matriq

the plastics marking solution

marking plastiq smart!

- serialization
- traceability
- brand protection
- industry 4.0

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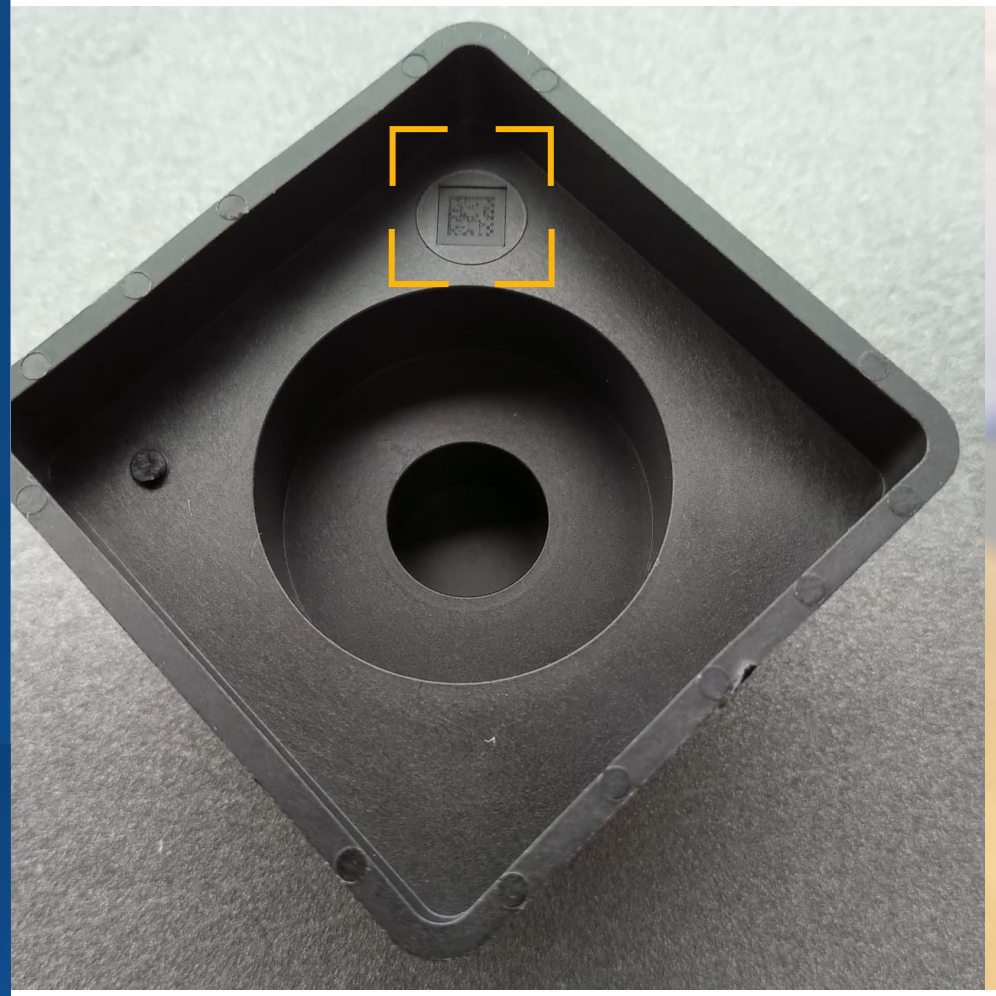
Each of your components is individual and unique! Give it an identity!



Component serialization for quality assurance and traceability.
For injection molding and blow molding.
From birth

challenges of our customers

strict **regulations** by customers and legislators

modern **cleanroom-compatible** processes

high-quality products in complex processes

demand for **sustainable** production methods and a circular economy

digitalization of products, supply chains and system technology

quality control improvement

liability risk reduction

higher productivity through part-specific traceability

higher complexity of production

higher production costs

stronger efforts for quality assurance

the problem: today's marking is **costly and complex multistep process**

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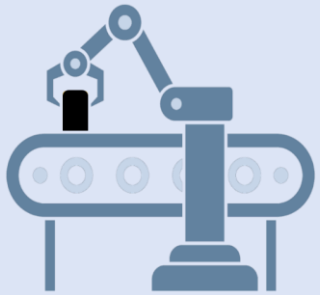
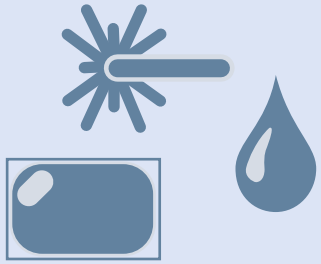
fabrication



handling, automation



down-stream marking

marked pieces

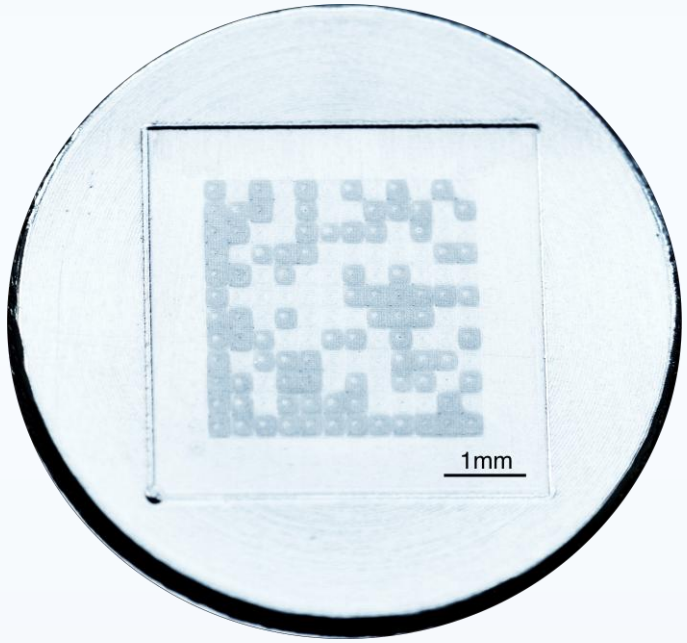
disruptive solution: marking and forming unified

marking while fabricating

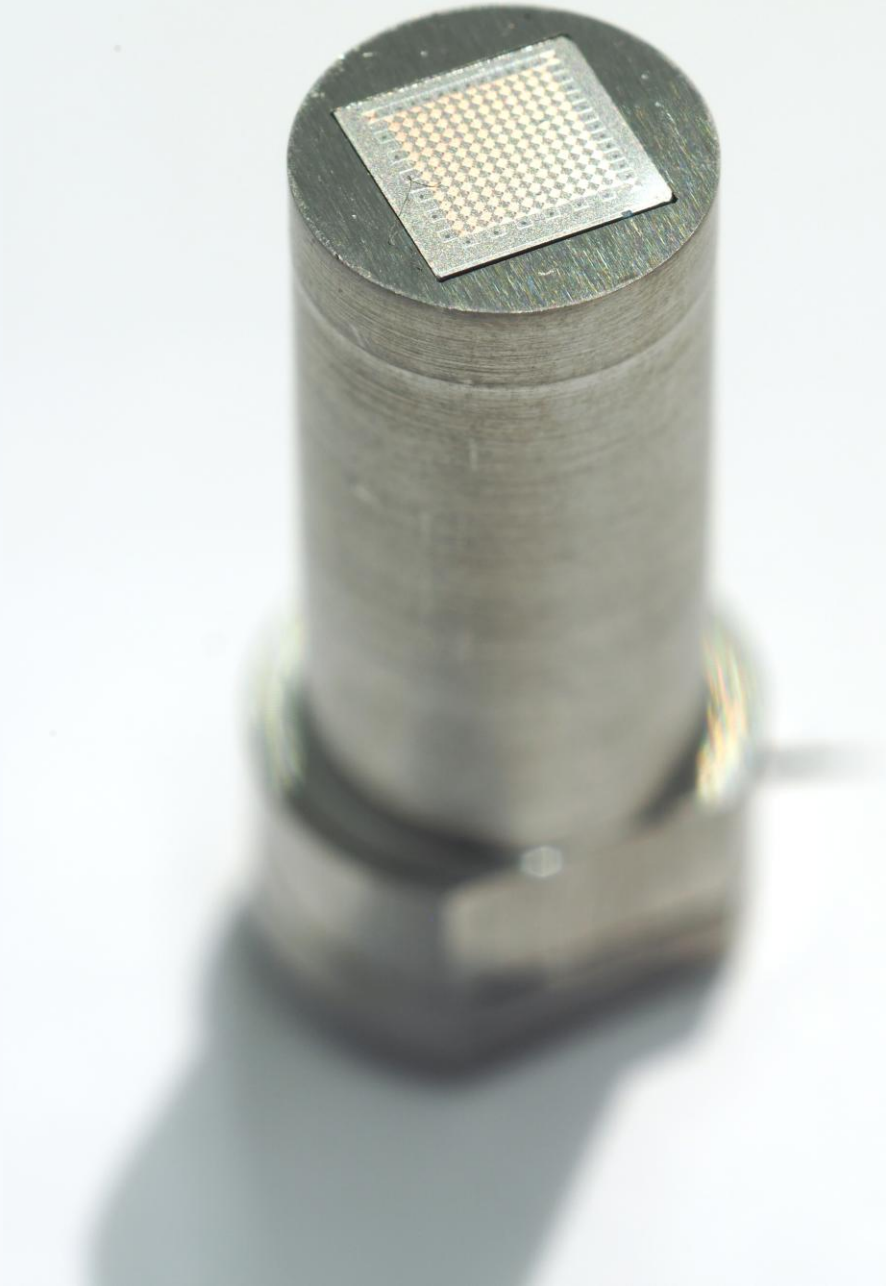
marked pieces

The DM-qode

- **serialization using 12x12 ISO DataMatrix code**
- additive-free
- marking within the injection molding cycling time
- perfectly suited for clean-room production
- pressure stable up to 2000 bar
- hundred of thousands duty cycles

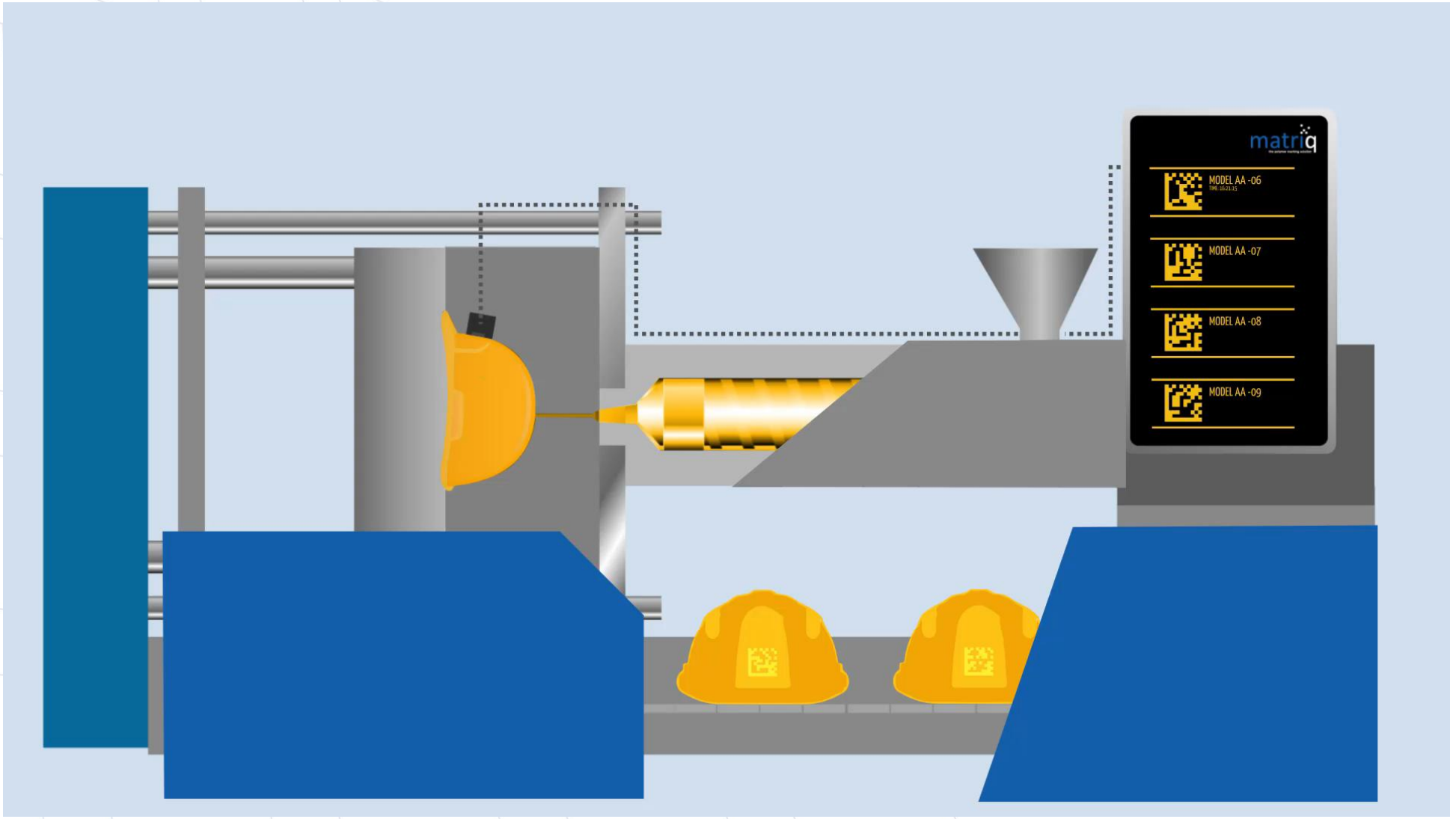


DPM code (direct part marking – based on ISO/IEC 29158:2020).



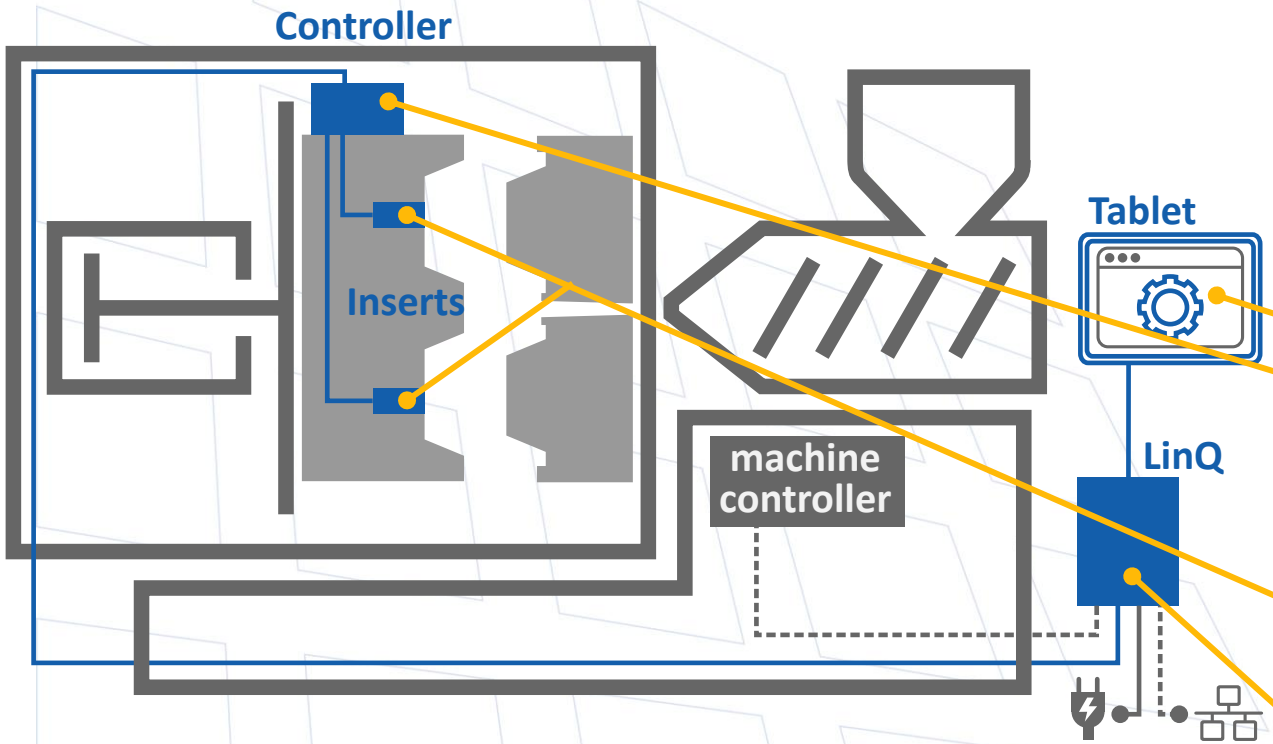
mold insert Ø 8 mm, length 20 mm

our solution: matriq variable marking in action



Animation zu finden hier: youtu.be/C6bYhmjv7iU

DM-qode integration and system overview

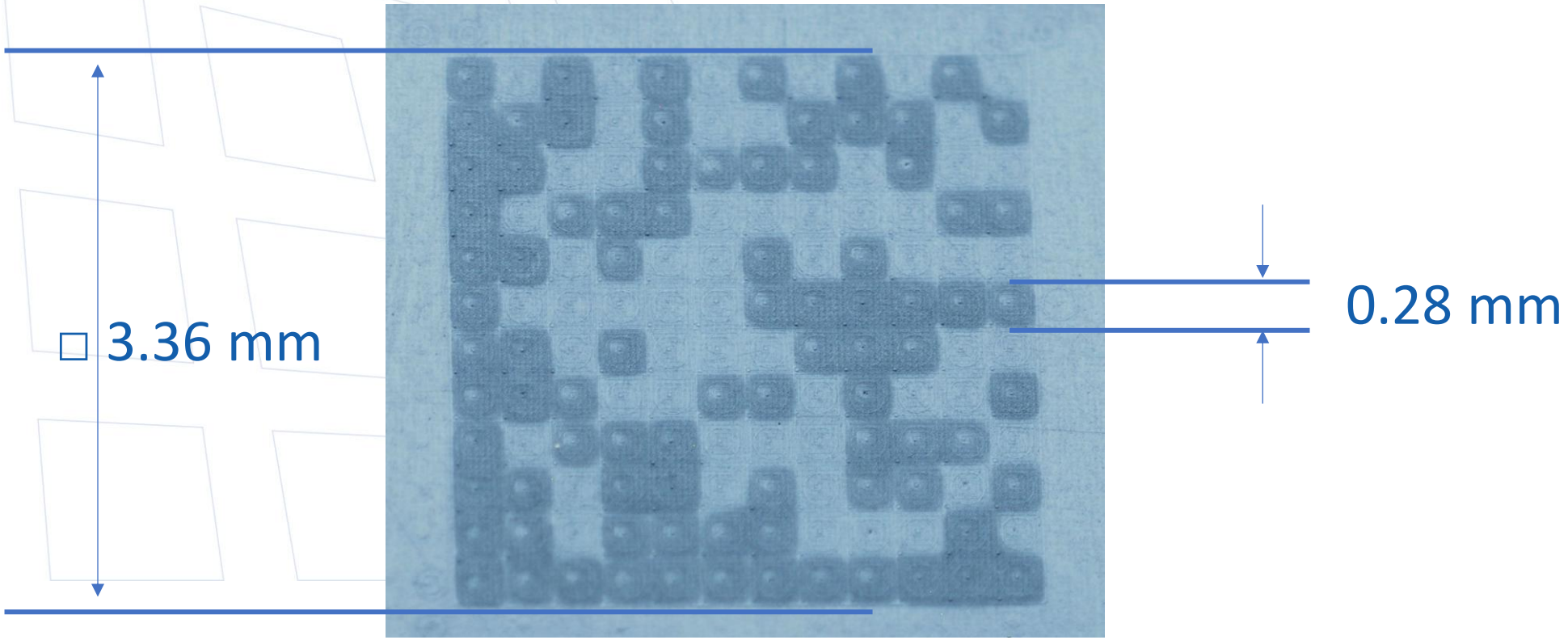


DataMatrix codes

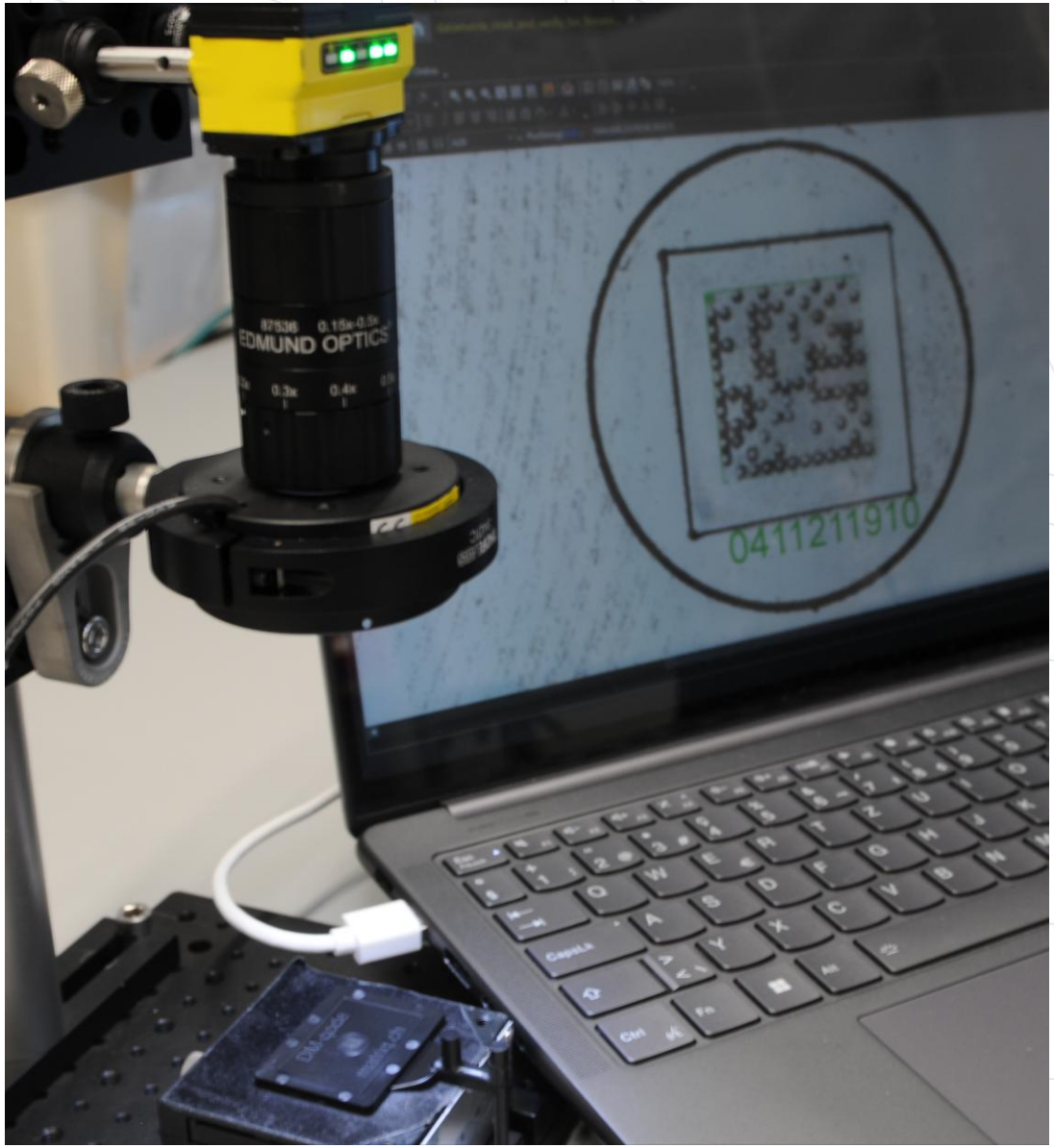
The DM-qode enables the application of a **144-pixel code in 12x12 DataMatrix** format

DataMatrix code	module size	data capacity numbers	data capacity text	version
12 x 12	0.28 mm	10 digits	6 characters	ECC 200

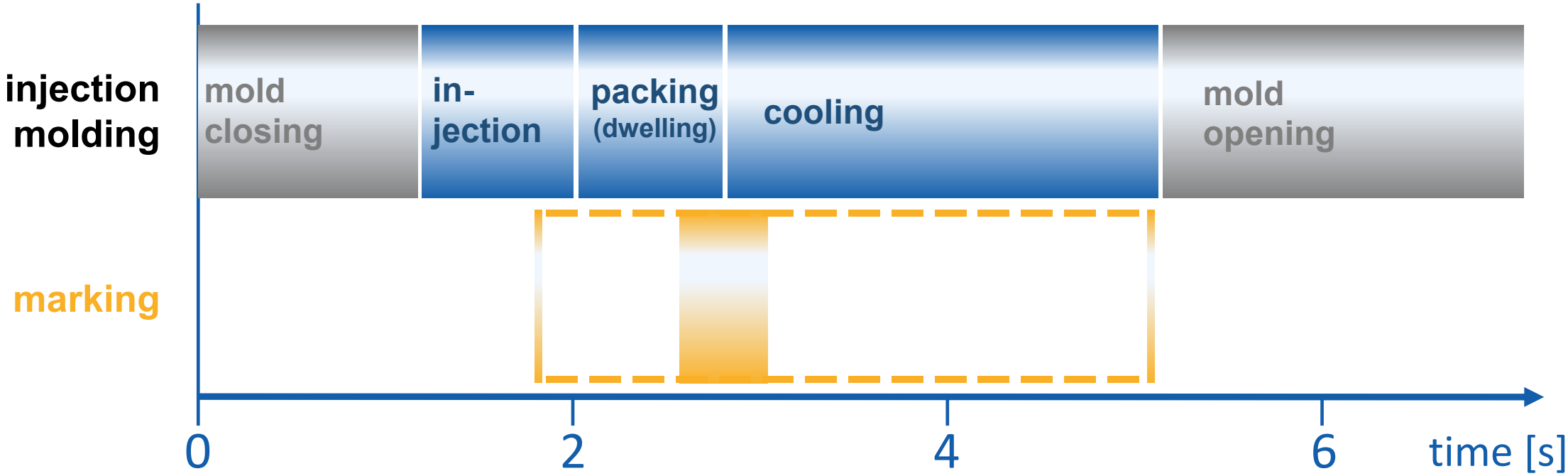
DCM based on the norms ISO/IEC 16022:2006 and ISO/IEC TR 24720:2008



code reading: standard camera and suitable illumination



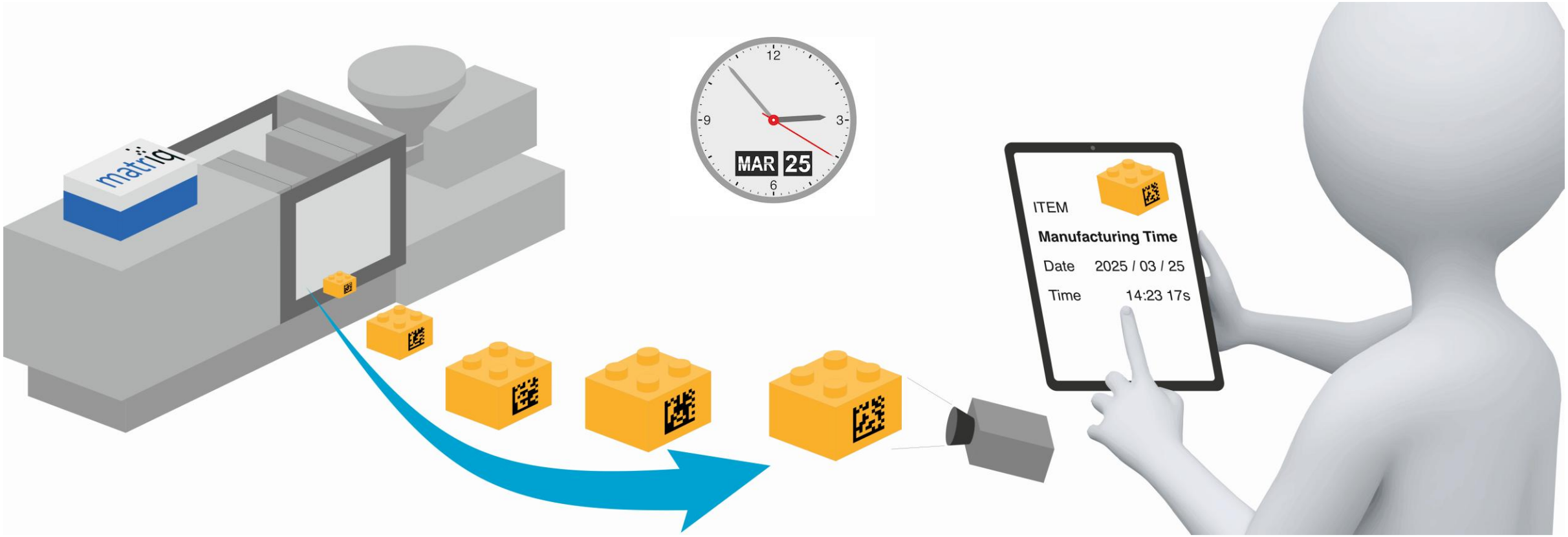
injection molding cycle incorporating **marking by DM-qode**



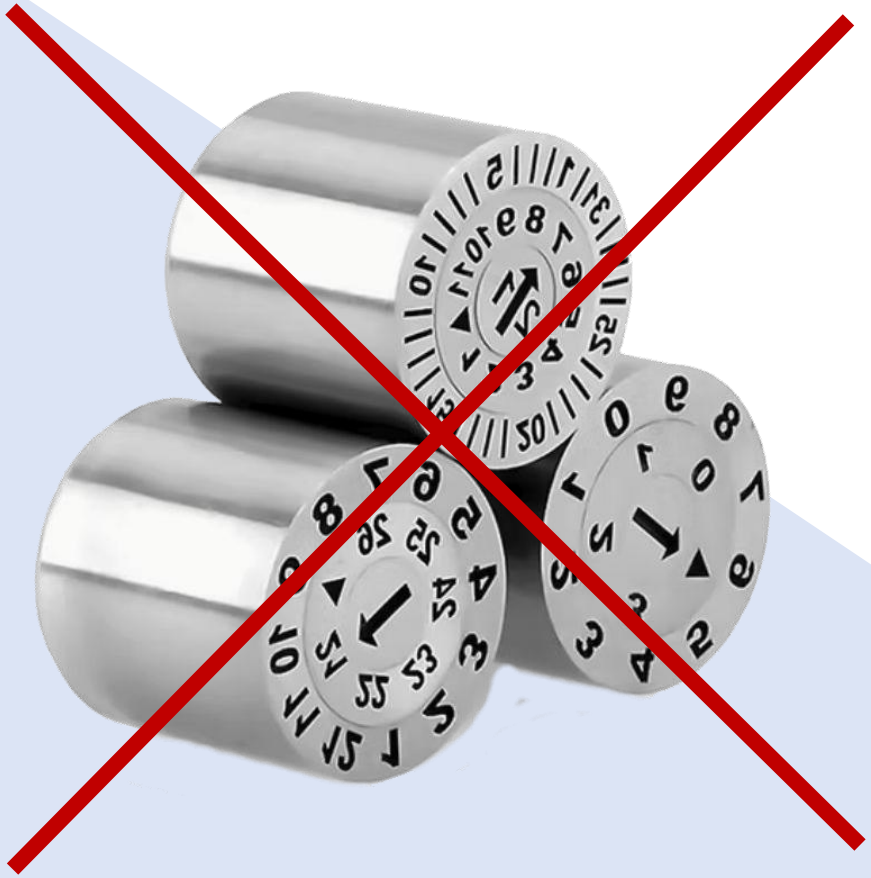
- no change of production cycle time
- detecting the mold front via the integrated temperature sensors –> timing
- heating cycle depending on material, process, part geometry

connectivity and traceability: **Time Stamp**

Serialization using Unix Time-Stamp: unique time stamp accurate to the second for each component, directly during the manufacturing process. This makes it easy to associate the shot ID without a network.

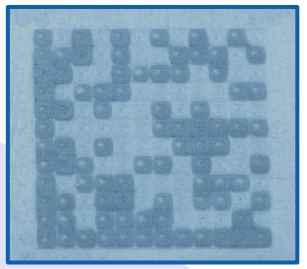


batch marking with year – month – day



– manual
– unreliable
– analog
– machine stop necessary

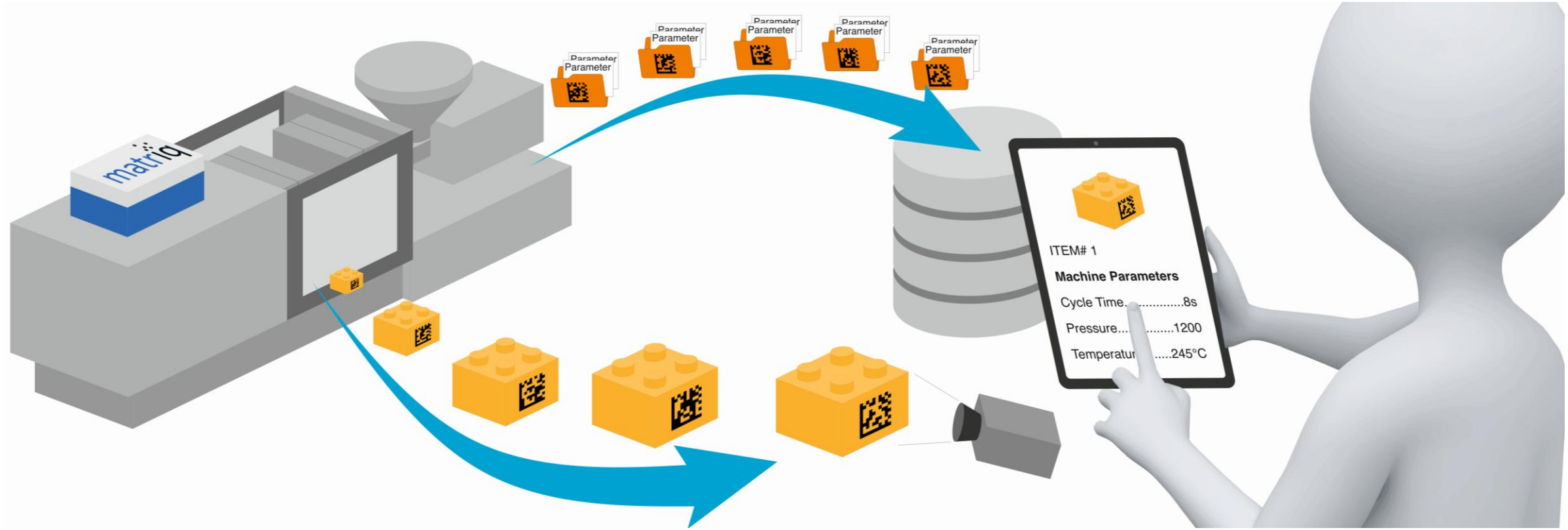
– **automatic**, without intervention
– accurate to the **minute or second**
– independent of the machine
– digital



connectivity and traceability: **serial number**

Serialization specified by the user for each component, cavity-specific; the DMC code is read by a camera and the corresponding stored data for each component can be retrieved.

In **later assembly and finishing steps**, the data can be expanded and added to the component data record (database, cloud).



marking components in production: **cost comparison**

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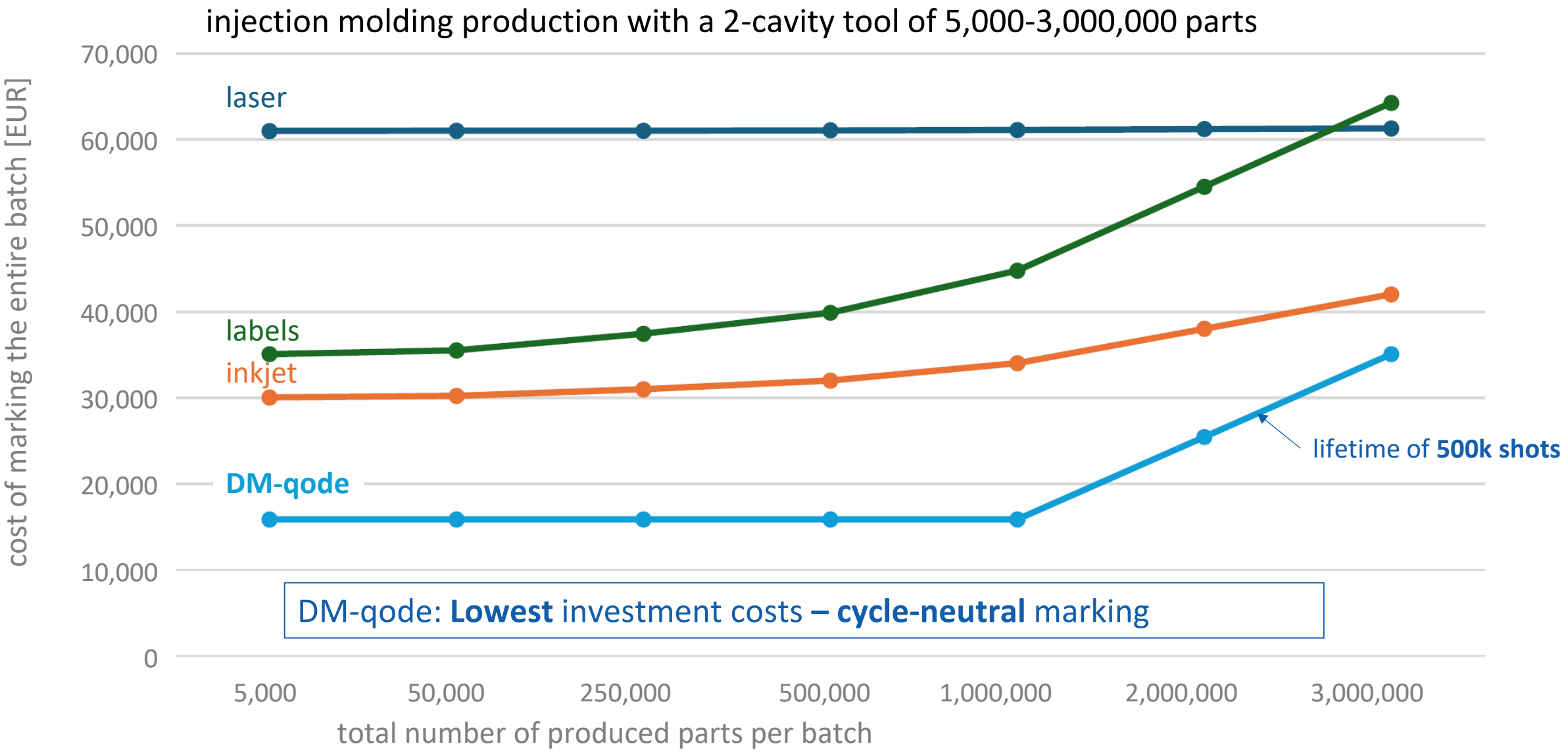
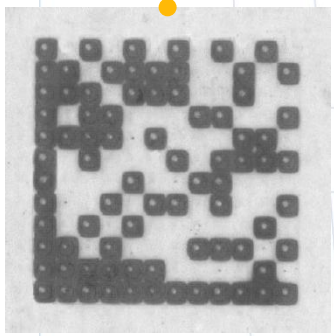


examples of DMC in various materials read by camera

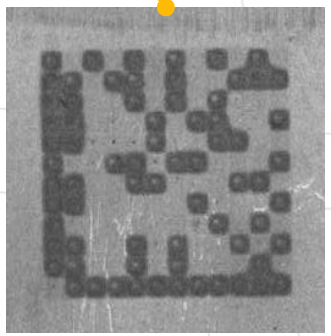
process developed for **injection molding**

PS | COC | ABS | PMMA | PC-ABS | PBT | PP | PC



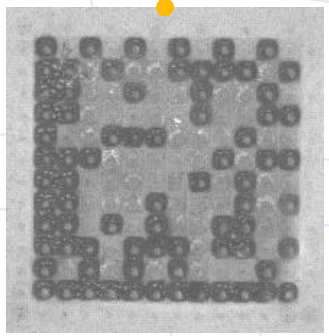
PS 486 M, transparent

3849619865



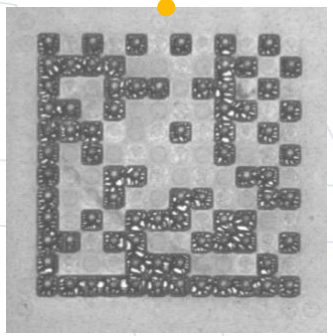
PC/ABS black

7034363516



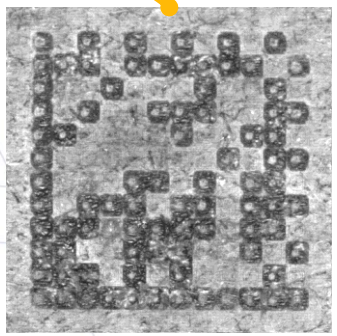
PBT black

1734825604



Bormed RF825 MO, natural

6075027395



WIC GF20 CF10, black

2472495623

process development pending

- PA
- POM
- HD-PE
- PET
- SAN
- PVC

mold temp typically >100°C → too high for DM-qode

- PEI
- PES
- PPS
- PEEK
- ...

examples of DMC in various materials read by camera

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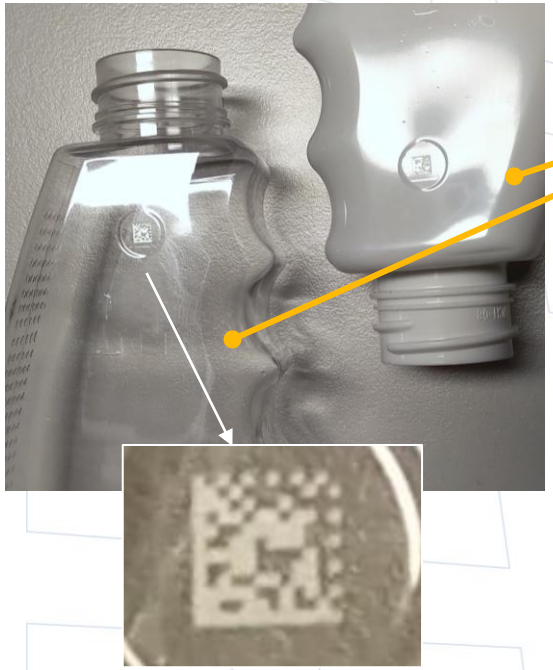
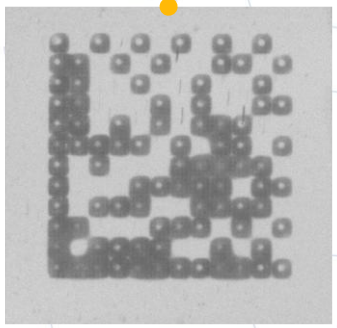
process developed for **stretch and extrusion blow molding**

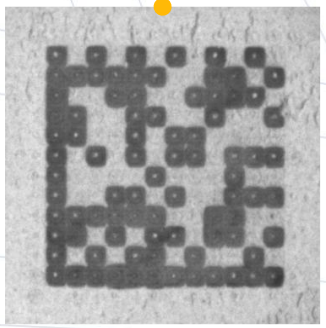
PET

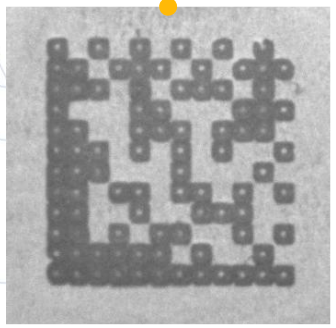
PP

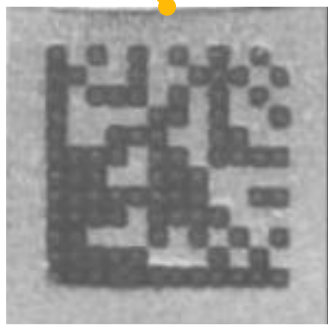
HDPE











PET transparent & weiss, stretch BM

PET transparent

PP nature

HDPE nature

HDPE schwarz

HDPE schwarz, extrusion BM

stored codes

1049986429	2534277216	5474217351	9346618553	1522562728	6159338263

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sales & customer support:

André Bernard | Anja Baumann | Anna Mungenast | Klaus Dietrich

The plastic marking solution!

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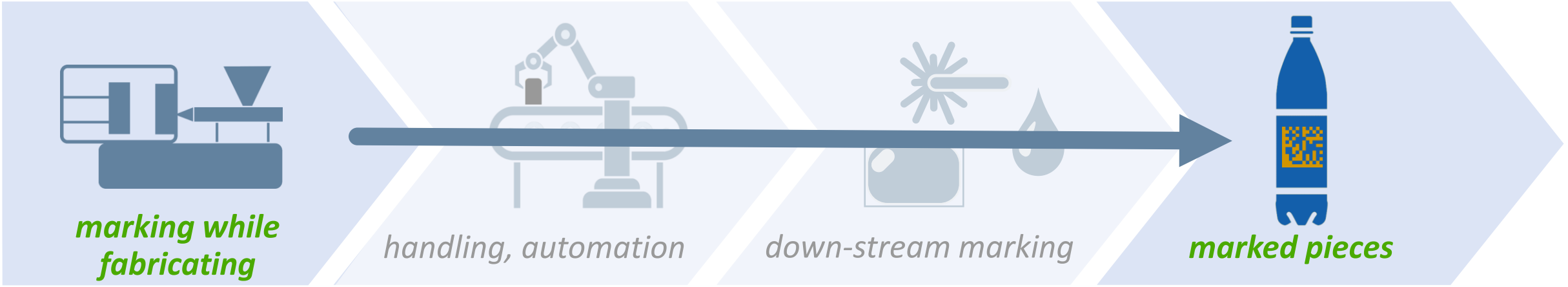
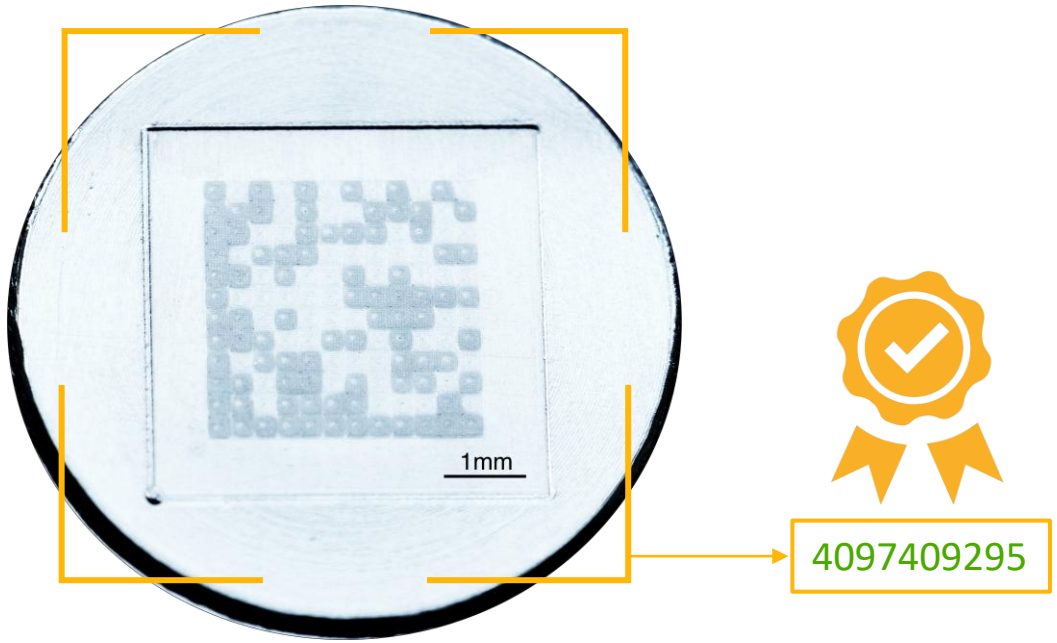
PRO 1: **Reduce complexity –** marking and forming combined and at the same time



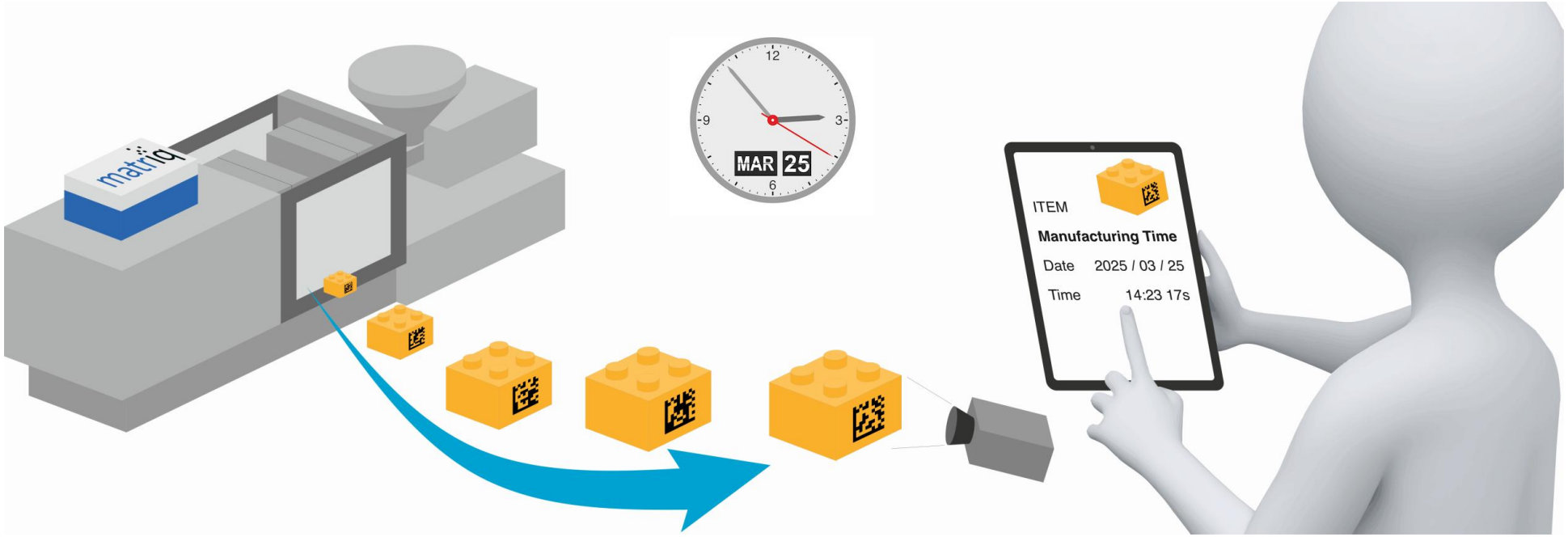
- ✓ No downstream processes necessary
- ✓ Cycle time neutral
- ✓ Independent of injection molding machines thanks to self-triggering marking

PRO 2: **Improve quality assurance –** gain more knowledge about every component produced



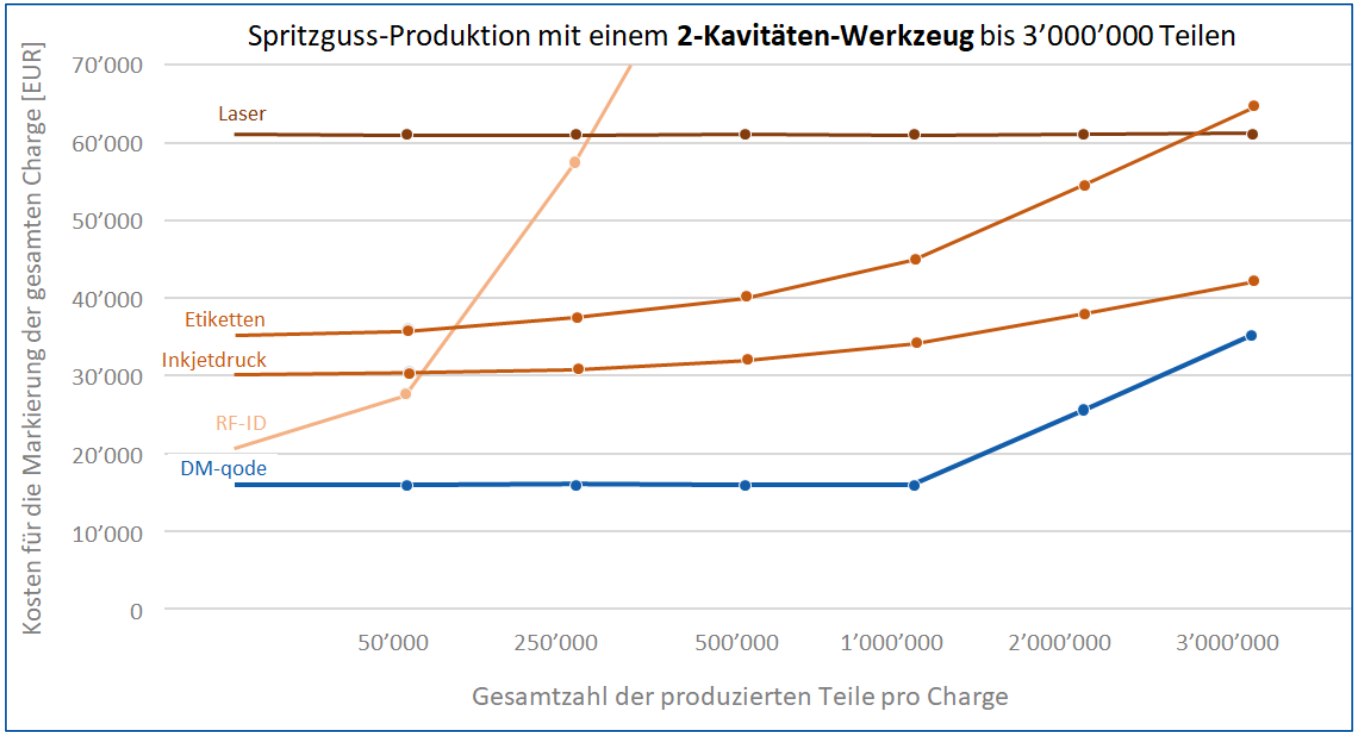
- ✓ Traceability to individual components
- ✓ Know and assign process data, material, machine, mold, etc.
- ✓ Ensure quality and reduce liability risk through serialization from birth

PRO 3: **Save effort –** no complicated installation or manual handling



- ✓ Components are automatically time-stamped
- ✓ Either to the minute or second, or with a serial number
- ✓ No operator required, no labeling

PRO 4: **Realize cost advantages –**
Labels, printing, and lasers are more complex and expensive



- ✓ Significantly lower investment costs and running costs
- ✓ No additional automation or ventilation required
- ✓ No additives required in the plastic

PRO 5: **Be an innovation leader –**
matriq's system is a groundbreaking world first

- ✓ Score points with customers through innovation and strengthen your own brand
- ✓ Advance digitization in injection molding
- ✓ Prepare for the future. Low-threshold and timely

PRO 6: **Cleanroom-compatible and sterilizable –** dust-free, particle-free, exhaust-free

- ✓ Marking without particles, exhaust gases, or dust
- ✓ Reproducible and immovable in the mold
- ✓ No additives or material changes, in the designated color of the component