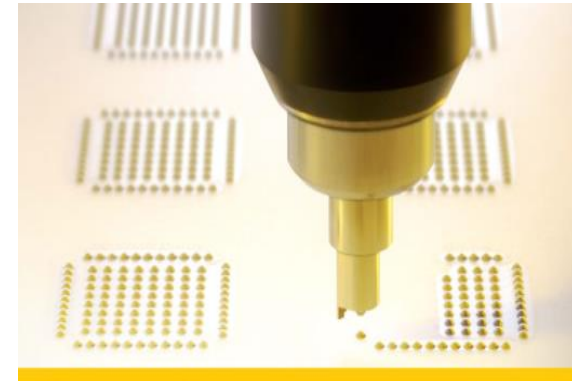


# Lead Less Rework of Components



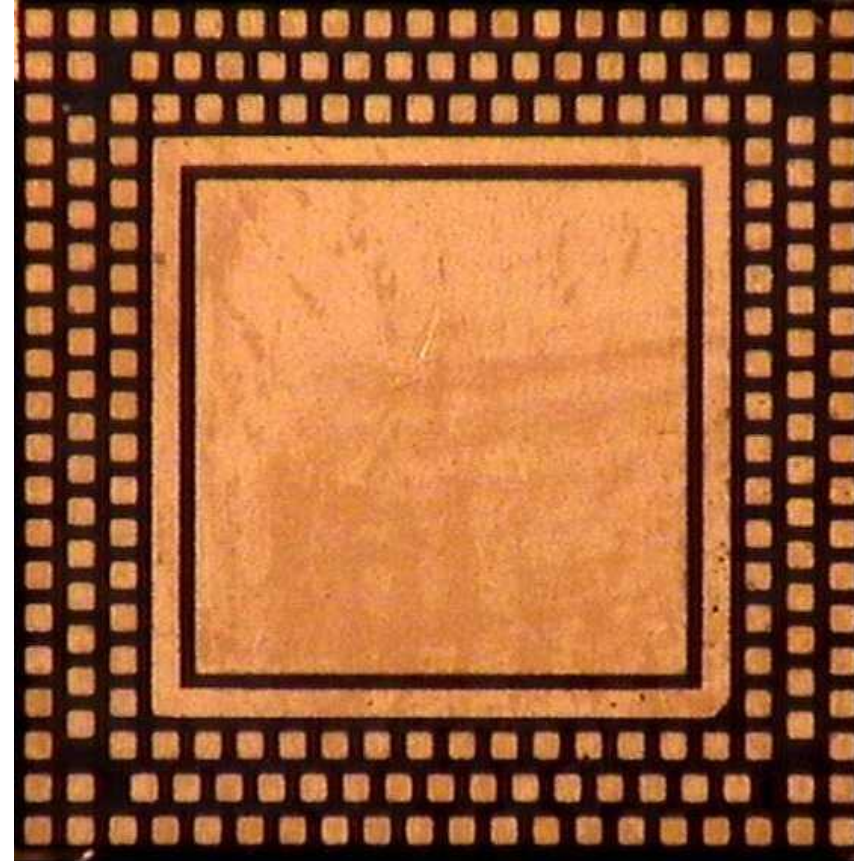
Franjo Josipovic  
Head of Application  
Martin GmbH

# Agenda

- **Outline shape of lead less components**
- **Rework procedure for lead less components**
- **LED Rework**
- **Connector**
- **Martin Rework Systems**

## 1. Rework Challenges:

- **MLP/QFN**  
Micro Lead frame package  
Quad flat package no lead
- **DFN**  
Dual flat no lead
- **LED**  
Light-Emitting-Diode
- **Fusion Quad**



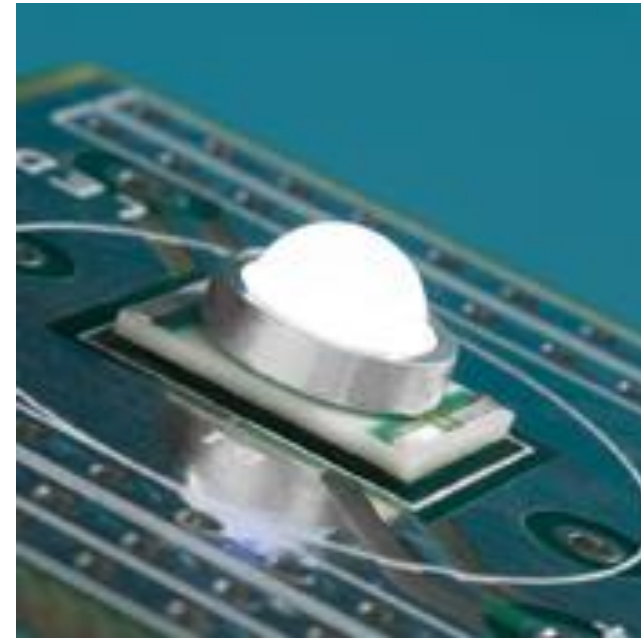
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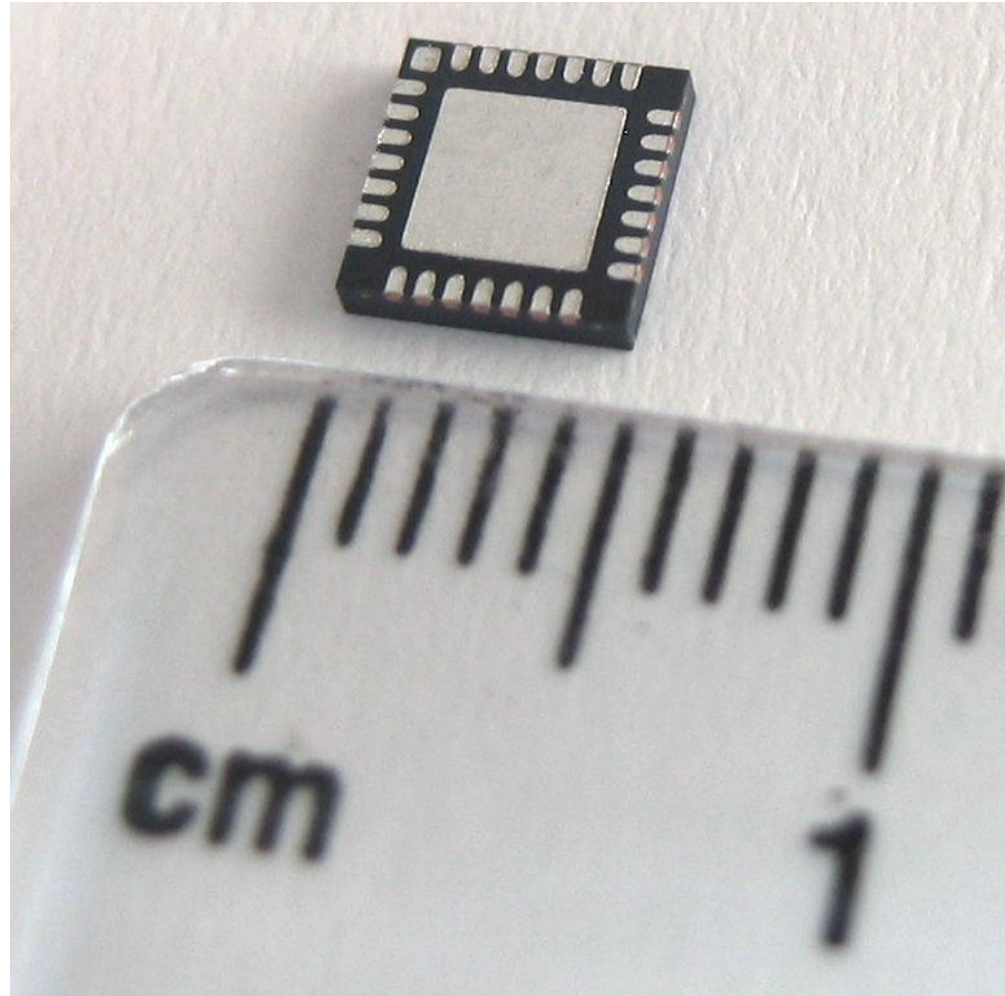
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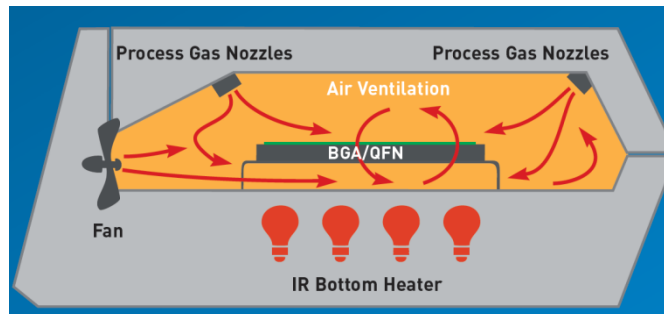
### Advantage of QFN components?

- Space-saving
- Robust
- Good heat dissipation
- Large numbers of contact pads
- Suitable for power electronics



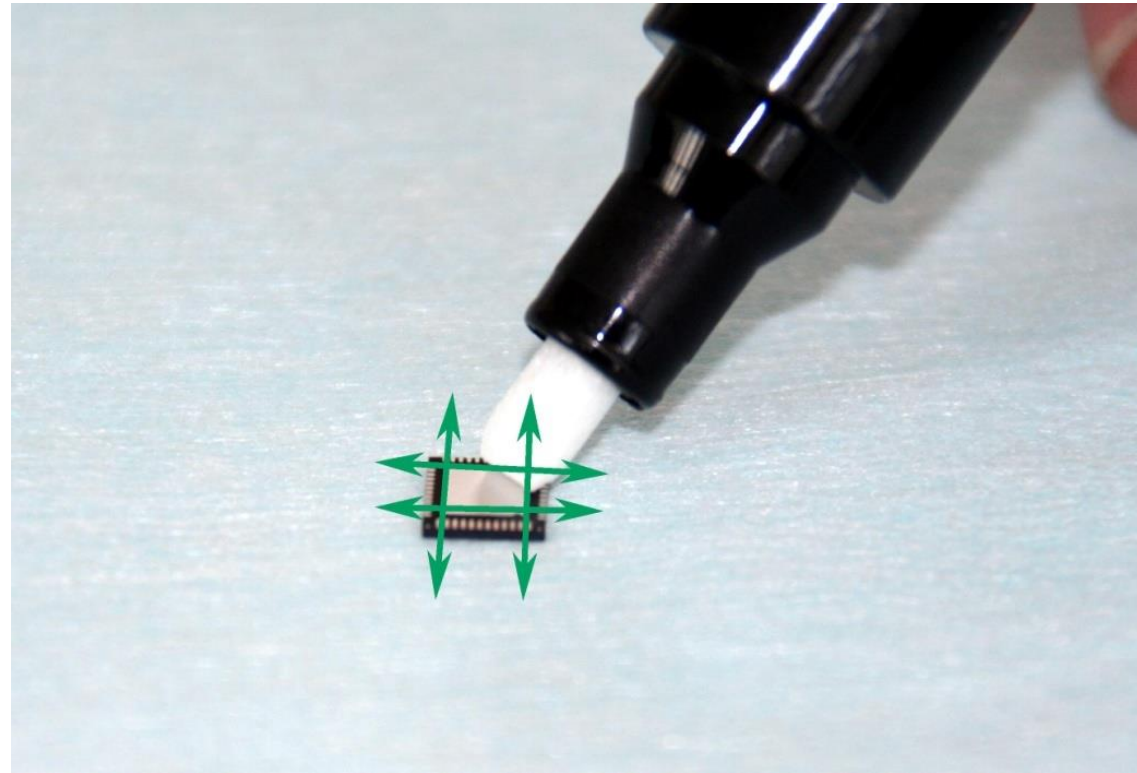
## MINIOVEN 05

- Standard masks
- Customized masks
- Nitrogen connection
- Reflow environment through convection
- Very low invest
- Masks and stencil from 1 x 1mm body size
- Multiprebumping and Reballing masks
- Solder paste / solder balls (lead and lead free)

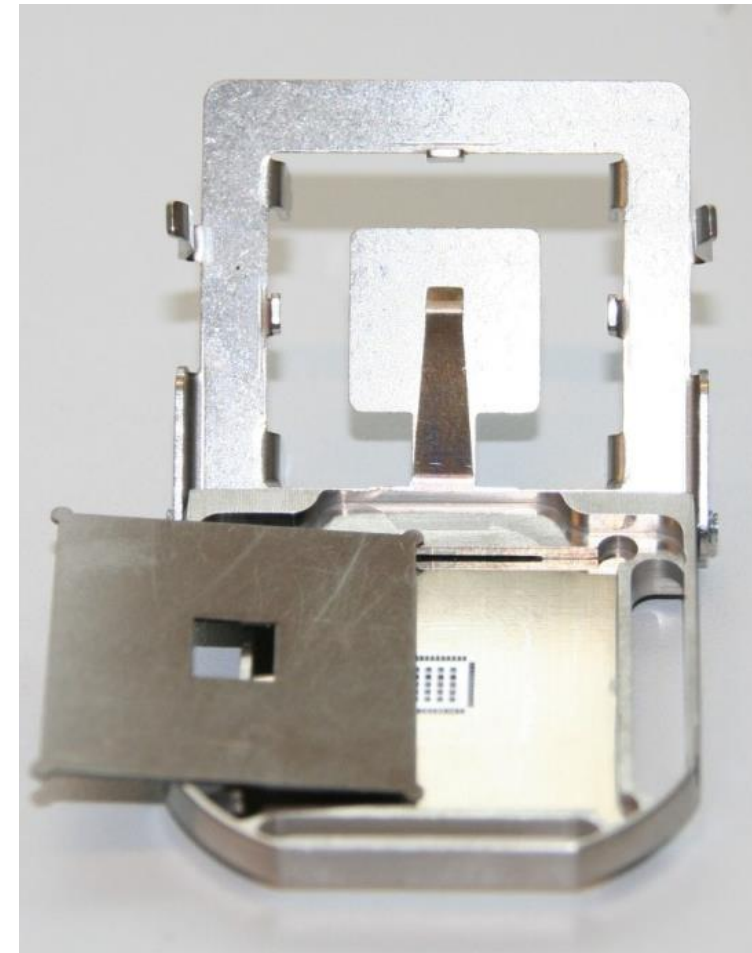




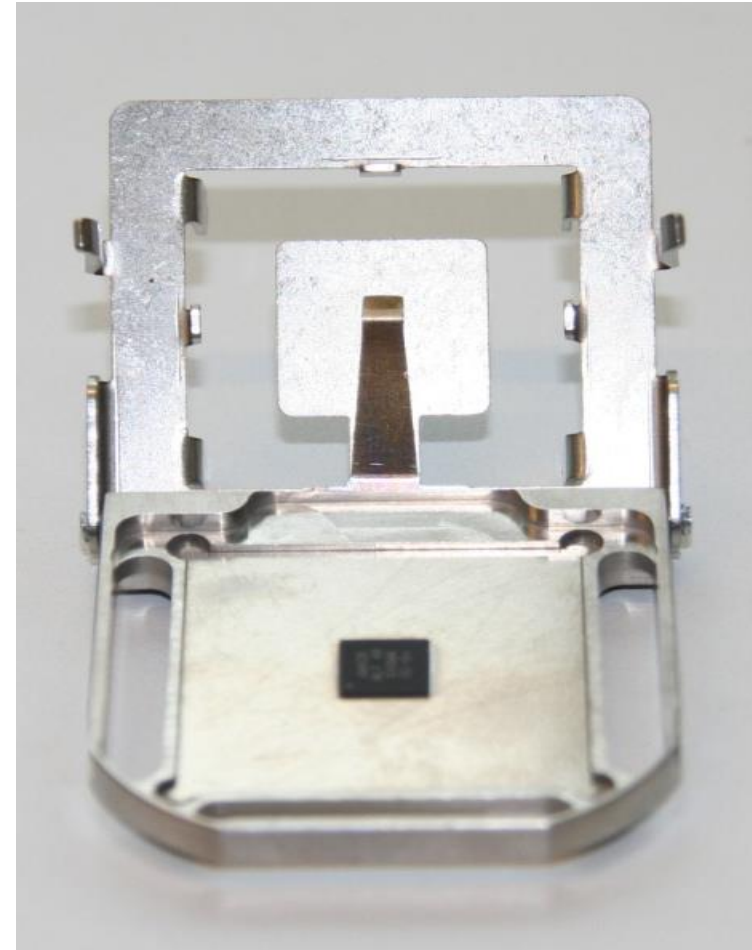
1. Apply Flux to clean contact pads and avoid oxidation.



2. Place the dedicated mask and belonging frame into the Prebumping fixture and place the component face down into the frame.



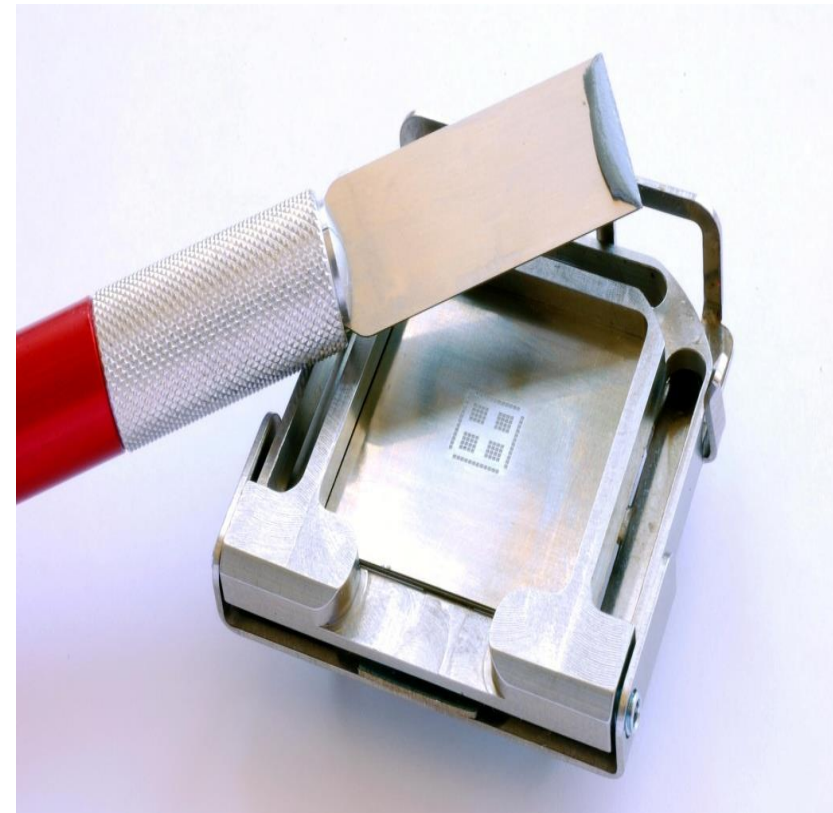
**3. Close fixture and turn around.**



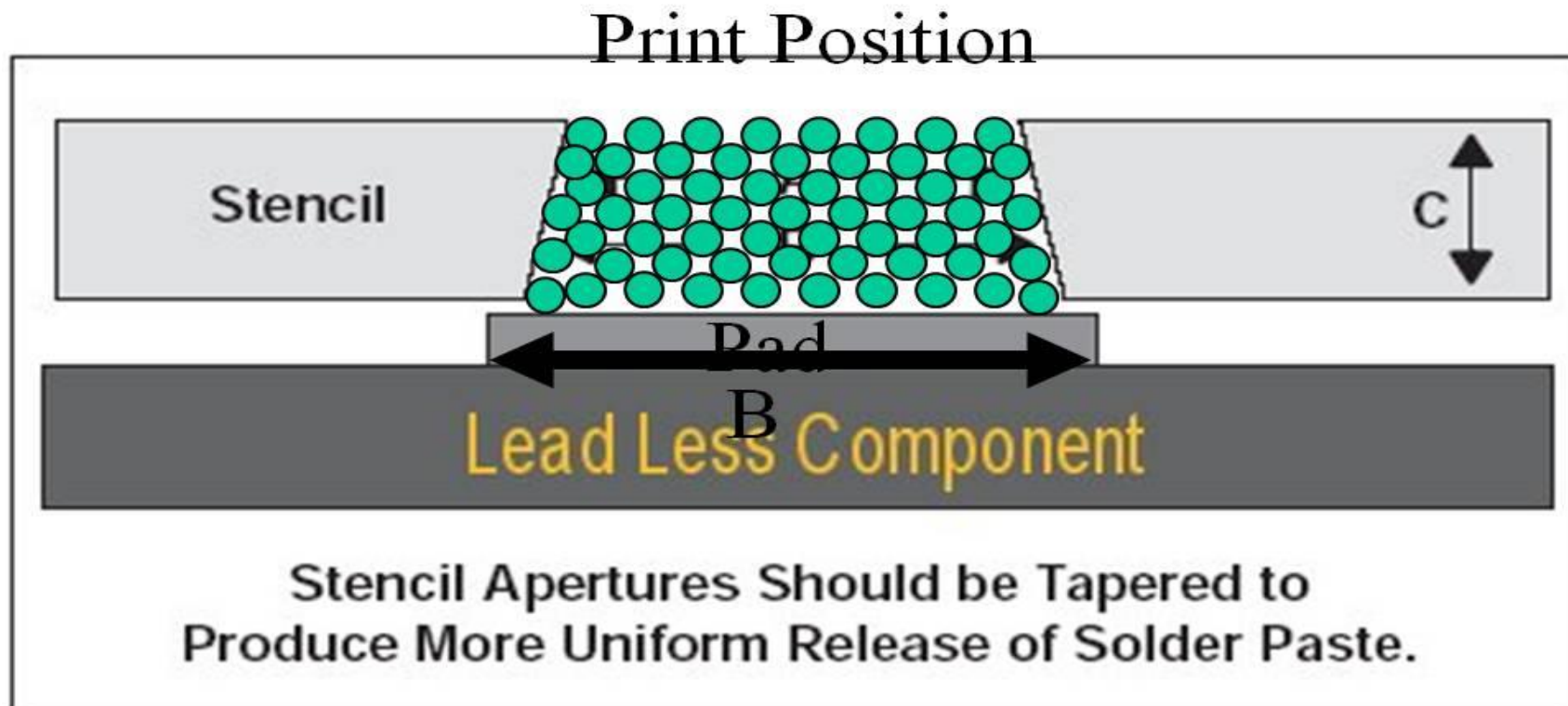
**4. Place the solder paste beside the apertures.**



**5. Print solder paste with squeegee and remove residual solder paste.**



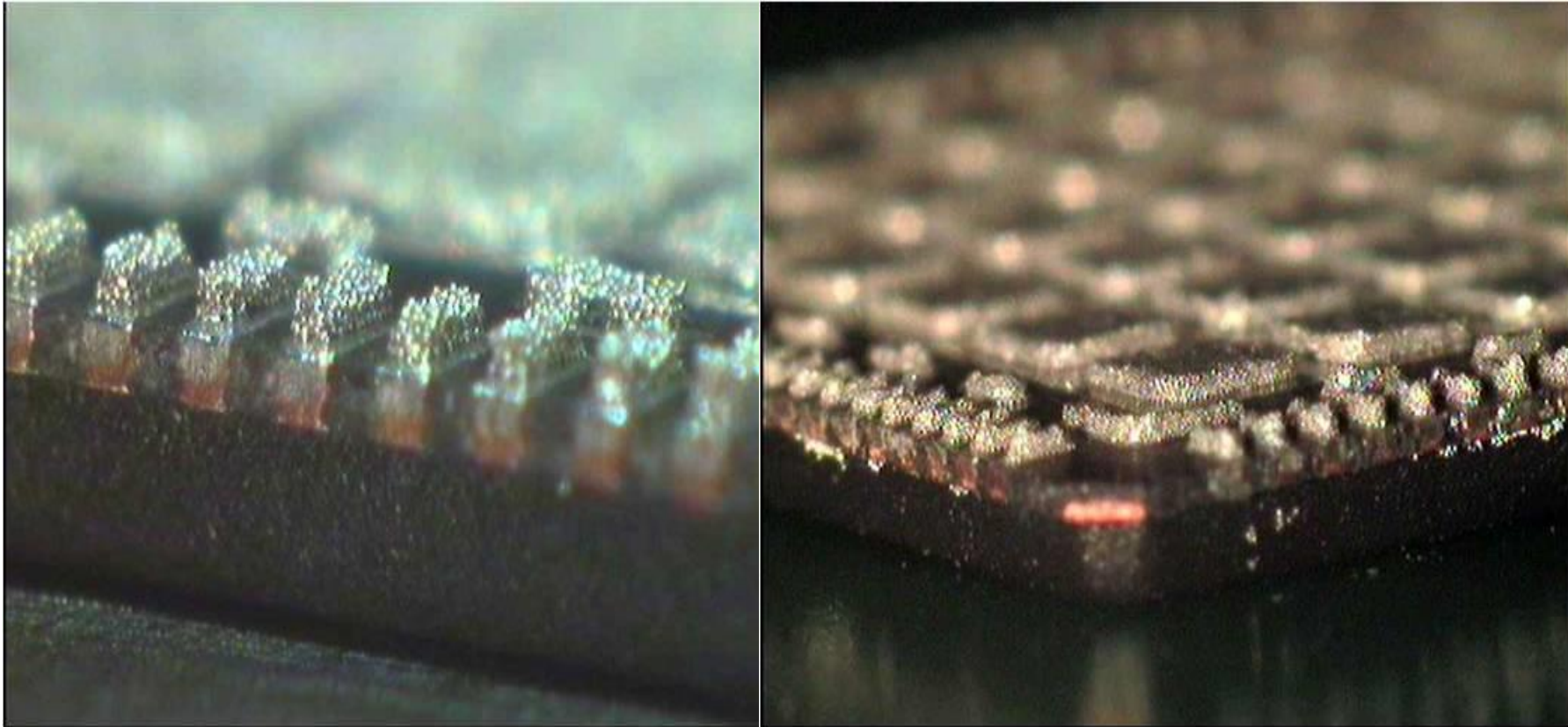
## Printing



$$C = 0.66 \times B$$

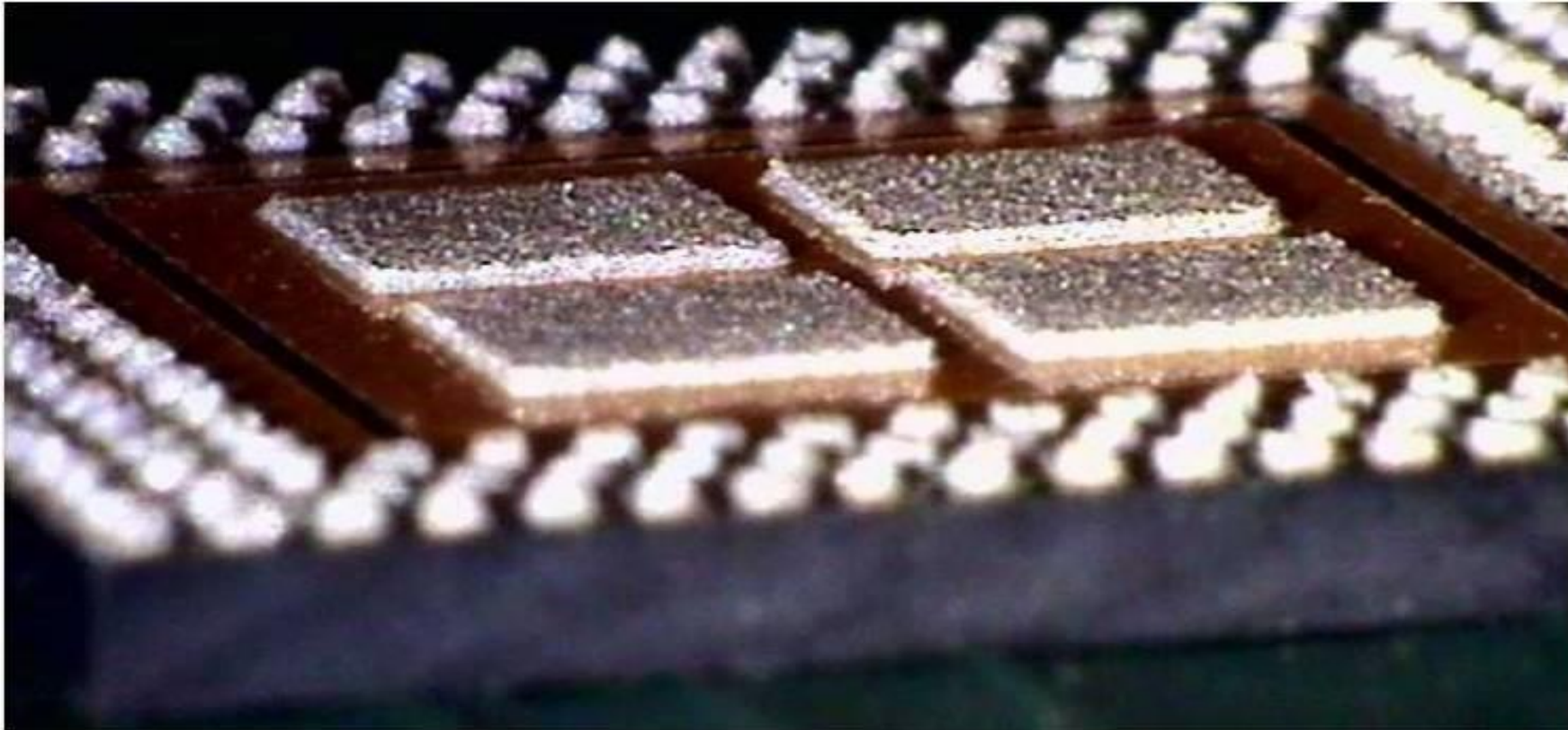


## Printing





## Printing



Too much solder paste.  
No air extraction canals



**QFN mounted with too much solder  
in center pad area**

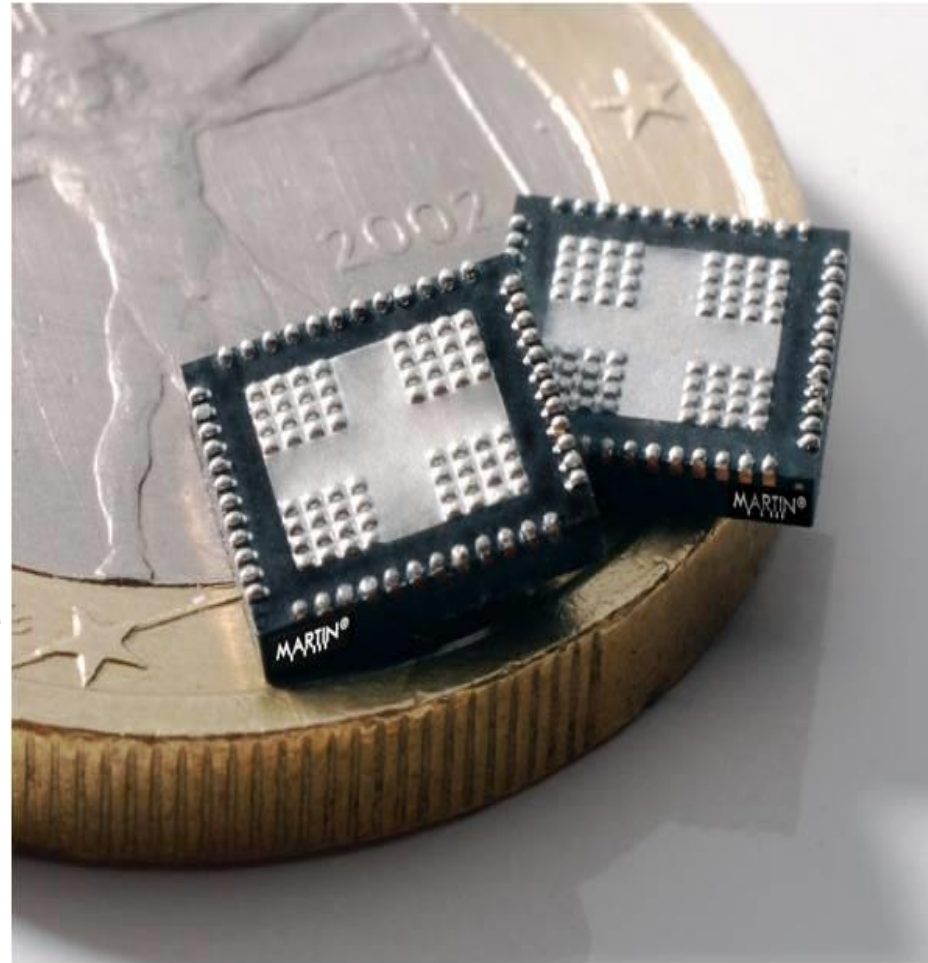
Perfect solder paste print



**QFN mounted with reduced solder  
paste in center pad area**

**Important Parameter for  
Solder paste printing.**

- **Precise distribution of Solder paste on Heat Sinks.**
- **Reduction of apertures according data sheet.**
- **Appropriate use of solder paste Type 4**



## EXPERT Rework Family



EXPERT 05.6 IXH



EXPERT 10.6 HV /HXV

## HOTBEAM Family

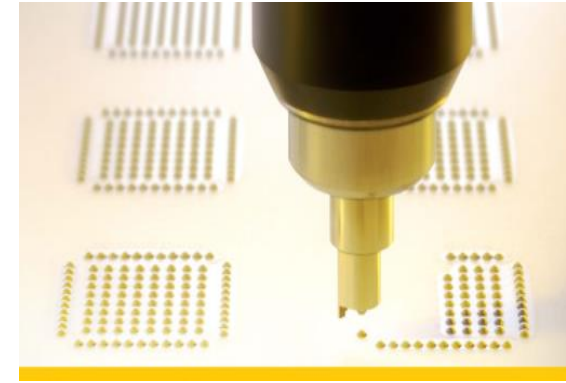
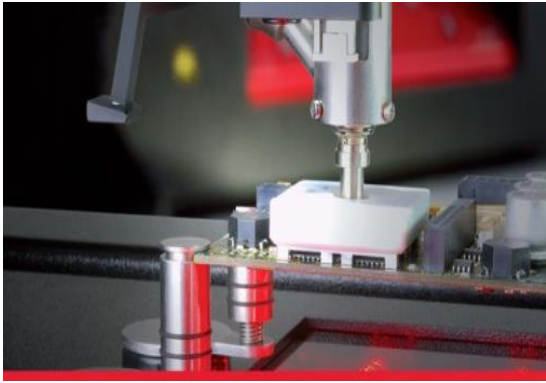


HOTBEAM 04



HOTBEAM 05





**Thank you for your attention**

**Franjo Josipovic**

**Martin GmbH**

**See you at booth 7A073**