SENODIS

Identification.
Information.
Insights.

Digitization and networking of the industrial sector with pioneer solutions in parts identification

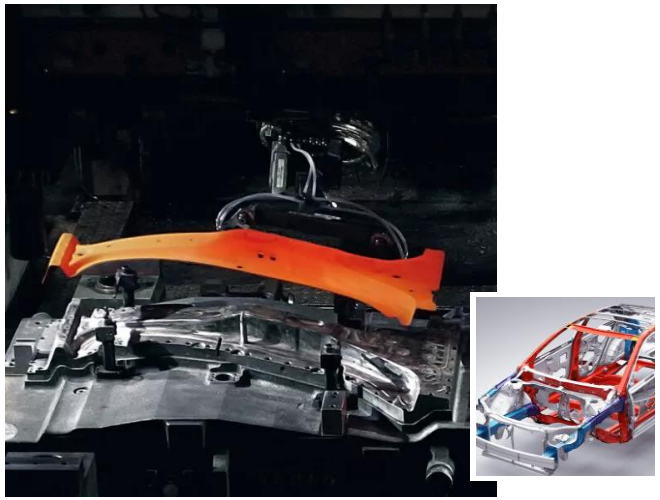
Executive Summary

Business in focus	Industrial Tech – B2B – Digitalization – Metal and Ceramic Industry
Key products	Software and hardware-based solution portfolio for individual digital part identification for metals and ceramics with production temperatures > 800°C
Market / market size	• Metal, steel, ceramics • TAM > 1 Bn. EUR
Company size / revenue	• 3 founders (+1 non-operational), 6 employees • > 100 k€ both in 2022 and 2023 (project based) • > 500 k€ expected in 2024 (recurring > 300 T€) • > 2 M€ 2024 – 2025 (weighted sales pipeline)
Technologies	• Marking technology (inks and process) for hot formed parts (patented) • Method and Software for Free Form Descriptor ID (patented)
Founding stage	• Seed - 1,5 M€ in 2022 • (Pre-Seed 300 k€ in 2020)
Current round	• Seed extension → 600 k€

No identification, no insights

Identification hurdle – High temperatures and heavy forming destroy markings and thus, prevent individual component tracking in hot forming

Press hardening



Press hardening of a B-pillar

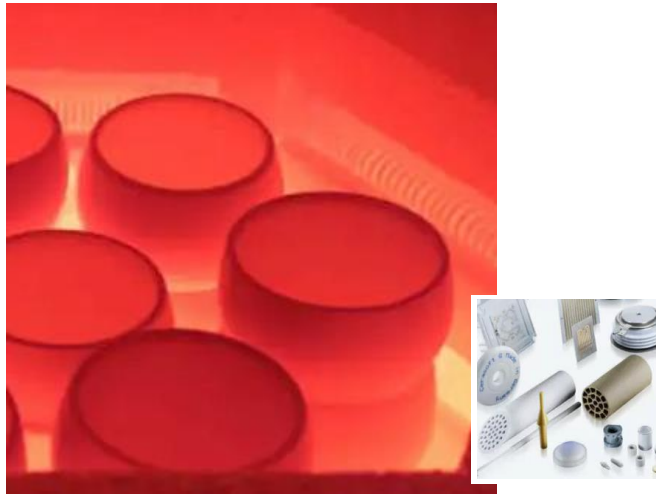
- Temperatures > 900°
- Short cycle times (< 10 seconds)

Solid forming

Solid forming of a transmission part

- Temperatures up to 1300°C
- Deformation of components

Ceramics

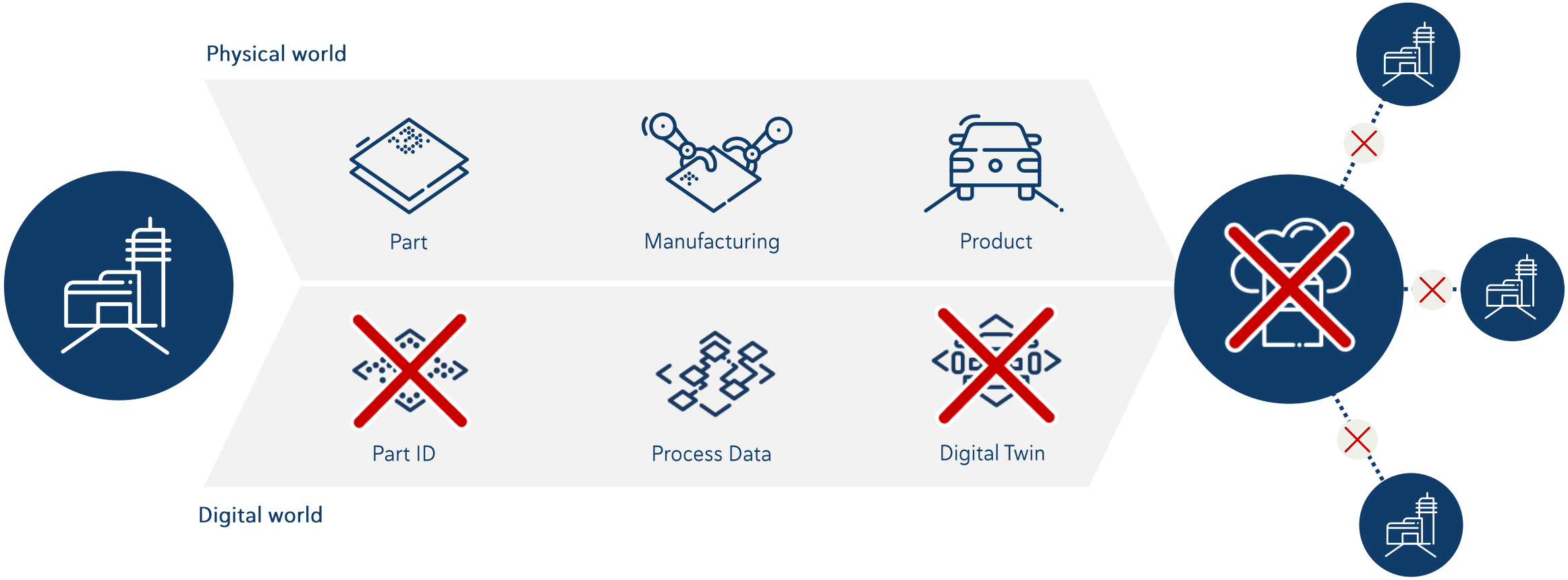


Ceramic parts

- Temperatures > 1600°C
- Complex surface structures

Individual labeling & part identification is not possible

Without a continuous part identification, an individual attribution of the process data to the product parts is not possible



Lack of process digitalization result in high avoidable costs and loss of competitiveness

Quality

- No track & trace
- Manual sorting
- Loss of batches

Process optimization

- Machine load factor
- Unscheduled downtime
- Capacity planning

Logistics

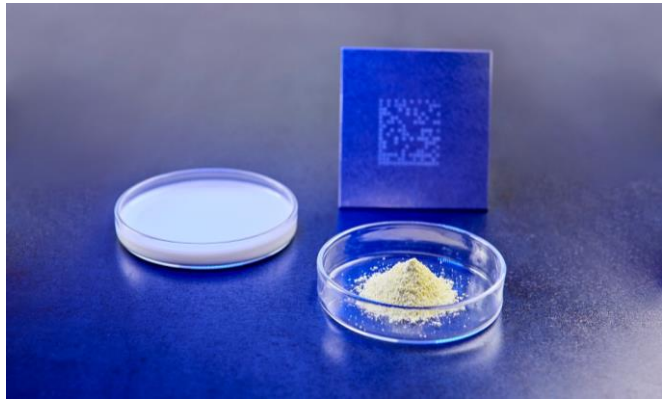
- Logistic complaints
- Material flow
- Fleet management

High avoidable costs

1 - 5% of revenue

Technology

Technology: CeraCode high temperature inks
Temperature resistant inks for multiple substrates and materials



High temperature inks for metals

- Ceramic pigment ink
- Machine readable, high temperature resistant code (> 1200 °C)
- Codes: Data Matrix Code ECC200, Micro QR

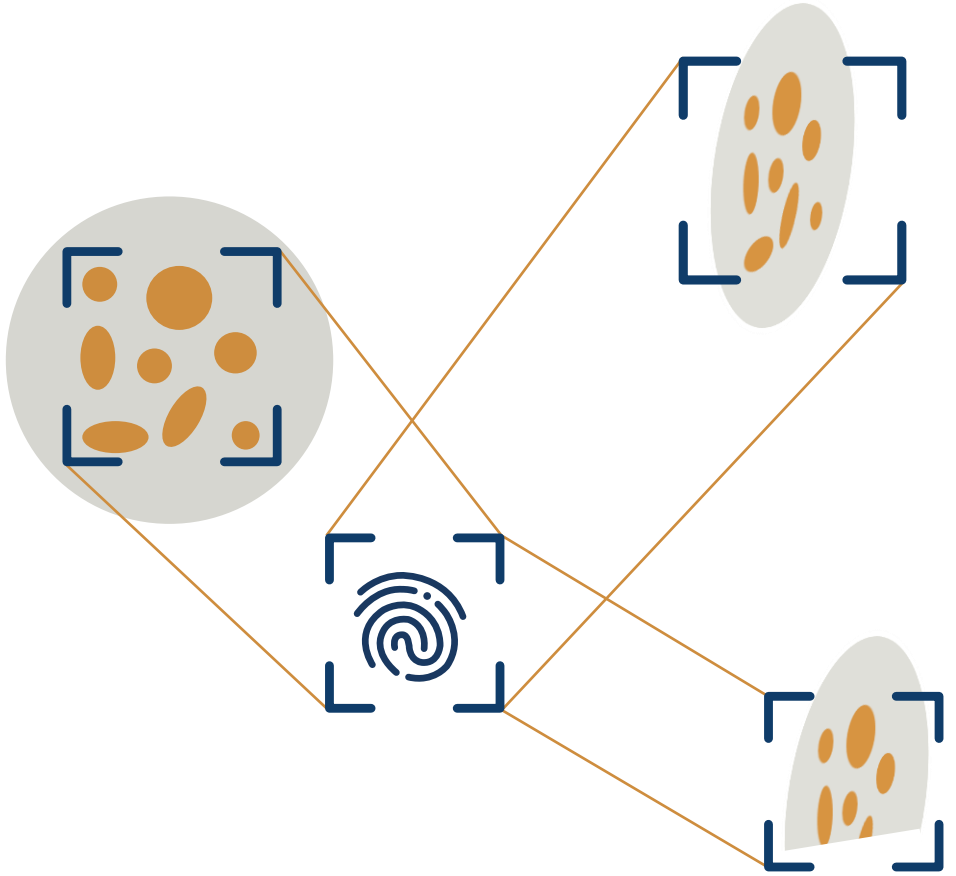
High temperature inks for ceramics

- Precursor inks with/without pigments
- Machine readable, high temperature resistant code (> 1600 °C)
- Codes: Data Matrix Code ECC200, Micro QR

Technology: Free Form Descriptor ID
Identification beyond standards and patterns

Digital ID based on unique optical features

- No standards required
- AI-assisted segmentation for challenging illumination conditions
- Fingerprinting even of deformed marks
- Robust against partial destruction of marks
- Back-tracing via references
- Rapid lookup in high-performance DB

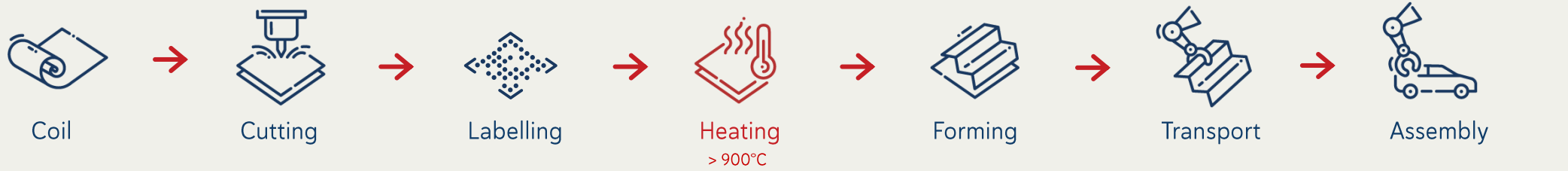


Products

Product: CeraCode® for press hardening
Individual Track & Trace for hot formed Body-in-White parts

Temperature-resistant identification as a machine-readable Data Matrix-Code

- Standard industrial printer
- High contrast ceramic ink
- Permanent bonding on surface by temperature
- Easy integration into inventory lines



ceracode
powered by Senodis®

Product: CeraCode® for ceramics
Individual part marking for high quality ceramic parts

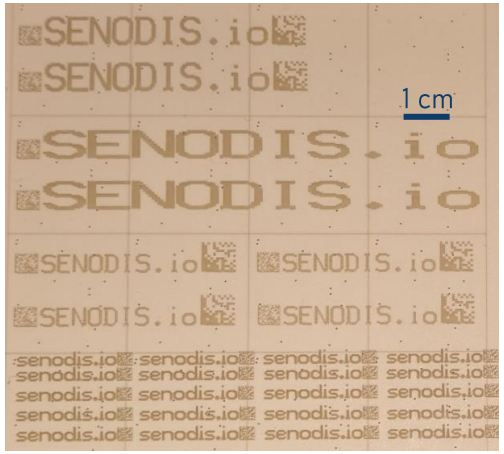
Temperature-resistant identification as a machine-readable Data Matrix-Code

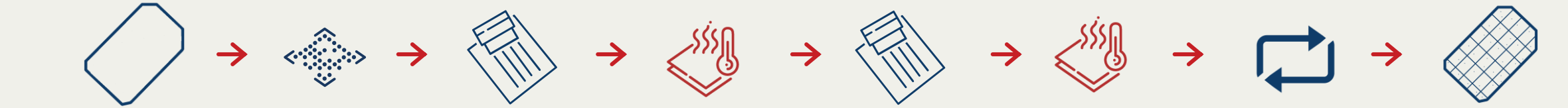
- Small character size industrial printer
- Heat resistant inks for good contrast
- Optimization of different ceramics
- Easy integration into existing lines

Continuous Ink Jet (CIJ)

Thermal Ink Jet (TIJ)

High Temperature Ink



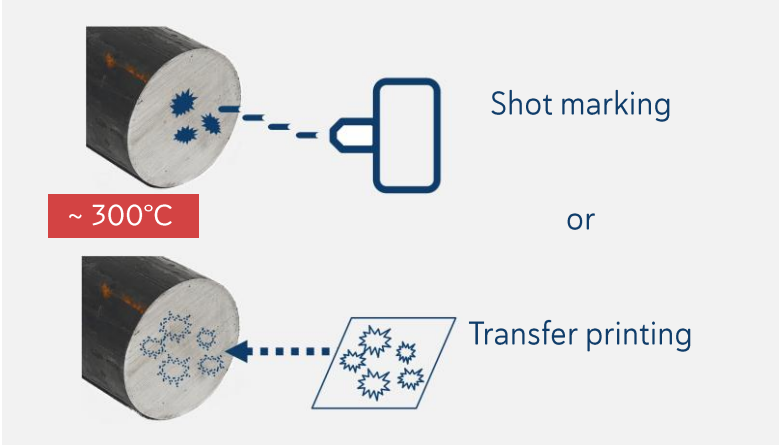


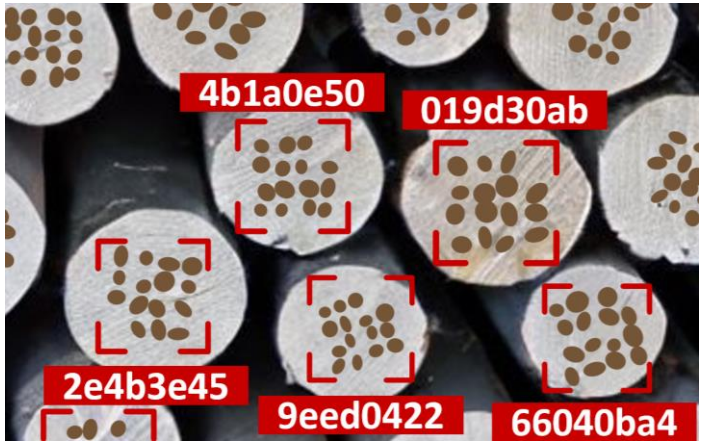
ceracode
powered by Senodis®

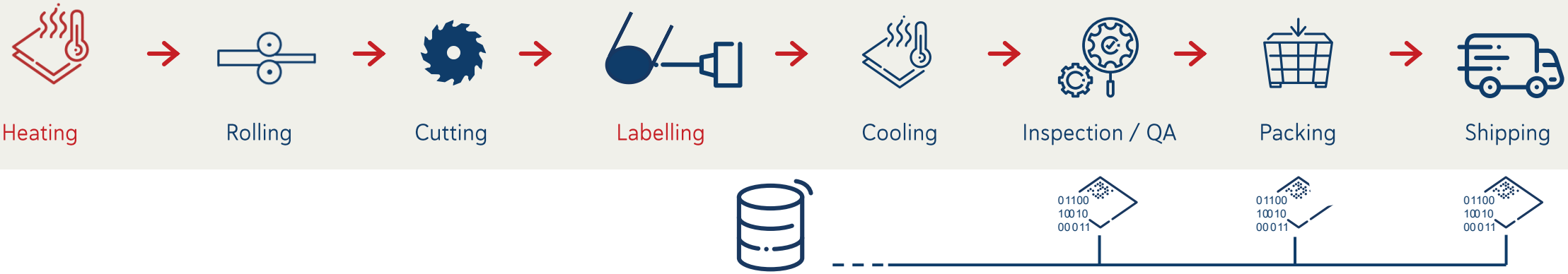
Product – Descriptor ID in steel rod production in massive forming
Pattern-free identification in harsh process conditions

Integrated pattern-free marking and recognition system

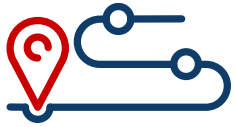
- Simple marking on hot surfaces
- Generated unstructured patterns provide ID
- No sophisticated scanners required
- API for integration to MES/ERP







By implementing individual part marking and tracing, customers can reap both short-term, mid-term and long-term benefits.



Short-term Potential

- Reduction of logistics complaints
- Reduction of sorting costs (batch mix-up, FOP parts)
- Simplification of QA processes

Medium-term Potential

- Direct connection between part and production data
- Allocation of process parameters in the event of quality deviations
- Adaptive production methods

Long-term Potential

- Digital twin - complete digital image of the production processes
- Circular economy - optimized material flows and recycling climate
- CO2 - tracking per component

Market and customers

With a proven and mature technology for series production, we are now poised for the next phase of market penetration.

Press hardening

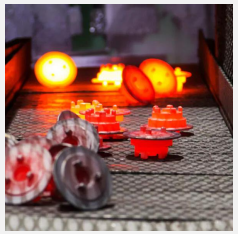

Market

Market volume	~ 10 Bn. €/yr.
TAM Part ID	~ 50 Mn. €/yr.

Status Senodis

Product readiness	Ready for (pre-)series implementation

Steel supply / Massive Forming



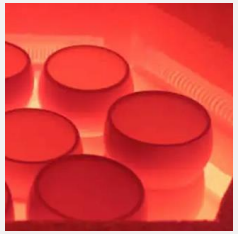
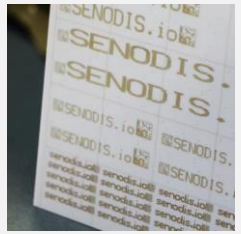

Market

Market volume	~ 100 Bn. €/yr.
TAM Part ID	~ 500 Mn. €/yr.

Status Senodis

Product readiness	POC accomplished, engineering phase

Ceramics and Glass

Market

Market volume	~ 130 Bn. €/yr.
TAM Part ID	~ 500 Mn. €/yr.

Status Senodis

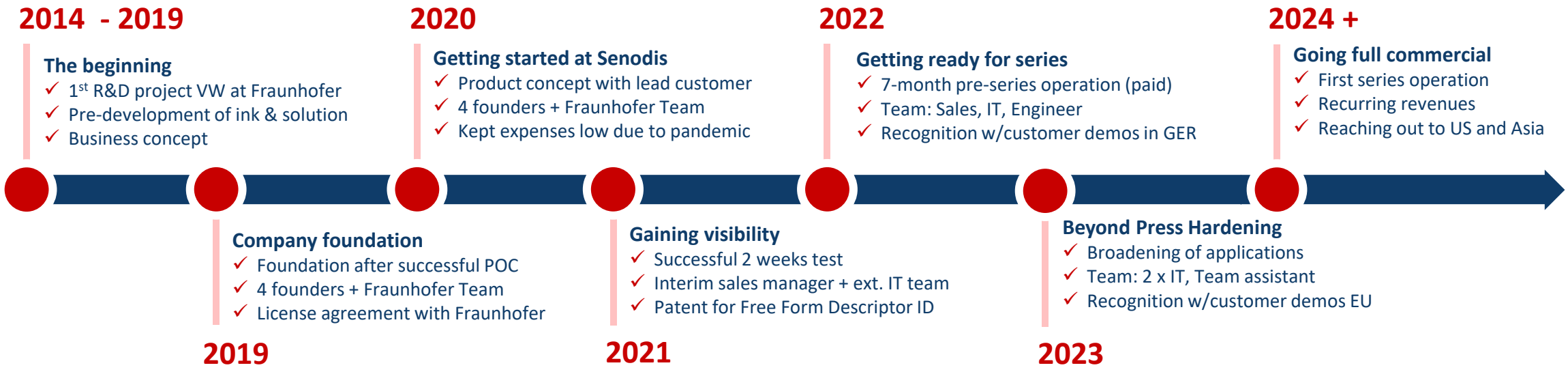
Product readiness	Ready for (pre-)series integration

Market traction / customer interaction (selection)

Contracted customers	• 1 German OEM (pre-series of 6 month) • 1 German-Japanese Tier-1 of the automotive industry • 1 Research Institute	110 k€ in 2022 75 k€ in 2023
In negotiation / quoted	• 1 German OEM (series implementation for press hardening) • 3 major Tier-1 of the automotive industry • 1 major manufacturer of the ceramic industry • 1 Tier-2 automotive & 1 SME for electronics • 1 major steel manufacturer & 1 mid-sized steel manufacturer	> 500 k€ in 23/24 (estimated)
Technical planning for quotation	• 1 German OEM (press hardening) • 1 US-American OEM (press hardening) • 1 German Tier-1 • 1 German steel manufacturer	> 1 Mio € 24 -25 (weighted sales pipeline)
First presentation / demonstration	• 2 major Tier-1 of the automotive industry (press hardening) • 2 major steel manufacturers (press hardening) • 1 contender of the ceramic industry • 1 manufacturer within the ceramic industry • 2 key players in further industries (energy and food & beverage)	> 2 Mio € 24 -25 (weighted sales pipeline)

About Senodis

From there to here to beyond
The timeline of Senodis Technologies in Dresden / Saxony



2014

Incubation Phase (Fraunhofer)
- 650 k€ internal program
- 1,1 M€ Exist Transfer funding

2020

Pre-Seed Round
- 300 k€ convertible loan
  → FTTF
- 200 k€ public funds

2022

Seed Round
- 1,5 M€ investment
  → HTGF, FTTF, TGFS
- 400 k€ public funds

2023

Seed Extension Round
- 600 k€ investment
- 400 k€ public funds

2024+

Series A
- > 3 M€ investment

Senodis founders and management team – combining experience and technical expertise, supported by a strong partner network

BJÖRN ERIK MAI
Co-founder & MD (CEO)

- Business development
- Financials
- Investor Relations

DR. CHRISTOPH KROH
Co-founder & MD

- Technology development
- Product development
- Customer Service

DR. MAREK RJELKA
Co-founder & MD

- Automation
- Digital integration
- Algorithmic solutions

PROF. THOMAS HÄRTLING
Shareholder & Consultant

- Scientific advisory
- Strategy & HR support
- Funding & cooperations

Supported by a great team of

- 1 manager business development
- 1 management assistant
- 1 engineer
- 3 software developers

SENODIS

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