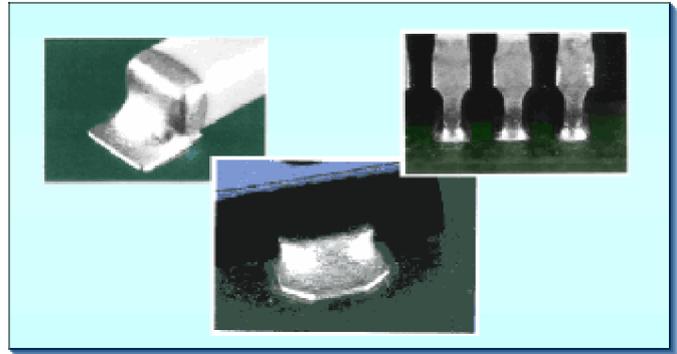


Considering the OMNI-Training-Workmanship-Standards, one will be able to manufacture soldering joints according to norms. Using these Standards it will be possible to avoid all the common SMT-production problems and defects.

## The ideal solder joint:

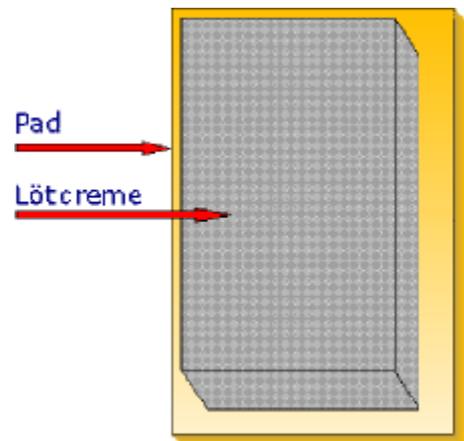
- Criteria acc. to MIL, IPC, J-Std
- good visible soldering joints
- well developed meniscus
- visually testable without restrictions
- no solderpaste overfill
- no solder paste underfill
- no deformations of joint
- practically no solder balls
- no solderballs under the component



## Die idealen Voraussetzungen:

### The ideal stencil:

- "Clearance" of stencil to pad: 10-15% , minimum 25 $\mu$  clearance padframe to solder paste print
- Thickness of stencil: for usual SMD applications: : 5-6 mil (0,125 - 0,150 mm / 125 - 150 $\mu$ )

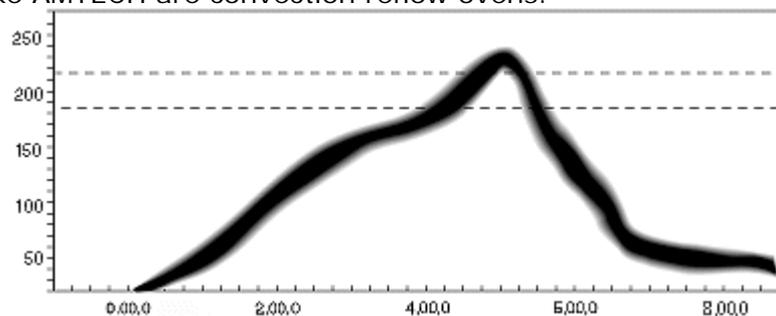


**Printing + Pick&Place:** Removing a placed but not soldered component should show all solderpaste on the pad only. No solderpaste shall be found at the solder resist. Solderpaste on the solder resist or at the bottom side of the component outside the solder pads will result in different types of solder balls.

### Reflowprozess:

- Take special care that the advised reflow profiles are adjusted and in operation. Modern solder pastes like AMTECH are VOC-free and need just a linear temperature increase without holding periods to vaporize solvents. Holding periods will result only into a damage of the chemistry mechanism and may result in solder balls and other effects. The ideal solution for soldering modern solder pastes like AMTECH are convection reflow ovens.

To adopt an "old" Infrared-oven to achieve modern soldering profiles is as simple as efficient. Putting one preheater right in front of the reflow zone and zero-ing the one at the entrance often will result in a temperature profile as shown at the right.



the perfect reflow profile

### Advantages:

- reduced solderpaste consumption, reduced energy consumption, reduced soldering defects, reduced rework, reduced temperature stress for components resulting in totally lower cost, higher efficiency and higher product quality.