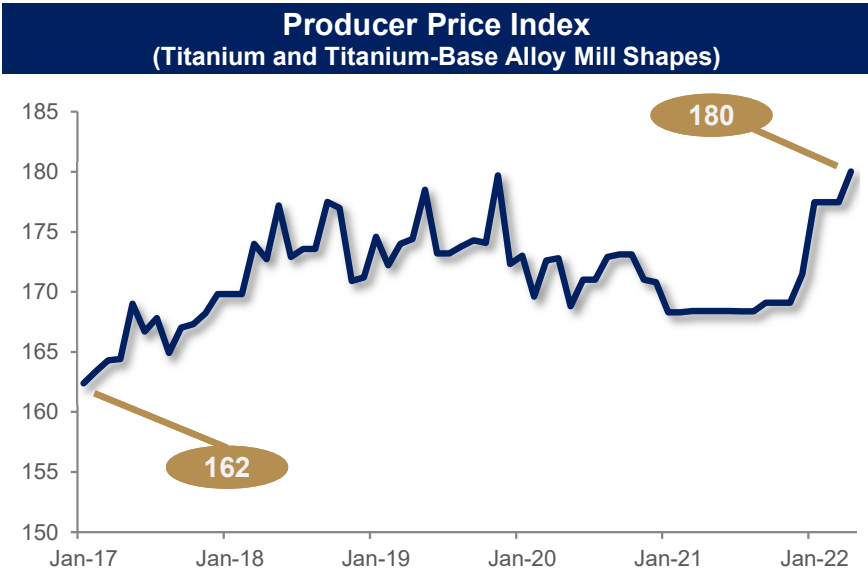
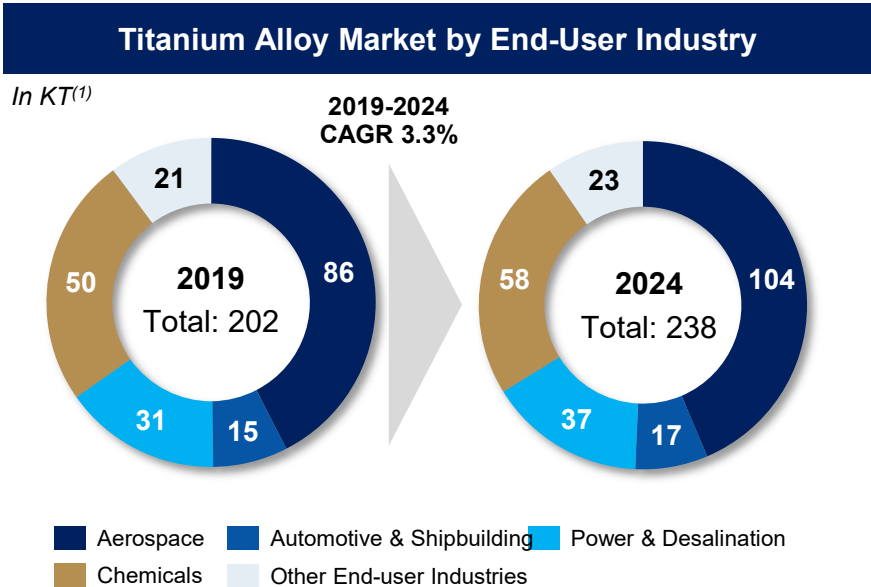
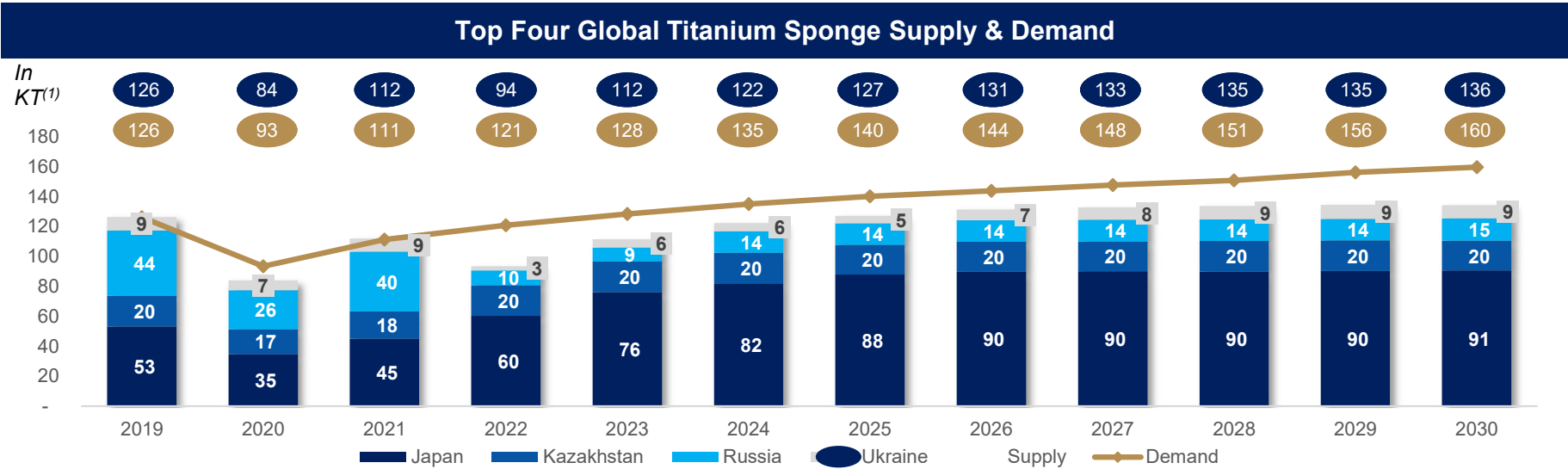
■ Use of titanium mineral concentrates is tied to production of titanium dioxide pigments that are primarily used in paint, paper, and plastics

■ Global titanium sponge primarily supplied by select key players based in Ukraine, Russia, Kazakhstan, and Japan

■ Russia / Ukraine conflict expected to cause supply shortage between 2022 and 2030

■ Both supply shortage and titanium price volatility speaks to the need for efficiency in titanium use

■ 3x increase use of titanium in production of Boeing aircrafts over the past 40 years



Source: FRED Economic Data, Jun 2022; Analyst research; Global Titanium Alloy Market (June 2019, Mordor Intelligence); Company Information  
Notes: (1) KT = Kilotons

# Norsk's technology is certified for production and has set industry standard for 3D printing of metals



## Industry material standard

Boeing Material

*“We are always looking at the latest technologies to drive cost reduction, performance, and value to our customers, and **Norsk Titanium’s RPD™** capability fits the bill in a new and creative way.”*

John Byrne, VP Airplane Materials & Structures,  
Boeing

Airbus Material

Emerging Technologies Task Group, Co-Chair Materials & Machines

Aviation Week 2018 Award Winner

AMS 7004 & 7005

Additive Material Specification Development Committee

Frost & Sullivan 2017 European Innovation Award



# RPD<sup>®</sup> is benefits versus other technologies



<div>Rapid Plasma Deposition (4 : 1)</div>	<div>Low-cost titanium wire and plate feedstock</div> <div></div> <div>4 kg raw input</div>	<div>RPD™ printer yields near net shape with less CNC machines required</div> <div></div>	<div>Batch of finished parts completed</div> <div></div> <div>1 kg final part</div>	<div>✓ Homogenous material quality</div> <div>✓ High-rate serial production (5-10kg/hr)</div> <div>✓ Lower capital and tooling cost</div> <div>✓ Just-in time manufacturing</div> <div>✓ Mass customization</div> <div>✓ 30+% lower carbon footprint</div>
<div>Traditional metal 3D printing (1.5 : 1)</div>	<div>Most 3D printers start with expensive powder (\$150-600/kg)</div> <div></div> <div>1.5 kg raw material input</div>	<div>Slow rate printers sufficient only for rapid prototyping</div> <div></div> <div>Slow rate print</div>	<div>Printer outputs a finished part</div> <div></div> <div>1 kg final part</div>	<div>✓ Complex finished part</div> <div>✓ Smaller carbon footprint</div> <div>✗ Slow print rate (0.1-1.0 kg/hr)</div> <div>✗ No serial production</div> <div>✗ Inconsistent material quality</div> <div>✗ Lack industrial scale</div>
<div>Traditional titanium forging (12 : 1)</div>	<div>Forging starts with a block</div> <div></div> <div>12 kg raw input</div>	<div>Forged using a &gt;\$95m press and CNC machines removing material</div> <div></div>	<div>Only 8% of the block remains in the finished part</div> <div></div> <div>1 kg final part</div>	<div>✓ Homogenous material quality</div> <div>✓ Scalable serial production</div> <div>✗ Costly material waste</div> <div>✗ Extremely high capital and tooling cost</div> <div>✗ Inflexible, long lead times</div> <div>✗ Significant carbon footprint</div>
<div>Traditional titanium machining (12 : 1)</div>	<div>Machining starts with Ti block</div> <div></div> <div>12 kg raw input</div>	<div>Large number of CNC machines used to remove material</div> <div></div>	<div>Only 8% of the block remains in the finished part</div> <div></div> <div>1 kg final part</div>	<div>✓ Homogenous material quality</div> <div>✗ Costly material waste</div> <div>✗ High capital and tooling cost</div> <div>✗ Slow, long lead times</div> <div>✗ Significant carbon footprint</div>

# State-of-the-art facilities located in Plattsburgh, NY State



**Plattsburgh Production Center (PPC)**



**Plattsburgh Development and Qualification Center (PDQC)**





# Partnerships with industry-leading companies and institutions

## Relationships



## Development Partners



## Parts Supply Chain Partners



# Agreement with New York State will support \$300M+ of Norsk's manufacturing revenues







### NY State relationship

- Fort Schuyler Management Corporation (FSMC) has funded a \$125M capital investment from New York State for Norsk
- The funding has been used to purchase \$75M of equipment and to outfit two Norsk production facilities worth \$50M
- Almost all of the capital has been successfully deployed and is supporting Norsk's active production facilities, all of which are available for operation



“ Now, Norsk Titanium has groundbreaking technology ... Norsk Titanium **manufactures products less expensive... very little waste.** *Governor Andrew M. Cuomo, New York* ”

### Norsk's history with NY State

2015	 Alliance agreement
2016	 Master Equipment Purchase Agreement
2017	 Amendment to Master Equipment Purchase Agreement
2020	 Completion of the Plattsburg development center



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