

NON HERMETIC 28nm SOLDERED FC FOR SPACE APPLICATIONS

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Welcome To
AEMtec




INTRODUCTION

FROM WAFER TO CHIP

QUALIFIED FC

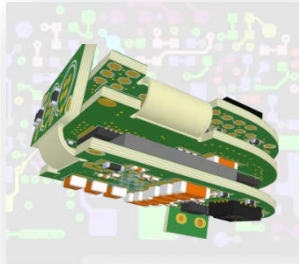
High Precision Assembly

A 3D rendering of a circuit board layout with several spheres (representing components) placed on it. The text 'High Precision Assembly' is overlaid on the image.

Advanced Electronic Microsystems

Excellence in (opto) electronics and sensor systems offering high-end chip level technology services from product / process development to packaging

PRODUCT & PROCESS
DEVELOPMENT



VOLUME
PRODUCTION



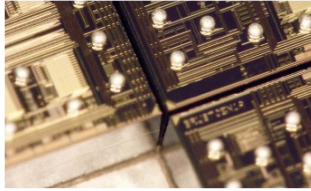
SUPPLY CHAIN
MANAGEMENT



Areas of Excellence

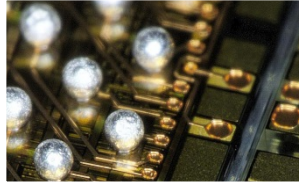
Technology-Know-How

For complex module assembly



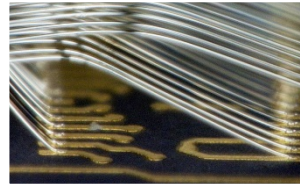
Wafer Back-End

- Au-Stud Bumping
- UBM
- Solder Balling
- Sawing
- Cleaning and UV-Exposure



Flip Chip

- Soldering
- Gluing (ICA, ACA, NCA)
- Copper Pillar
- TC/TS Bonding
- Underfill



Chip on Board

- Die Bonding
- Al and Au Wedge and Ball Bonding
- Encapsulation
- 2.5D/3D Packaging
- System in Package



SMT

- 01005 and 03015 (metric)
- Selective Soldering
- RoHS-Compliant Processes



Box-Build

- Co-Product Development
- Prototyping + Industrialization
- Serial Production incl. Repair Service
- Worldwide Supply

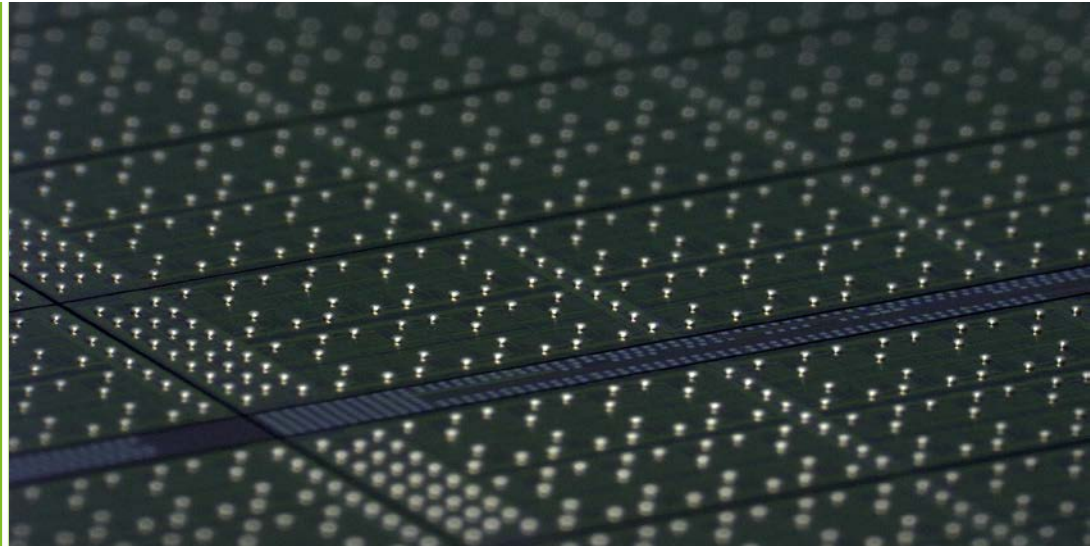
On all common substrates

Description of the projects

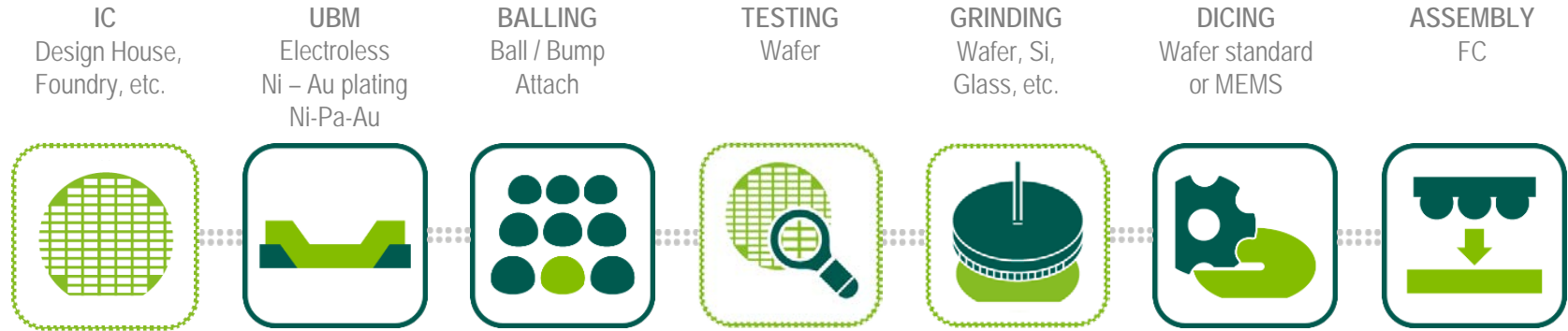
_____ TWO STAGES

_____ FROM WAFER TO CHIP

_____ QUALIFIED NON-
HERMETIC FC



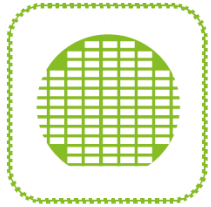
FROM WAFER TO CHIP



- ✓ Faster time to market
- ✓ One face to the customer
- ✓ Fast root cause analysis

- ✓ Streamlined supply chain
- ✓ Full transparency and control of the supply chain
- ✓ No overhead accumulation

Key parameters in the Wafer Back-End Services



TEST WAFER

Daisy Chain 28nm
Pad size and pitch TBD
Configurable chip sizes
Up to 10.000 bumps / chip



UBM

Electroless
Ni-Au
Ni - Pd - Au



BALLING

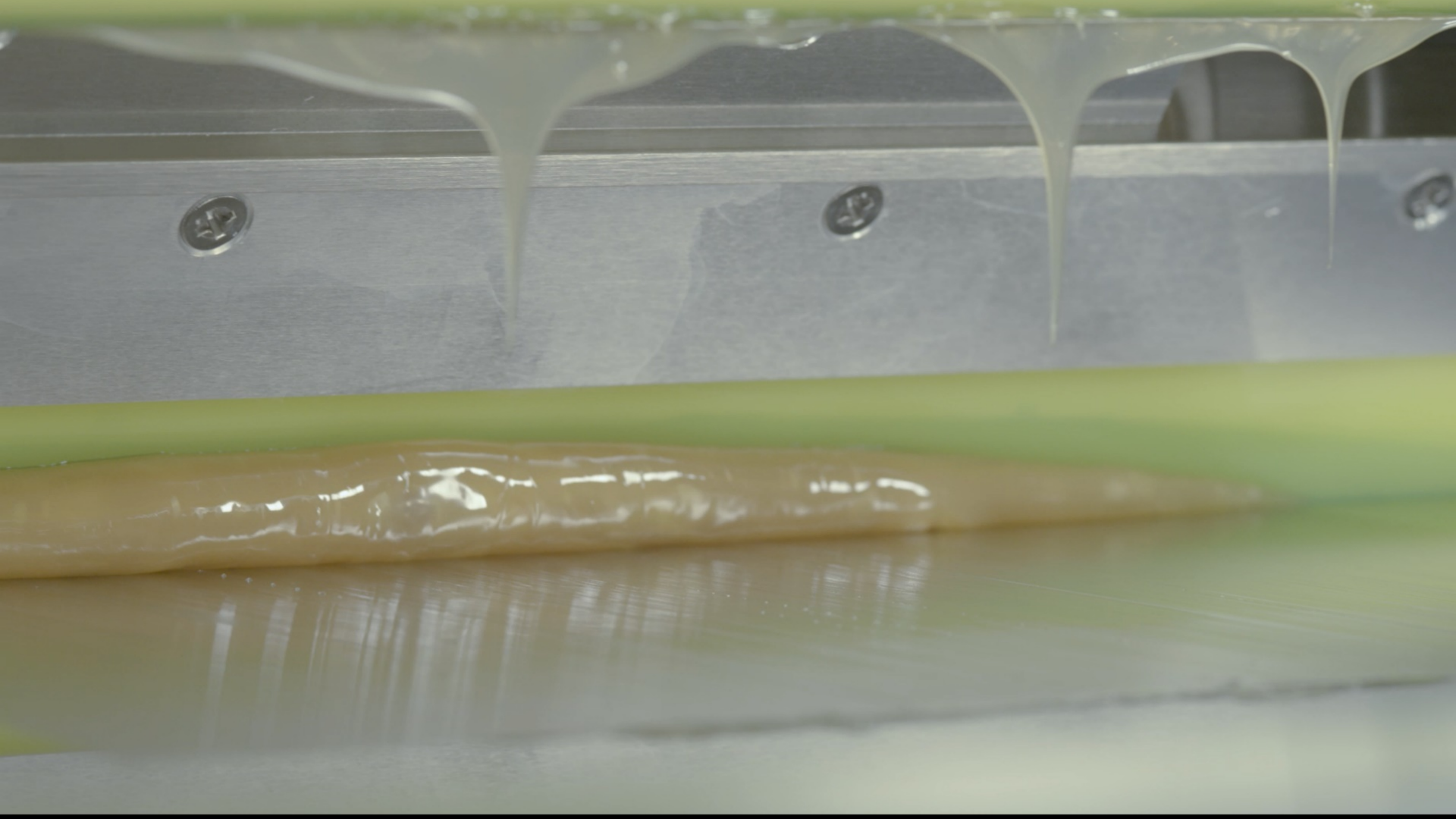
Material independent
Multiple sizes for balls
Automated repair

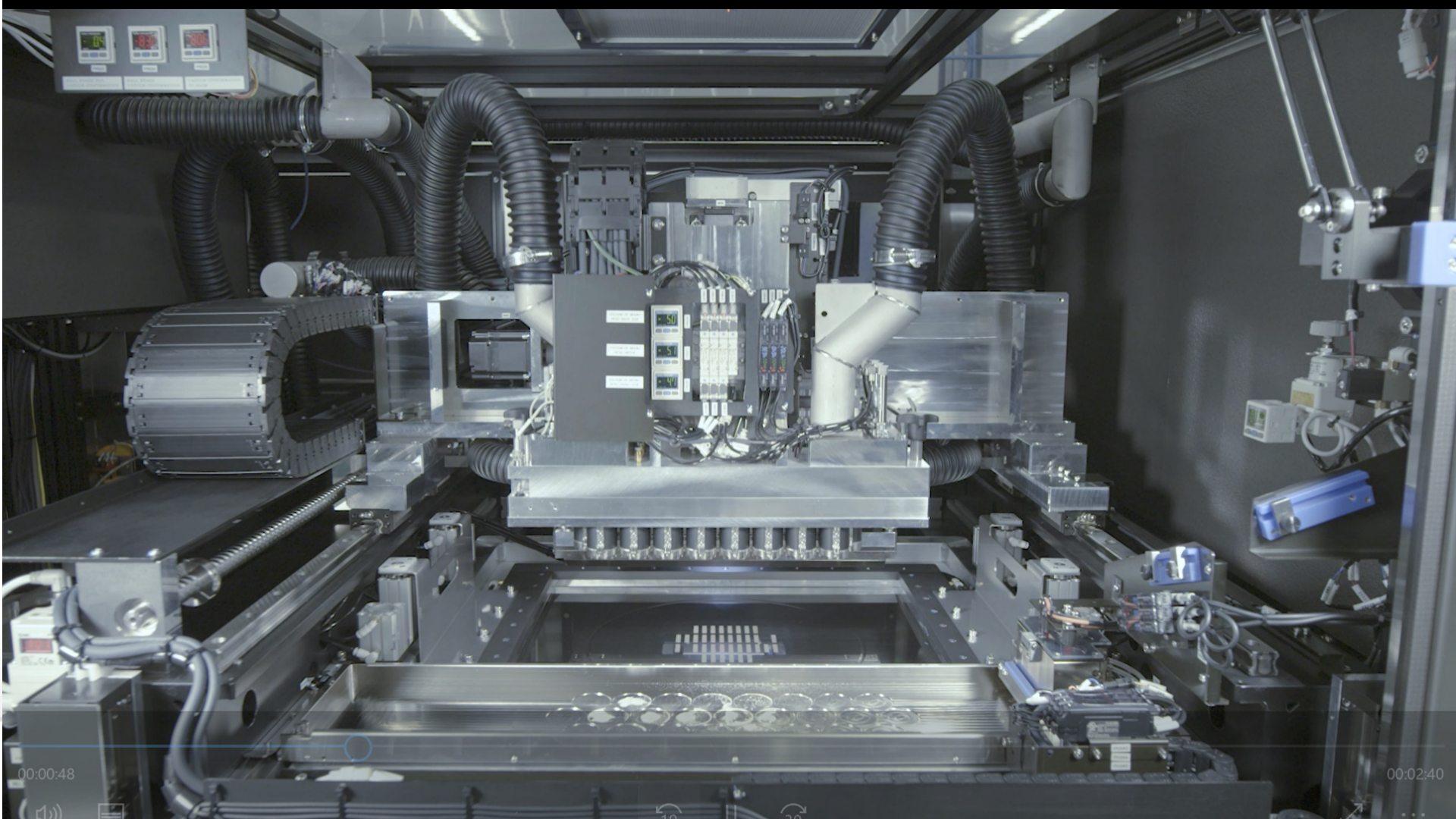


DICING

Laser Grooving
Blade Dicing

All necessary processes (except for laser grooving) are already qualified in house.
We aim to establish through empirical methods the best suitable combination of parameters for all processes in order to achieve the qualification for space applications

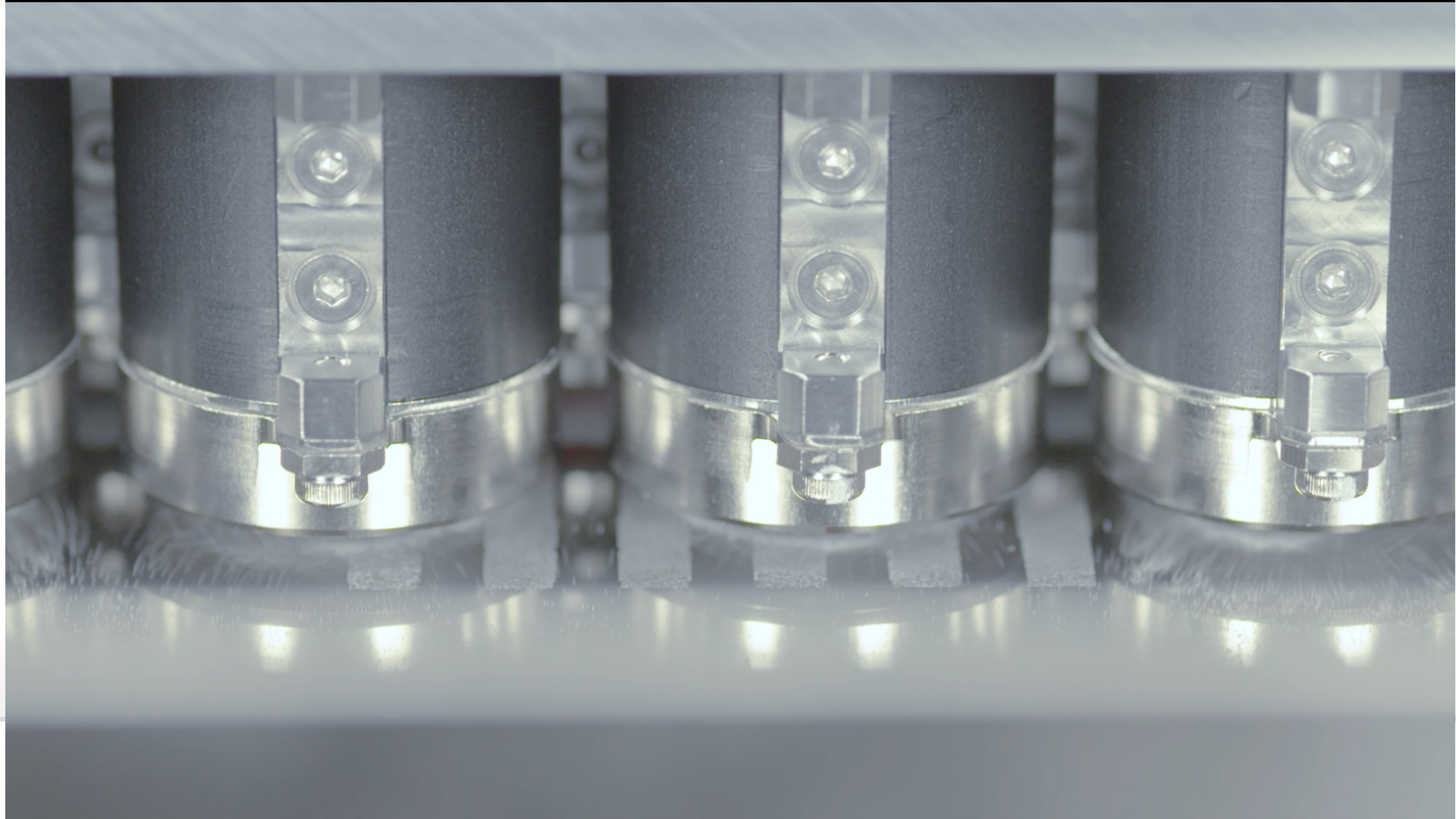




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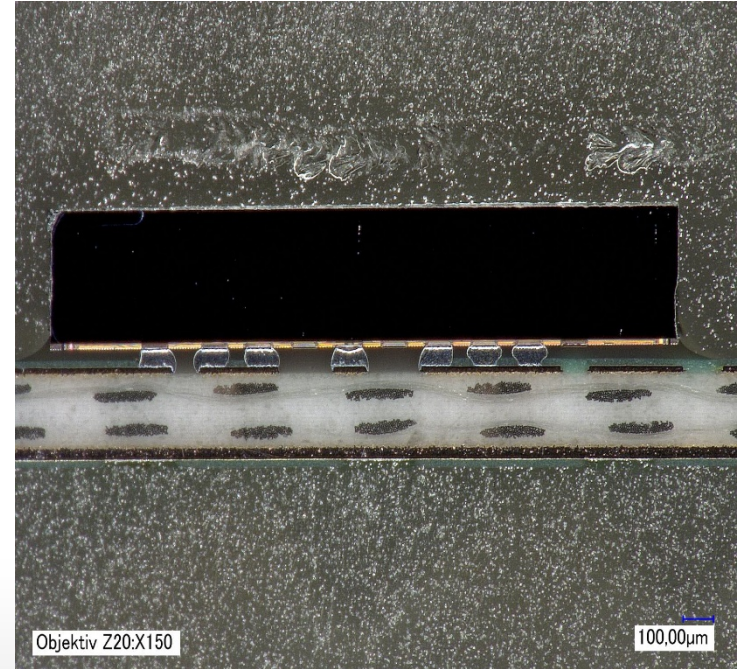






Non-Hermetic FC – Variables in the qualification

- Number of contacts (Balls) >8000
- Material of the balls
- Size of the balls <100 μ m
- Pitch <200 μ m
- Pad shape and size on substrate 75x75 μ m
- Substrate Ceramic
- Underfill degassing



Conclusions

- Highest reliability electronics CAN be assembled in a cost effective manner
- Qualification of the processes implies a long and tedious work
- High level of automation and process control are the key
- The right selection of parameters – including interactions between processes – needs to be done empirically

Thank You

Your Strategic Technology Partner



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