

WLCSP

Next Generation
of High Speed Die Sorting
Inspection & Personalization



**MÜHLBAUER
TECH WEEK 2018**

08 - 12 OCTOBER 2018 RODING, GERMANY

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Sales AUTOMATION

Mühlbauer GmbH & Co. KG

***THE WORLD IS CHANGING
WITH TECHNOLOGY***



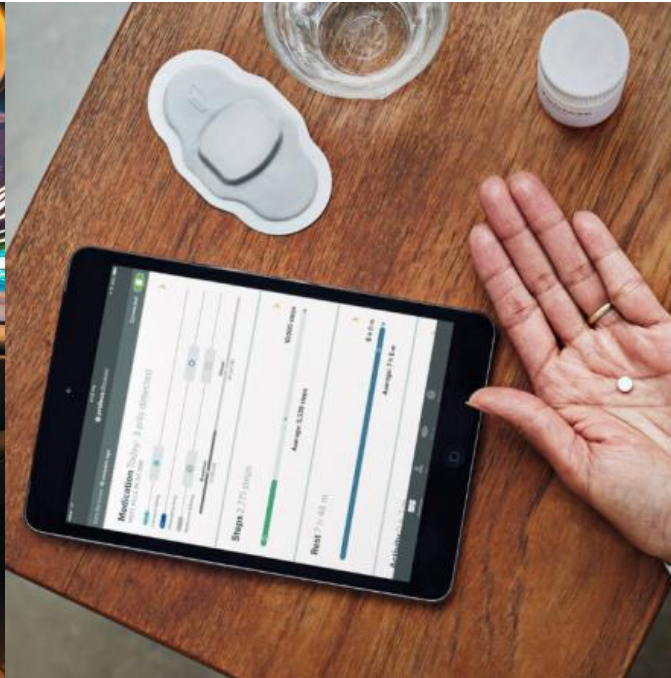
Developing Technologies

Continuous Improvements

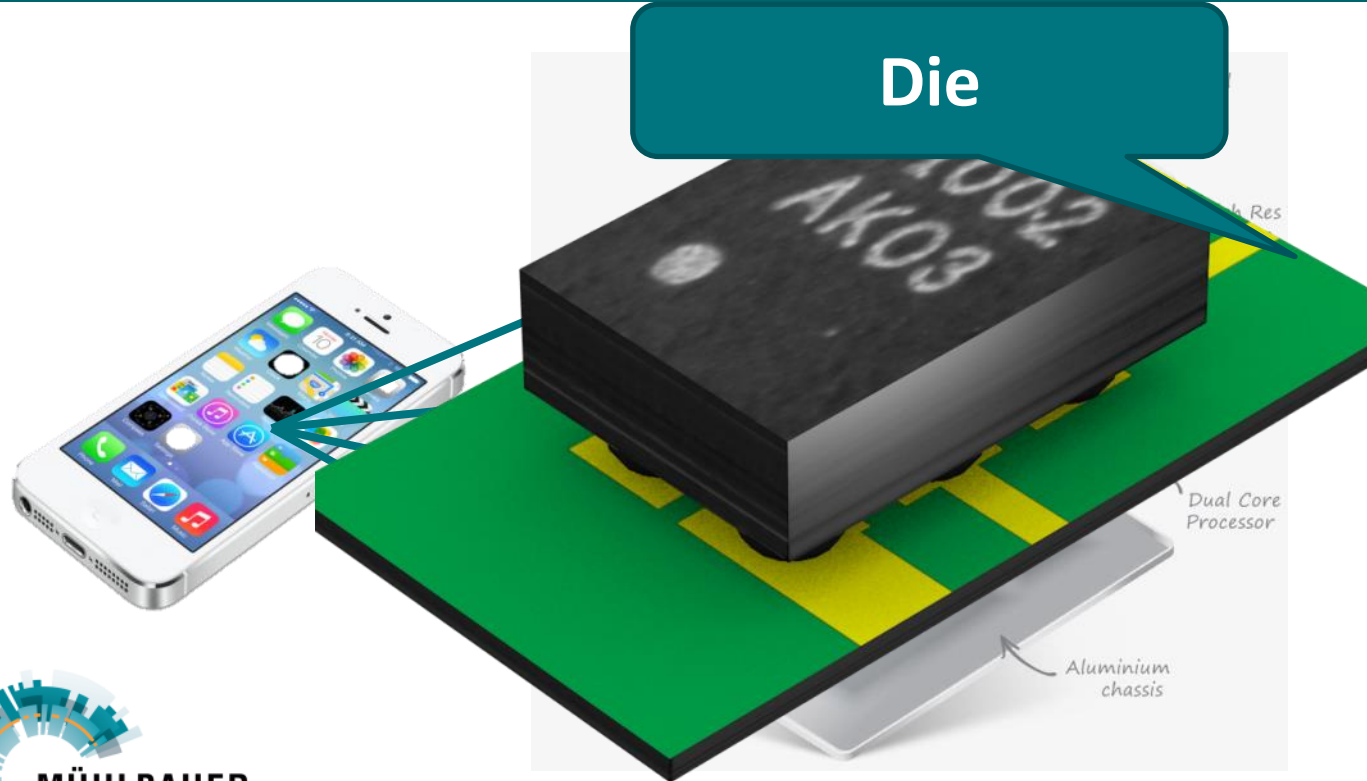


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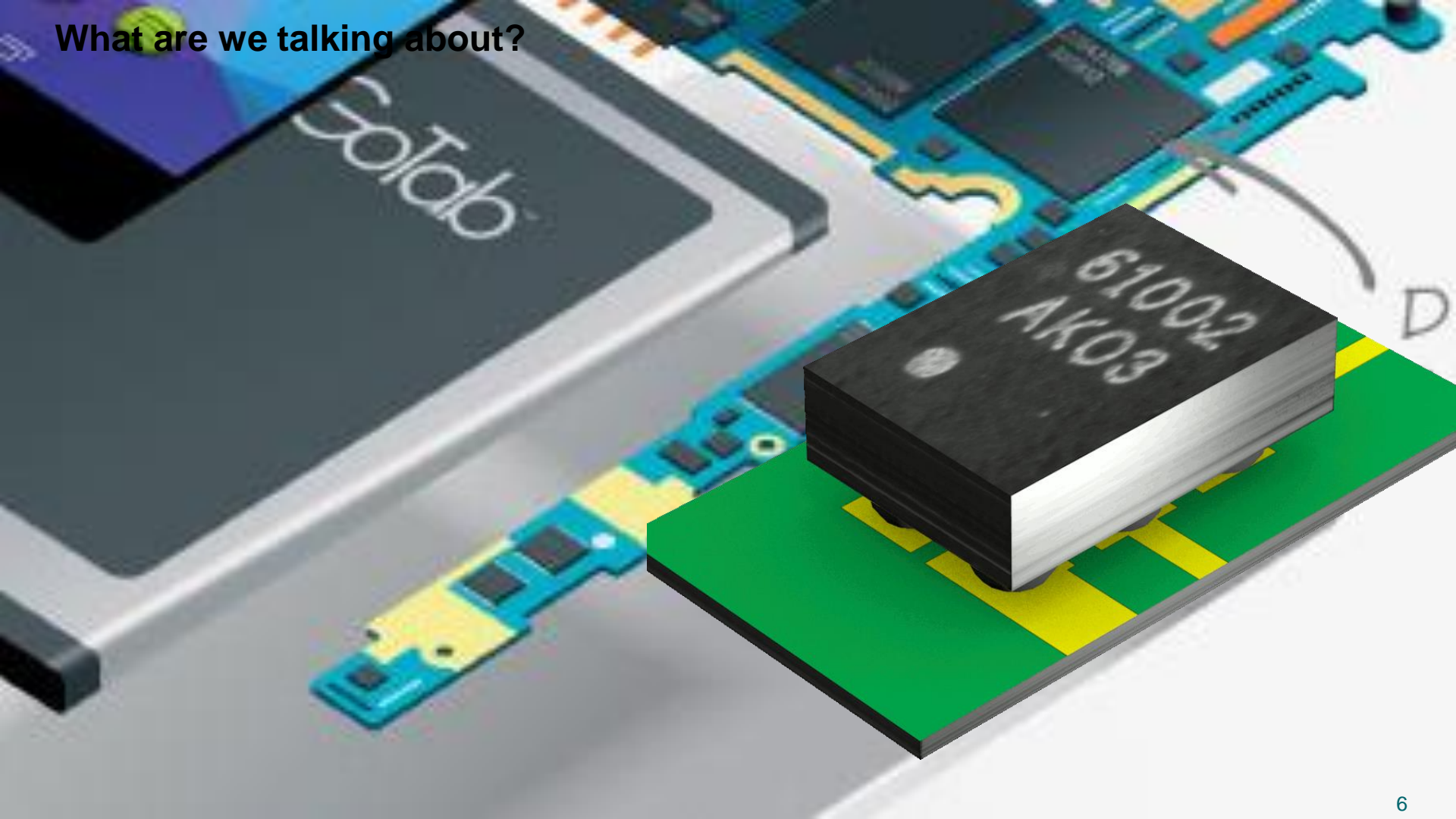
Developing Technologies Applications



What are we talking about?

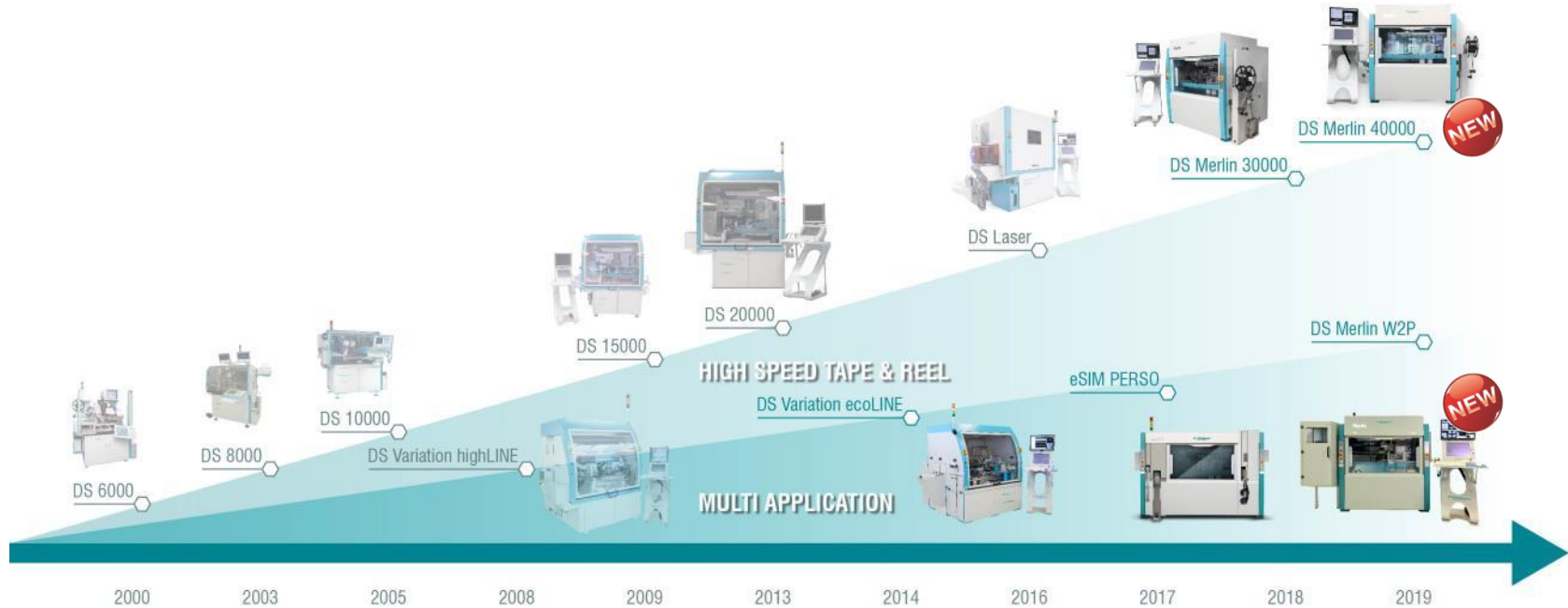


What are we talking about?



Next Generation for WLCSP Handling

Continuous Improvement of Cost / Performance Ratio



Our Solutions for Speed & Flexibility

DS Merlin



AUTOMATIC
SELF
ALIGNMENT
ENABLED

DS Variation ecoLINE



DS Merlin

Key Features

HIGH
SPEED

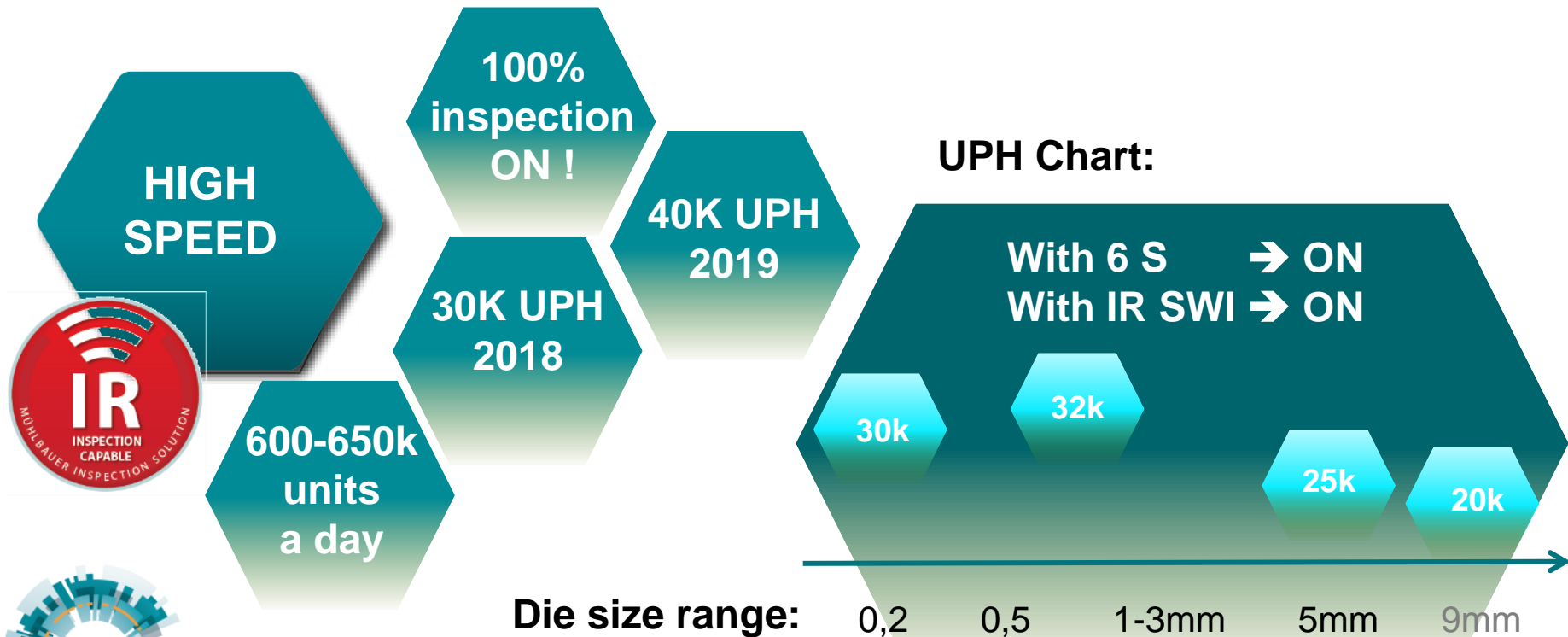
INSPECTION
Accuracy

AUTOMATION

100%
TRACEABILITY



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DS Merlin

The world's latest benchmark in Die Sorting

UNIQUE

AUTOMATION

AUTOMATIC
SELF
ALIGNMENT
ENABLED

Operator
Independent

100%
Quality
assured

10 min
Tool
change

IP
Secured



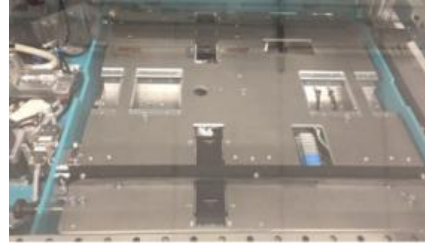
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DS Merlin

The world's latest benchmark in Die Sorting

AUTOMATION

Fast
Wafer
Change



ARC
Automatic
Reel
Changer





4MP
Resolution

INSPECTION
Accuracy

Defect detection:

9 μ m

Die size range: 0,2 0,5 1-3mm 5mm 9mm



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Sidewall Inspection SWI Gen. 3

ALL in ONE

9 MP
Resolution

5 μ m surface

8 μ m IR



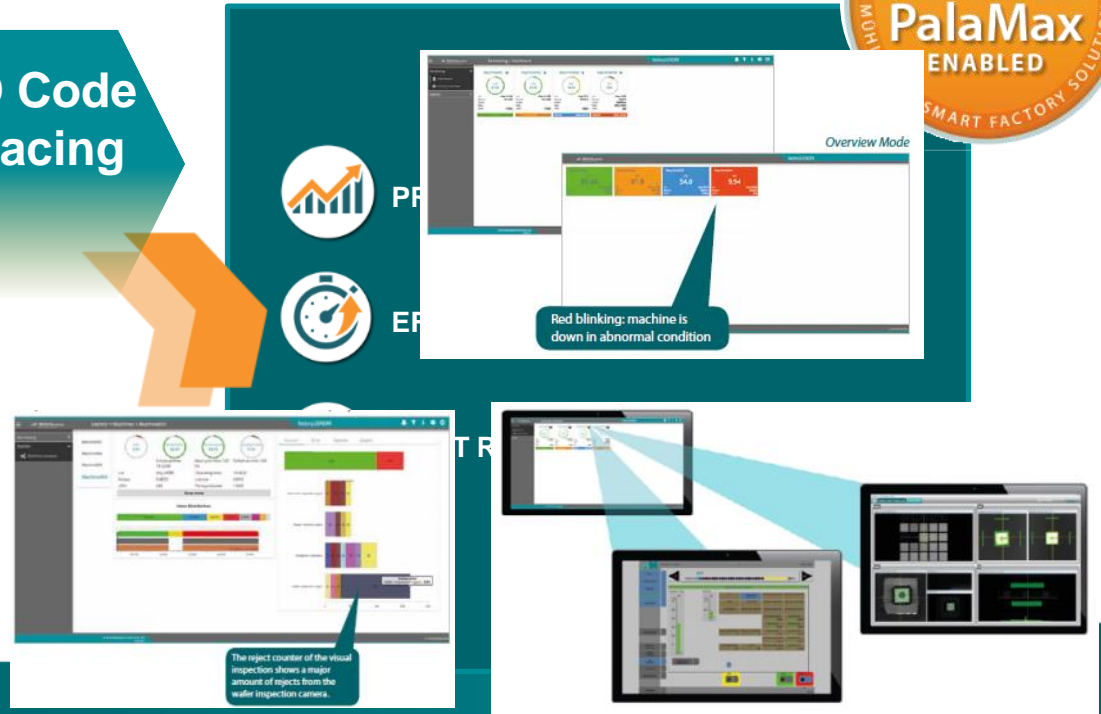
Traceability

Factory
Automation

2D Code
Tracing

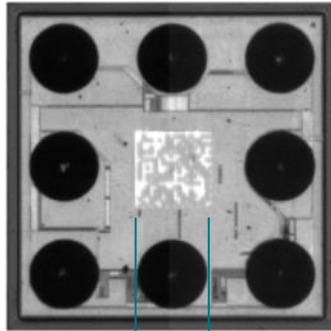
Remote
Control

Industry 4.0

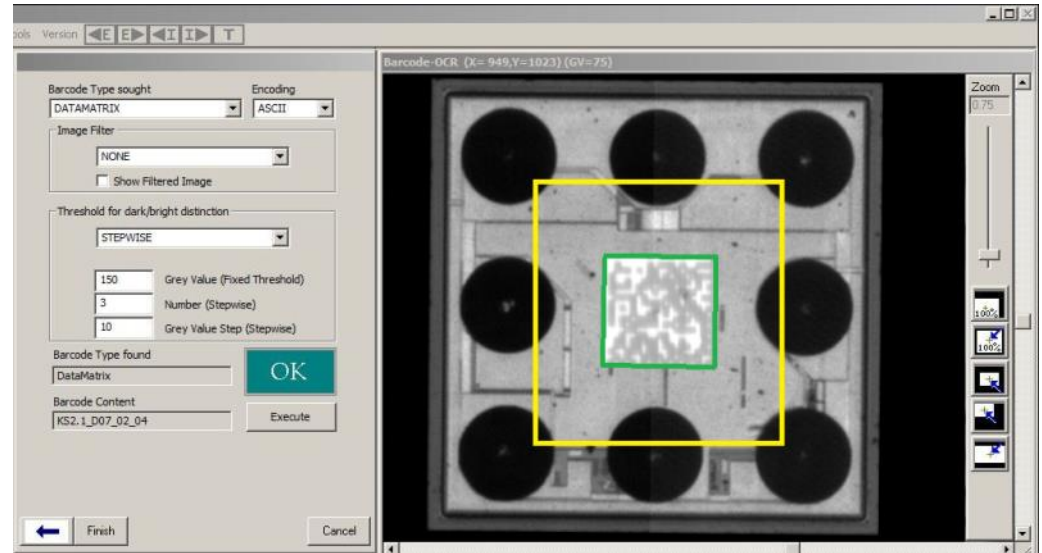


Tracing of Parts

Micro Code Reading



500µm



Each pocket is marked individually for
100% Traceability



Turnkey Solution with MB Carrier Tape

- ✓ IR Sidewall + Backside
- ✓ 12mm Carrier Tape Indexer
- ✓ Auto Reel Changer

- ✓ **DS Merlin Wafer to Panel Flip Chip**



DS Merlin Wafer to Panel / Wafer



High speed
Bonding with
25k UPH

100%
inspection
ON !

+/-15 μm
Placement
accuracy

Flip Chip
Or
None Flip

Our Solutions for Speed & Flexibility

DS Merlin



DS Variation ecoLINE



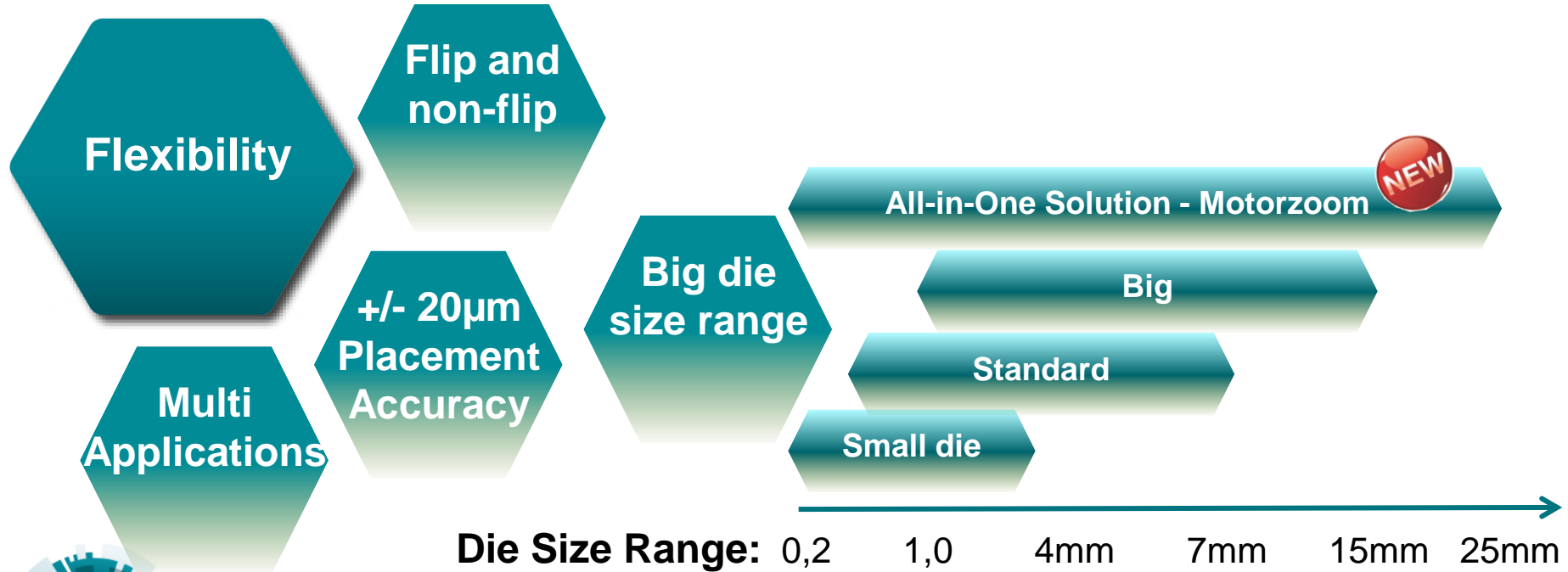
DS Variation ecoLINE

Key Features





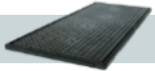
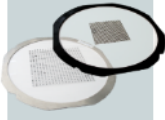



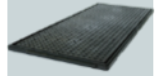







DS Variation ecoLINE

Flexible and cost efficient handling system



DS Variation ecoLINE

Multiple Applications

		Output		
		Wafer 	T&R 	Tray 
Input	Wafer 			
	Tray 			
	T&R 			

De-Taping



Dual Track
2 in 1



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12 MP
motorzoom

Color
Camera

INSPECTION
Accuracy

SWI IR
Gen. 3



Defect Detection:

8 - 32 μ m



24 μ m

12 μ m

10 μ m

Die Size Range: 0,2 1,0 4mm 7mm 15mm 25mm



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eSIM: Die Sort Test + Marking

Key Features

Future
Technology

TEST,
LASERMARKING,
INSPECTION



eSIM (embedded Subscriber Identity Module) Technology

“A new era in mobile telecommunications!”

eSIM: Die Sort Test + Marking

Concept Thoughts to Handle New Market Requirements

- Fast handling system of small devices
→ future WLCSP
- High speed encoding: multiple encoding station for long encoding times (future application)
- Laser Provider
- 100% verification of laser & data

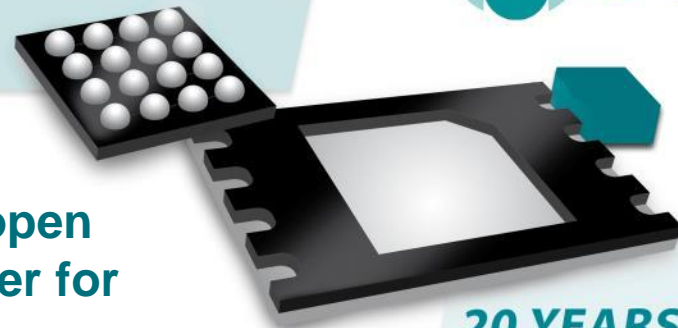


eSIM: Die Sort Test + Marking

Key Benefits

- Most flexible system
- Open platform of data preparation and encoding with our MCES solution

25 YEARS
OF EXPERIENCE IN THE
SEMICONDUCTOR INDUSTRY
Handling of smallest devices & die sorting



20 YEARS
OF EXPERIENCE IN DATA HANDLING,
ENCODING & PERSONALIZATION
of SIM Modules, Smart Cards, and ePassports



Mühlbauer as High flexible and open mind partner is the perfect partner for the upcoming market needs and opportunities



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**Thank you
very much for your
attention!**