

Company Presentation



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

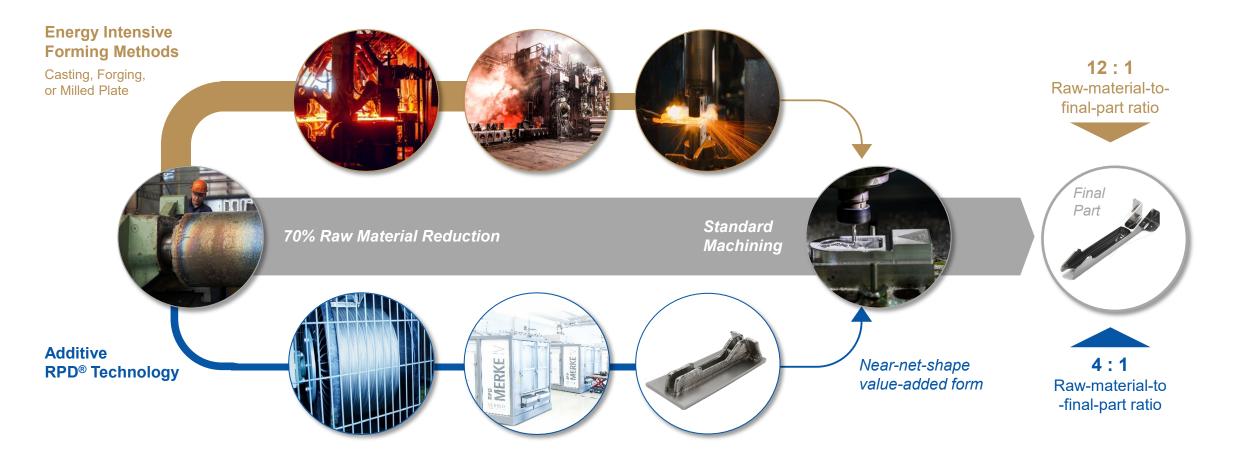
700 MT

Production capacity

USD 150m 2026 Revenue Target

Inserting 3D printed parts in existing industrial supply chains







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

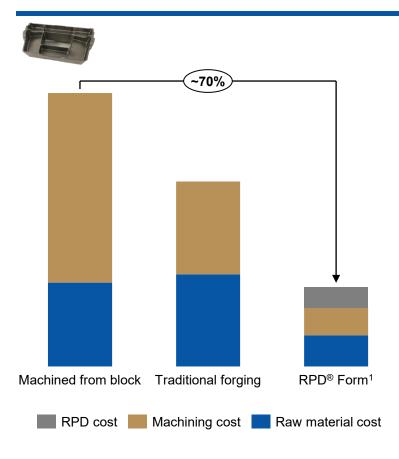


Established in Commercial Aerospace

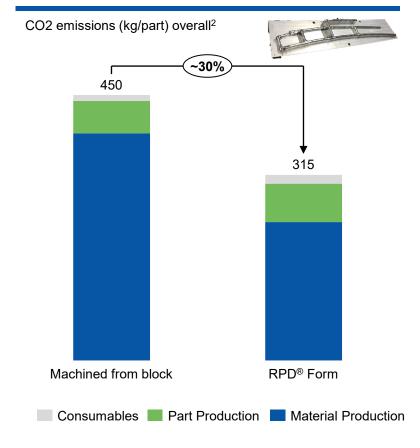
Aerospace Materials Specification (AMS) 7004 / 7005



Cost reduction - illustration



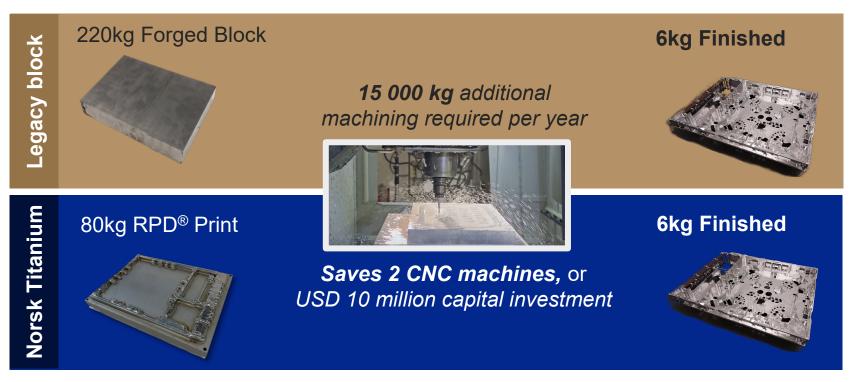
Environmental impact reduction

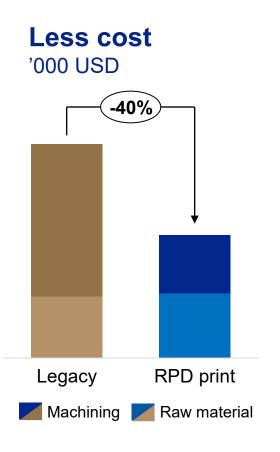


In-Production: ASML Carrier Tray



Less CNC machinery required





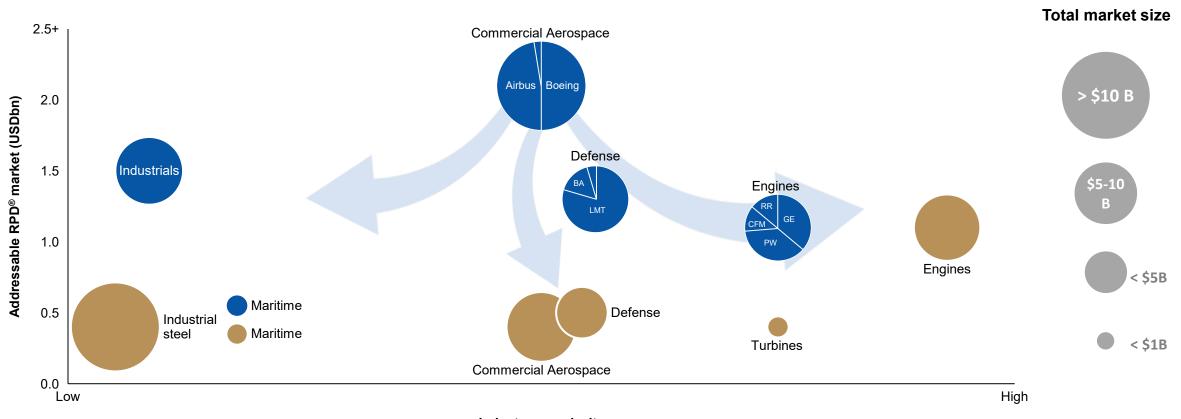
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Commercial aerospace enables us to go anywhere



Large potential market for 3D printed parts





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Well defined and structured path to diverse growth

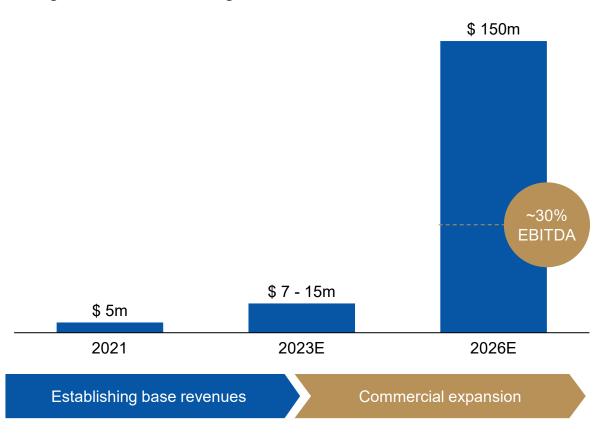


		2017 - 2020	Growth stage	Commercial scalability
Technology Readiness	Qualified Capacity	 ✓ Intelligent design software design and release ✓ Production data and analysis tools ✓ G4 Large (G4L) build 	 G4L qualification RPD™ "By the hour" Intelligent design software expansion Digital production 	 Machine leasing / sales concept Next generation machine qualifications Rapid alloy development sales
	Product	 ✓ Part specific qualification ✓ Additional material qualification testing ✓ AMS specification 	 Additional part qualifications New OEM products for sale Rapid alloy development 	 New alloys qualifications and sales Engine component qualification and sales
Commercial Application	Market	Aerospace Structural aircraft components	Defense Industrial Applications	Engine components Design for RPD™
	٥	RPD™ 1.0	RPD™ 2.0	RPD™ 3.0
	RPD™ Roadmap	√ 3 months production time	√ 4 weeks production time	✓ Print in a day
	Roa	✓ Basic automation (G4)	✓ Continuous automation (G4L)	✓ Highly centralized control methods
	_	✓ Static parts	✓ Larger parts, double sided printing	✓ Next level process monitoring

Progressing towards long-term targets



Long-term revenue targets



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

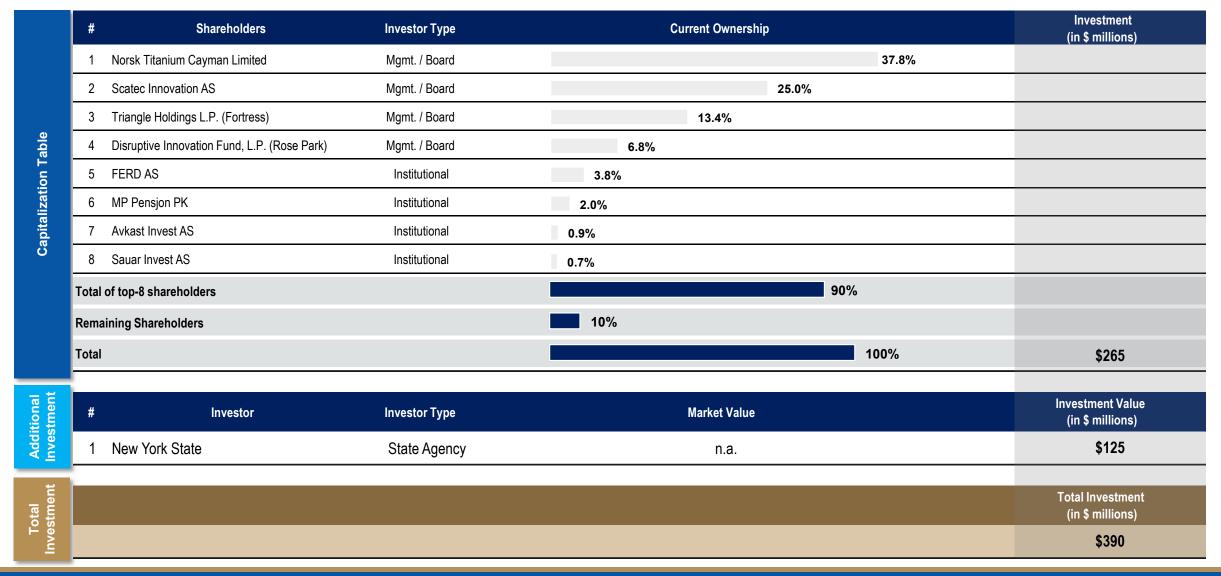
- Technology adoption in 2023
 - Revenue from programs currently in development and qualification
- Mass additive manufacturing by 2026
 - Expansion within Commercial Aerospace, Defense and Industrial industries
 - Utilizing only ~50% of current capacity

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

Key stakeholders have invested USD 390m over 15 years



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An additive process designed for our greener future

Each RPD machine saves 2 GWh in energy consumption representing 1,100 MT of CO₂ emissions annually¹

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

Norsk Titanium by the numbers



USD 400m invested



USD 70m market cap.



100+ employees



35 machines experience



US & Norway locations



700 tons capacity



15 years experience



3 markets presence

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















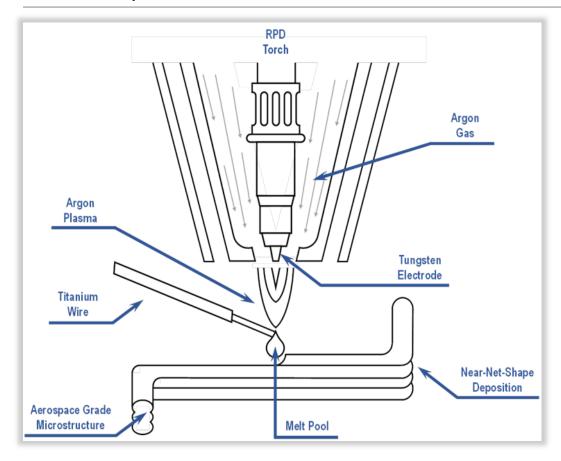


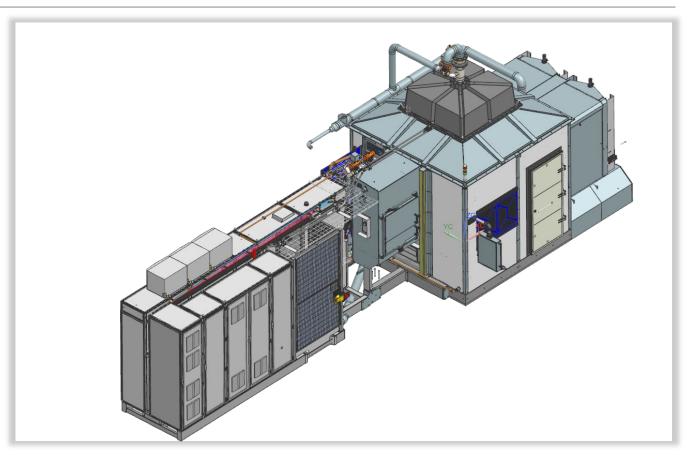
Appendix

Norsk's Rapid Plasma Deposition (RPD®) technology



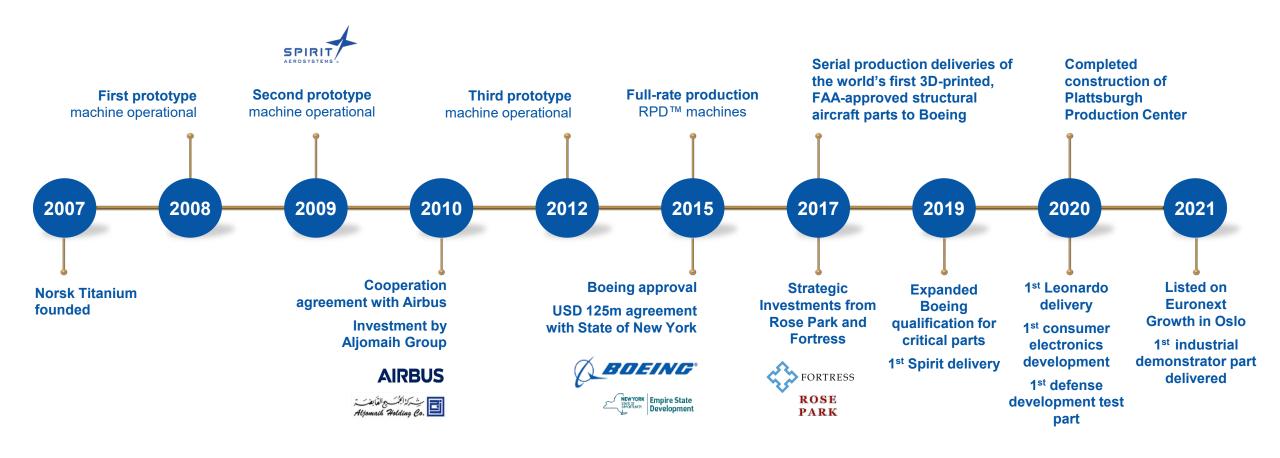
Norsk's RPD® process





Matured RPD® technology setting industry standards





Technology platform enabled by a digital backbone



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Proprietary and protected manufacturing platform

Technology developed over two decades – 169 confirmed patents and 55 patents pending



Massive design parameter library

Design parameter database supports licensing and recurring revenue streams / service model

Terabytes of production data

Multiple years of production history provides testing data required for challenging applications 600 production signals monitored at up to 1,000 Hz







Certified process

Terabytes of data support qualifications (e.g. FAA, Boeing) and full part lifecycle traceability



Machine-to-machine equivalency

Digital process controls support machine-to-machine equivalency and process certification

Global technology leader additive manufacturing for metals

Material specifications

Superior metallurgy published by SAE¹ and AMS²

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

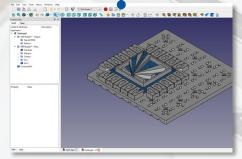
Quality assurance and distributed production

Driving Industry 4.0

Scale to produce cheaper parts in custom batches









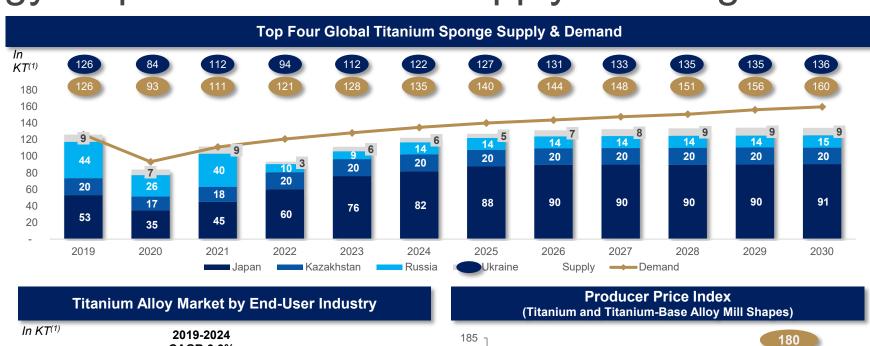


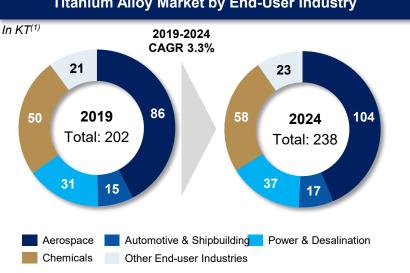
RPD® technology helps solve titanium supply challenges

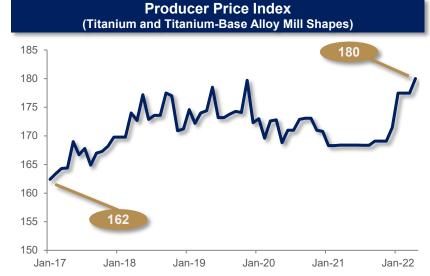


Select Commentary

- 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







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



Industry material standard



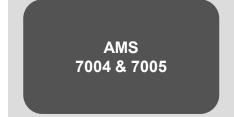
"We are always looking at the latest technologies to drive cost reduction, performance, and value to our customers, and **Norsk Titanium's RPD™** capability fits the bill in a new and creative way."

John Byrne, VP Airplane Materials & Structures, Boeing

















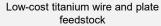
Frost & Sullivan 2017 European Innovation Award



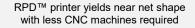
RPD® is benefits versus other technologies















Batch of finished parts completed



1 kg final part

- Homogenous material quality
- High-rate serial production (5-10kg/hr)
- Lower capital and tooling
- ✓ Just-in time manufacturing
- Mass customization
- 30+% lower carbon footprint

Traditional metal 3D printing (1.5:1)

Most 3D printers start with expensive powder (\$150-600/kg)



Slow rate printers sufficient only for rapid prototyping



Slow rate print

Printer outputs a finished part



1 kg final part

✓ Complex finished part

- ✓ Smaller carbon footprint
- X Slow print rate (0.1-1.0 kg/hr)
- × No serial production
- X Inconsistent material quality
 - X Lack industrial scale

Traditional titanium forging (12:1)

Forging starts with a block





Forged using a >\$95m press and CNC machines removing material









Only 8% of the block remains in the finished part



kg final part

- ✓ Homogenous material quality
- ✓ Scalable serial production
- X Costly material waste
- X Extremely high capital and tooling cost
- X Inflexible, long lead times
- X Significant carbon footprint

Traditional titanium machining (12:1)

Machining starts with Ti block



12 kg raw input

Large number of CNC machines used to remove material





Only 8% of the block remains in the finished part



1 kg final part

- ✓ Homogenous material quality
- X Costly material waste
- X High capital and tooling cost
- X Slow, long lead times
- X Significant carbon footprint

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



Plattsburgh Production Center (PPC)





Plattsburgh Development and Qualification Center (PDQC)



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Partnerships with industry-leading companies and institutions



Relationships































Development Partners





Clarkson

UNIVERSITY





















Parts Supply Chain Partners



























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



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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

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

Norsk's history with NY State

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