



NORSK TITANIUM

June 2024

Innovating the future of metal manufacturing

Rapid Plasma Deposition® - Additive manufacturing technology replacing legacy structural forgings



Forging then

Labor intensive



Forging now

Capital and energy intensive



The future of Forging

Rapid Plasma Deposition® (RPD®)

Reduced Labor, Capital and Energy

Norsk Titanium Highlights

Disruptive 3D Printing Technology

- **Rapid Plasma Deposition® (RPD®) Technology: Additive Manufacturing of Parts**
- **40% cheaper, 75% less energy and raw materials, takes 90% less time than legacy**
- **A sustainable manufacturing solution**

Focused on large scale manufacturing using RPD® Technology

- **Only additive manufacturer in production with Boeing, Airbus, and defense OEMs**
- **RPD® directly replaces titanium parts on current commercial aircrafts**
- **Industrial customers using Norsk Titanium's publicly released specifications**

Strong Collateral Value with Clear Path to Profitability

- **35 RPD® machines with 700 tons of annual print capacity**
- **Capacity can generate \$300M of annual revenues**
- **RPD® process and software protected by a total of 191 patents**

Strong Sponsorship

- **More than \$325 million invested in equity**
- **\$125 million Production Facility provided by New York State (leased for \$1 per year)**
- **Strong shareholder support - Scatec Innovation AS and Aljomaih Group**



RPD® Technology is Next Generation Metal Manufacturing

A low capital cost, clean-cell additive manufacturing technology

75% less energy

75% less raw material

90% less time



Existing titanium
value chain



Ore reduced
to porous sponges



Sponges
melted to ingots



Ingot converted
to wire



Ingots cast into
titanium blocks



Wire melted into
near-net-shapes



Ingots forged
to gross shapes with
expensive dies



Shapes
machined to parts



Macro factors driving transition to RPD® technology

Global events have triggered a paradigm shift in the way industries need to manufacture goods

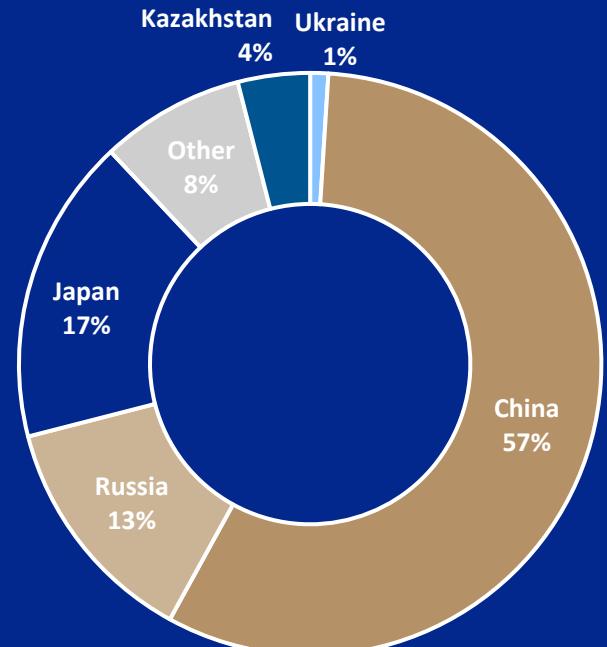
Commodities, Labor, and Energy Inflation Creating a Need for New Methods for Manufacturing



Manufacturing of metals is the largest consumer of energy, and forging of titanium is one of the most inefficient

Advanced manufacturing systems powering a resurgence in manufacturing in local economies

Diminishing Titanium Supply



70% of the world's titanium raw material comes from China and Russia

Source: Bureau of Labor Statistics, The Titanium Economy

Source: Newsweek - <https://www.newsweek.com/battle-ukraines-titanium-1777106>



State-of-the-art facilities with high production capacity

Facilities	Eggemoen, Norway	Plattsburgh, New York, U.S.	Plattsburgh Defense & Qualification Center (PDQC)
	Headquarters & Technology Center	Plattsburgh Production Center (PPC)	Plattsburgh Defense & Qualification Center (PDQC)
			
	<ul style="list-style-type: none">■ Established in 2011■ Focused on research and development■ Features a full-scale metallurgy lab	<ul style="list-style-type: none">■ State-of-the-art production facility custom-built for the RPD® process■ Fully redundant support systems for world-class operating uptime	<ul style="list-style-type: none">■ Established in 2017 following agreement between Norsk Titanium and State of New York■ State-of-the-art production and training facility for metal 3D printing
FTEs	64 employees	52 employees	
Capacity	<ul style="list-style-type: none">■ 3 RPD® Machines■ Annual Capacity: 60 Metric tons / year■ Facility Size: 25,000 sq. ft.	<ul style="list-style-type: none">■ 22 RPD® Machines■ Annual Capacity: 440 Metric tons/year■ Facility Size: 80,000 sq. ft.	<ul style="list-style-type: none">■ 10 RPD® Machines■ Annual Capacity: 200 Metric tons / year■ Facility Size: 67,000 sq. ft.



Major wins across all market areas



Commercial Aerospace

- Signed landmark Master Supply Agreement with **Airbus**
- **Airbus** wave 2 parts transitioning into serial production and beginning to generate revenue in Q2
- Signed direct serial production supply contract with **Boeing**



Defense

- Qualifications and production orders with **US Department of Defense** and DoD prime contractors
- **Northrop Grumman** material qualification complete and in place
- Added to **General Atomics** approved supplier list



Industrial / New Opportunities

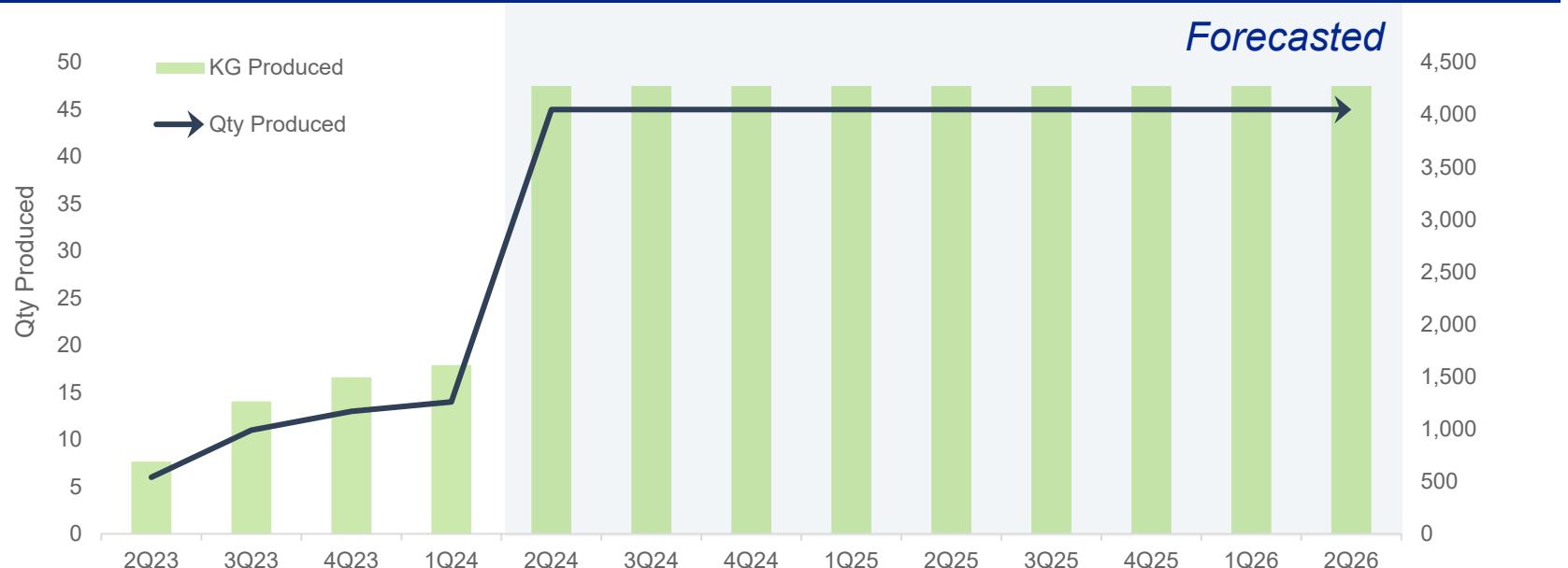
- Secured long-term production orders for **ASML** carrier trays with **Hittech**
- Received third production order from **Hittech** - annual recurring revenue of USD 2 million from one product
- New parts in development for transitioning into production this year



New Hittech/ASML contract demonstrates industrial capability

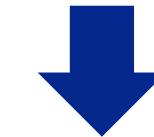
Ramp-up for recurring quarterly production of 45 carrier trays to Hittech for ASML

Print Optimized



- Norsk Titanium is now in steady state production on the NXT carrier tray
- Producing and delivering **> 4,000 kilos** of material per quarter
- New contract generating annual recurring revenue of approximately **USD 2.0m**

90 kg RPD® Print



< 10kg Finished



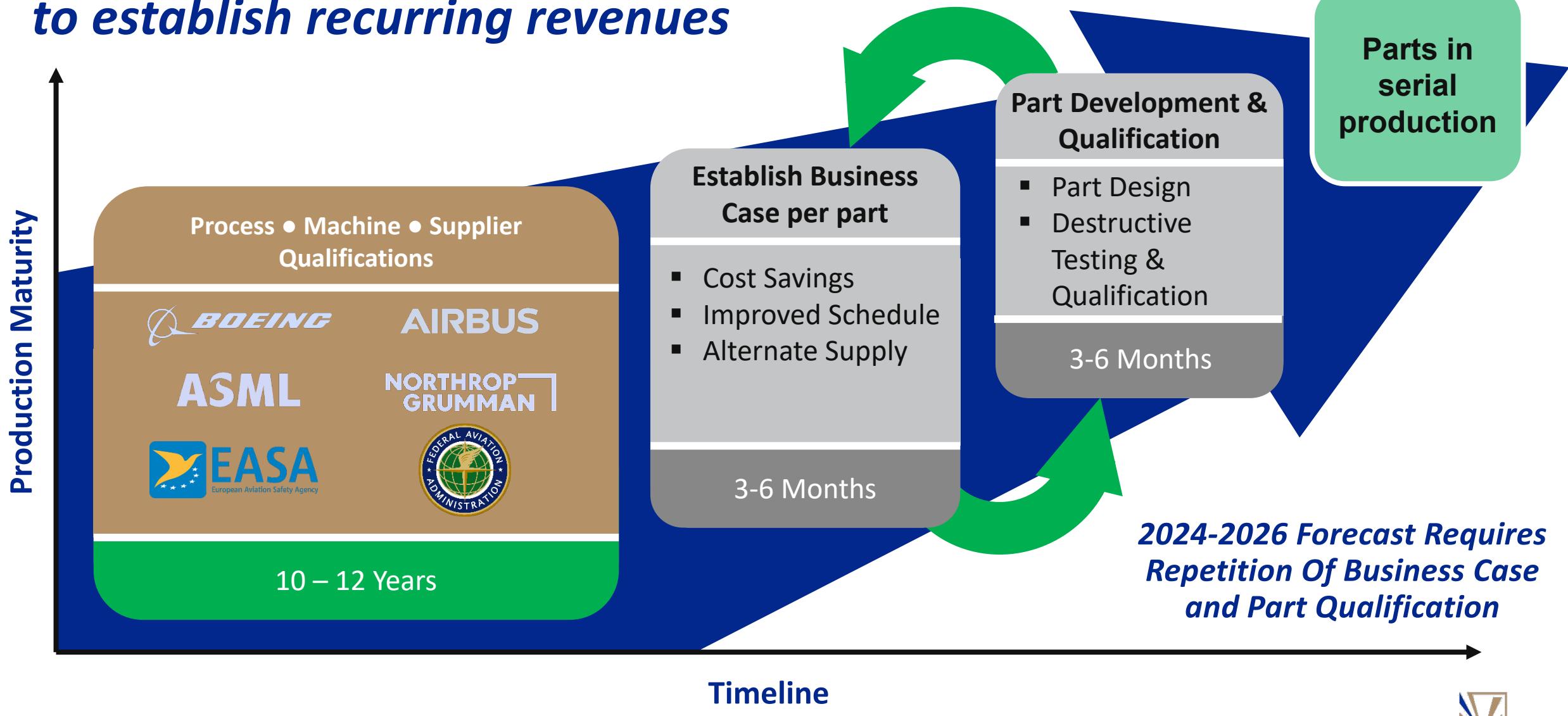
Entering new phase of serial production and scaling of recurring revenue from development and qualifications

- **Airbus** Master Supply Agreement opens for transition of Wave 2 parts in Q2
- Also transitioning more parts into serial production for **Northrop Grumman** and **ASML**
- Currently **21 parts** in serial production with annual recurring revenue of approximately USD 6 million
- See **~6x increase in no. of parts** in serial production and **>10x increase in ARR** during 2024

	YE 2022	H1'23	YE 2023	H1'24e	YE 2024e	Description
Parts in serial production	7	8	11	~30	>60	Parts in serial production for tier-1 suppliers to leading OEMs in target markets
Annual recurring revenue of parts in serial production	\$1m	\$2.5	\$4m	~\$10	\$50	Estimated total annual revenue opportunity for parts in serial production



Transitioning parts to production to establish recurring revenues



Completed long qualification processes with major customers

Material Specification: 8-10 years to publish material specifications equivalent to structural forged titanium material



BOEING

AIRBUS

Established Material Specification

ASML

NORTHROP GRUMMAN

10 - 12 years to complete

Machine Qualification: 6-12 months to qualify RPD® Machines for use in commercial aerospace and industrial

Boeing

Airbus

[US Defense Contractor]

ASML

Approved Supplier List: 6 month audit process to become an approved supplier for major OEMs and Tier-1 Suppliers

GKN

Spirit
Aerosystems

Leonardo

Hittech

Northrop
Grumman

General
Atomics

Recurring

Part transitions to establish recurring revenue on high volume aircraft and equipment platforms

Business Case (3 - 6 months)

- Prove strong business case
- Execute change boards

Part Development & Qualification (3 - 6 months)

- Part Design
- Destructive Testing & Qualification

Transition to Serial Production (2 months)

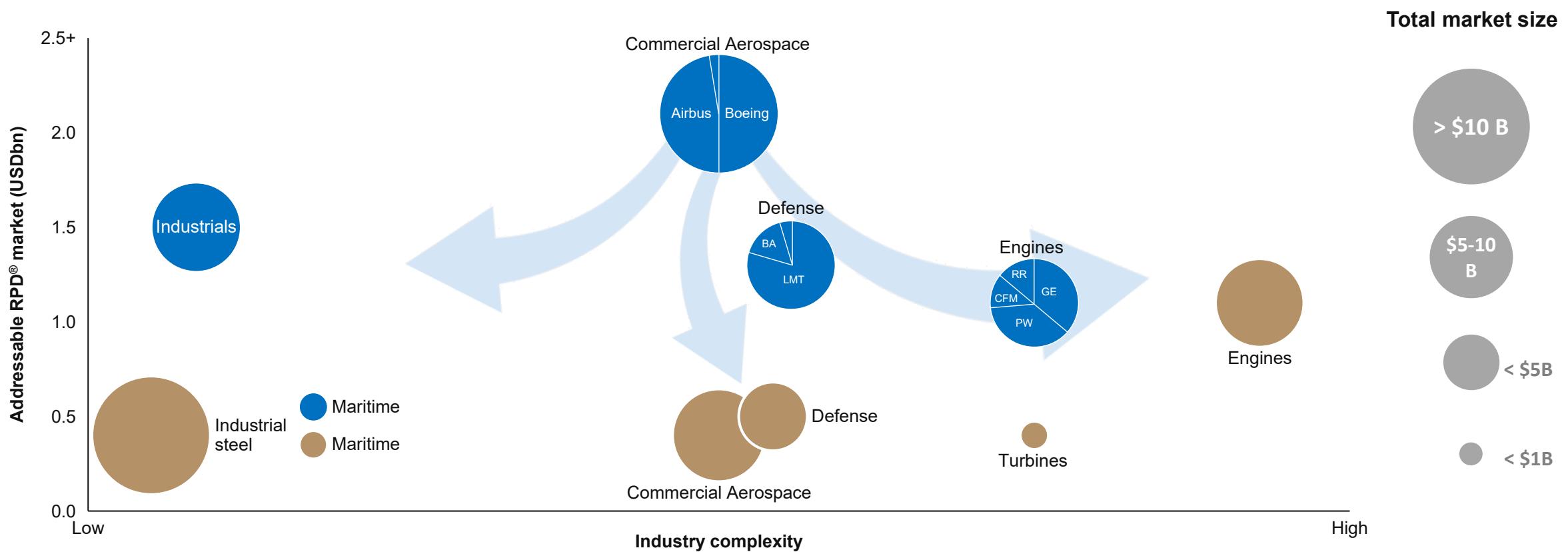
- First part qualification



Approvals in commercial aerospace enable 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



At inflection point for exponential growth

Multiple overlapping revenue growth curves driving the success of RPD® technology



Source: Consultant and management estimates





Signed Master Supply Agreement in April

AIRBUS

RPD® is a direct replacement for titanium parts on current Airbus programs

- Norsk Titanium machine and process qualified to produce significant structural components
- Master Supply Agreement signed enabling recurring production buys
- Future development efforts underway
- Airbus releasing parts for serial production in waves
 - Wave 1 parts in production
 - Wave 2 parts commencing production in Q2
 - Expect follow-on parts in development this year

"The demonstration of [RPD®] serial production maturity is a door opener for larger and more spectacular components..."

Airbus Aerostructures



> 500
Addressable parts across Airbus platforms*

75
A350 and A320 built monthly*

125,000
Part opportunity per year*

USD 1.0 billion annual addressable opportunity*

*Norsk Titanium estimates

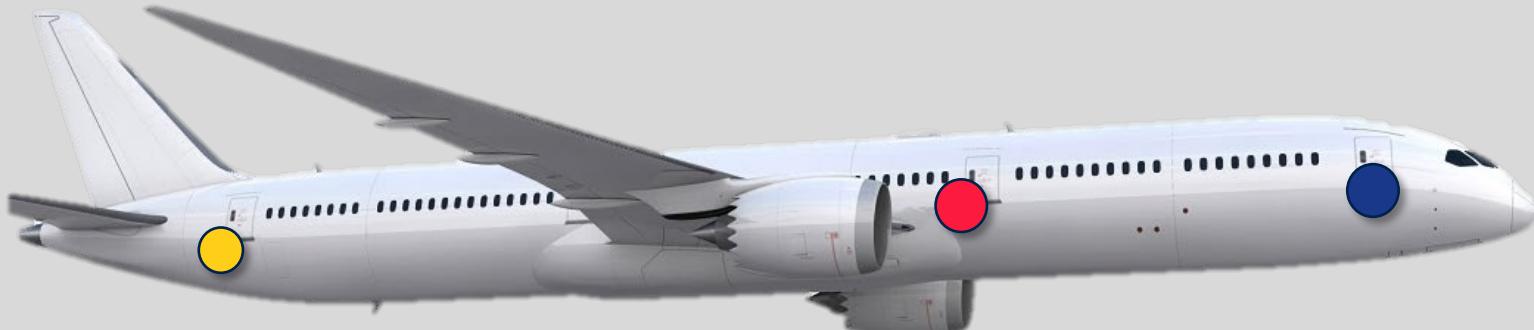




RPD® Parts Flying on Boeing Planes Since 2017



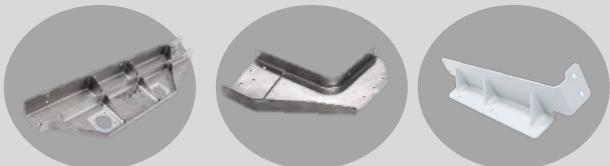
7 RPD® printed parts on every Boeing 787 Dreamliner:



- Received a direct purchase order for parts in serial production from Boeing
- Engaged with Boeing on funded development engagements
- Re-engage with Boeing supply chain to transition additional B787 parts to serial production



Norsk Titanium sells parts to Boeing through tier-1 suppliers



> 1 000
Addressable
parts across
Boeing
platforms*

75
B787 and B737
built monthly*

250 000
Part opportunity
per year*

\$1.5 billion annual addressable opportunity*

*Norsk Titanium estimates





RPD® Qualification for US DoD Applications

Prime contractors applying multiple approaches for transition to RPD®

Norsk Titanium is positioning as a secure source of specialty metals for national security needs – Expected to account for ~20% of 2026 revenues

- Prime defense contractors are looking for alternatives to traditional supply chains, as casting & forging lead-times have become unresponsive
 1. **Northrop Grumman:** Specification established, flight-critical parts delivered
 2. **General Atomics:** Full-scale article testing ongoing; Part demonstration and part specific qualification
 3. Undisclosed space application development underway
 4. **Bechtel** nickel-based superalloy development underway
- Casting & forging suppliers are also evaluating RPD® as a complement to their product lines
- Significant US-Norwegian reciprocal defense spending underway



**NORTHROP
GRUMMAN**



**GENERAL ATOMICS
AERONAUTICAL**



BPMI



BATTELLE



Space Application





ASML Uses RPD® for a Critical Production Element

Transitioning all forged block procurement to RPD® in a response to massive demand growth

ASML

Less CNC Machinery Required and Reduced Part Cost

Legacy Block

220 kg Forged Block

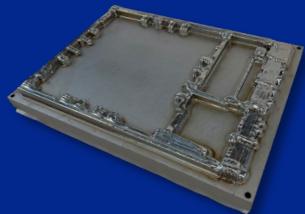


**15 000 kg additional
machining required per year**



Norsk Titanium

90 kg RPD® Print



**Saves 2 CNC machines, or
\$10 million capital investment**

< 10kg Finished



< 10kg Finished



- In 2023 transitioned in the first carrier tray into production and supplied to Hittech for installation on ASML's assemblies
- Received follow-on order for the carrier trays
- Engaged with Hittech and ASML to transition a similar carrier tray on ASML's other products
- Significant percentage of short-term revenue driven by ASML demand

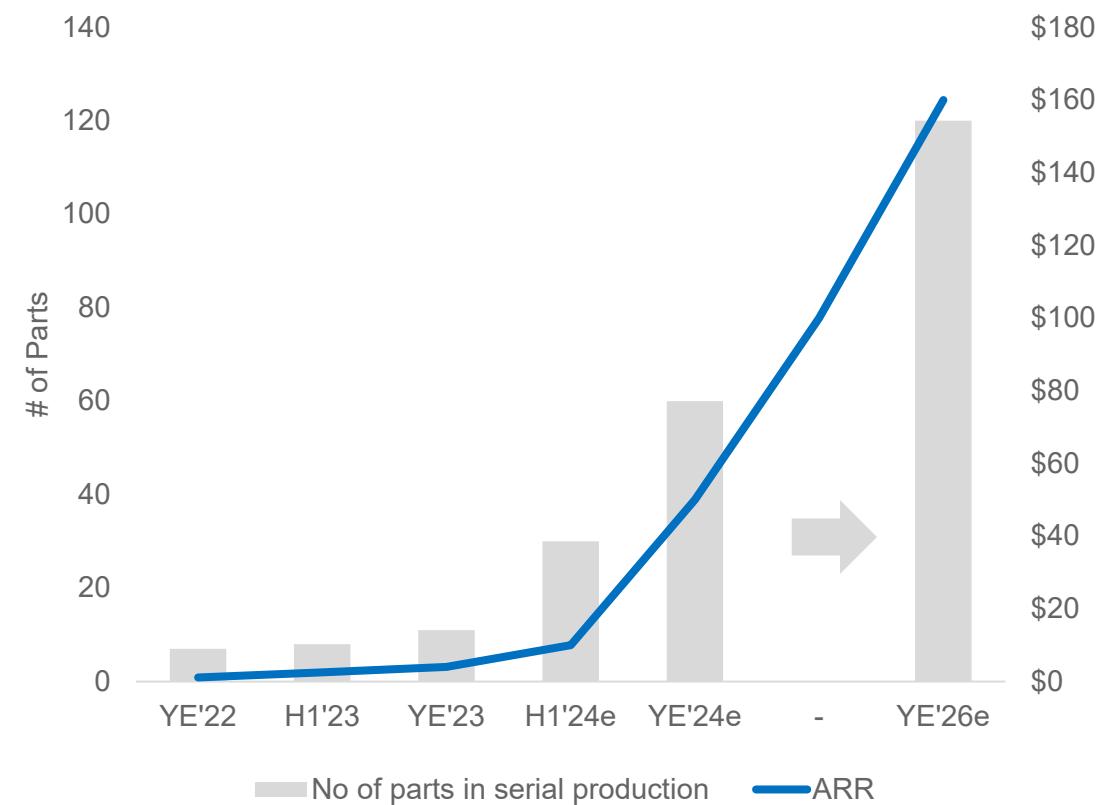
CNC: Computer numerical control machine



Reaching the revenue inflection point

- 2024 revenue target of USD 15 million
- ARR forming revenue baseline for the following year
- ARR development towards USD 50 million in 2024 represents a stepping stone towards the 2026 revenue target of USD 150 million – of which USD 120 million from parts in serial production

No. of serial parts in production and ARR from parts (\$m)



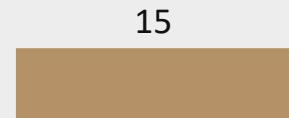
Global Titanium Challenges Can Accelerate RPD® Adoption

Qualifications completed with Airbus, Boeing and ASML - focus in 2024 on transitioning parts to serial production

Revenue Targets (\$ in millions)

Part sales revenue
Other business models

Establishing
annual recurring
revenue



Positive gross margins and improving to 50%

- Rapidly expanding parts revenue from target markets
 - High complexity Commercial Aerospace parts as main growth driver
 - High volume parts from industrial second growth driver; short term volume driven by Hittech/ASML demand
 - Smaller volumes of larger parts from Defense industry
- Other non-recurring business models adds upside potential
 - RPD® machine sales, IP licenses, JVs, and other being evaluated
- Contribution margins from part sales set to increase from 30% in 2024 to 50% in 2026 with increased scale
- Targeting an EBITDA margin of 30% in 2026
- More than \$400 million invested over the past 12 years

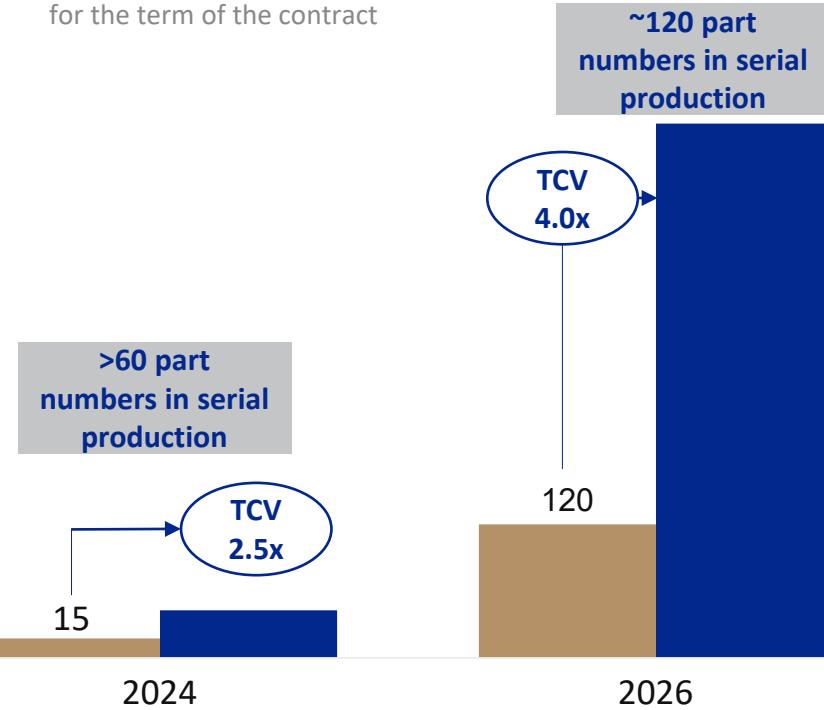


Establishing a Multi-year Backlog

Each part adopted on a platform secures multiple years of contractual revenue

Recurring revenue dynamics (\$ in millions)

Part sales revenue
Total contract value (TCV)
Estimated lifetime value of recurring revenues for the term of the contract



2026 revenue backlog

Forecasted revenue and backlog build-up by 2026

Target markets	Annual parts produced	Contract years	% Market penetration
Commercial Aerospace	20,000	5	3.0%
Industrials	15,000	2	0.5%
Defense	3,000	5	5.0%
Total / average		38,000	4
		Unique parts in production	120
		RPD® capacity utilization	50%



Norsk Titanium set for take off



USD 450m
invested*



~USD 180m
market cap



35 machines
700 tons capacity



Parts supplier
Direct replacement



USD 300m
revenue capacity



190+ patents
granted



US & Norway
locations



115+
employees



Material specification
Qualified



3 markets
presence

