FEINMETALL
Contact technologies for electronics

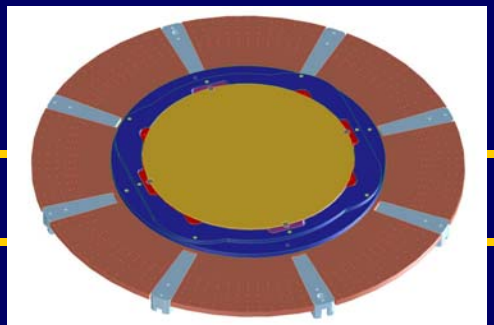
Large Area Probing meets Small Pitch

The road to XXL-area / small pitch memory testing

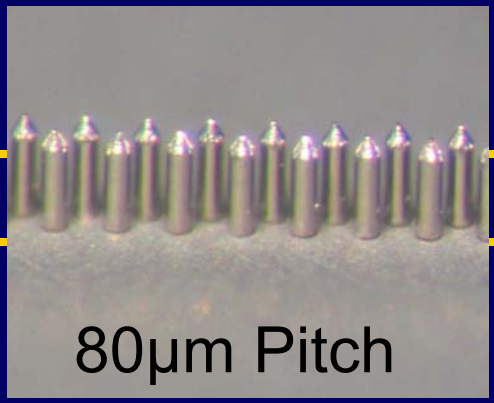
by
Gunther Boehm

Feinmetall GmbH
Herrenberg, Germany
www.feinmetall.de

Two ViProbe® Technologies will Merge

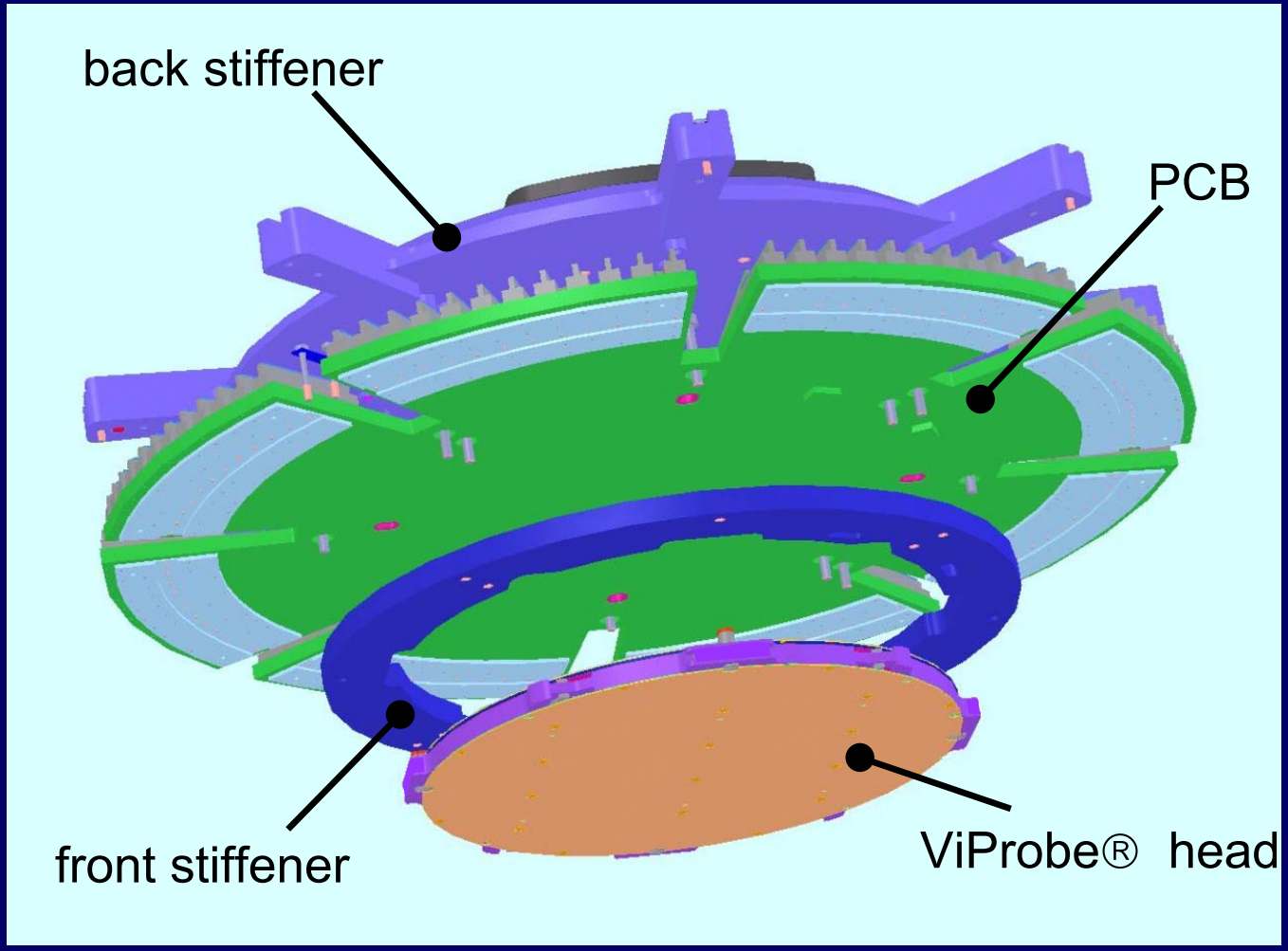


200mm/1TD

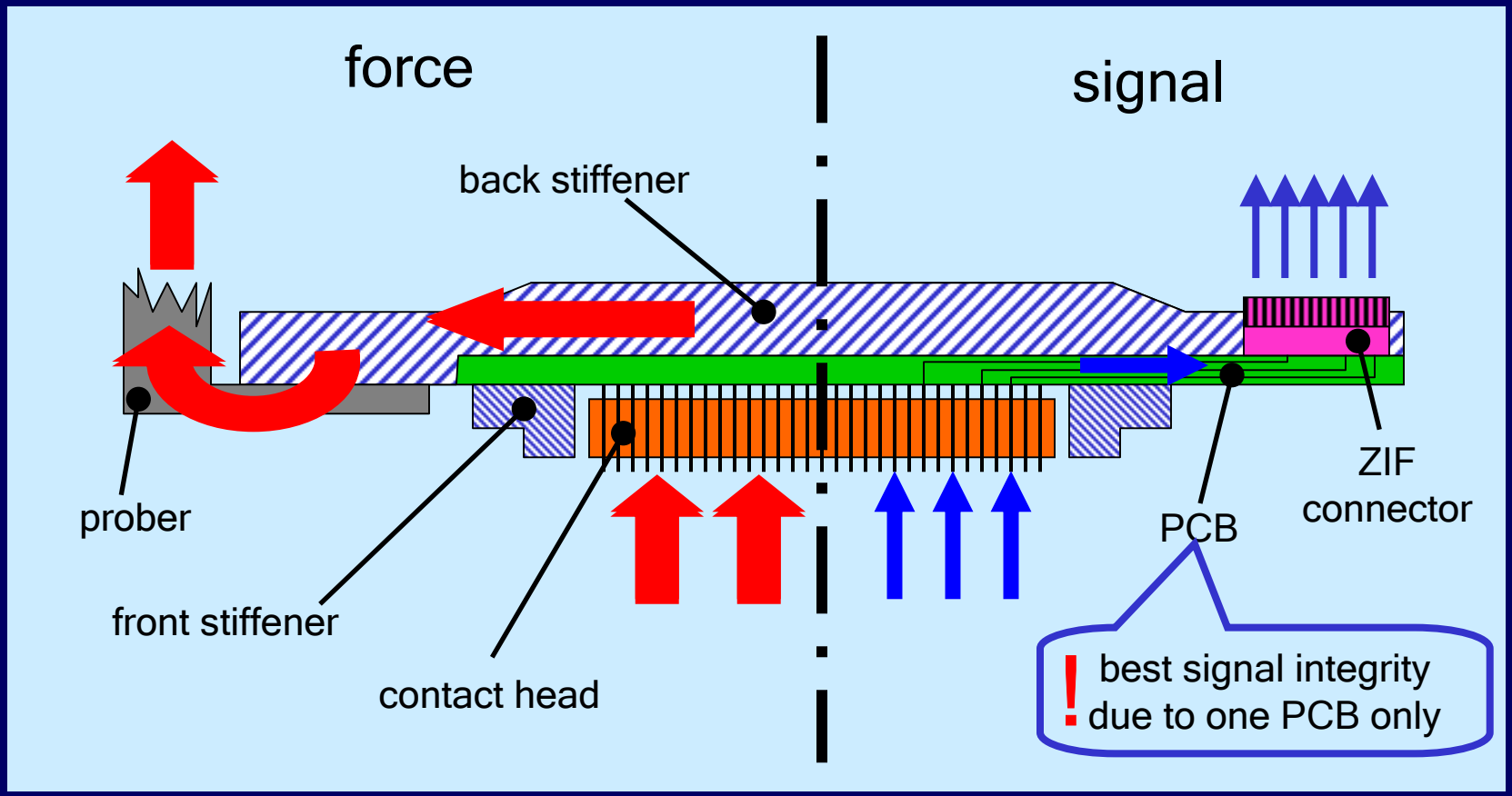


80µm Pitch

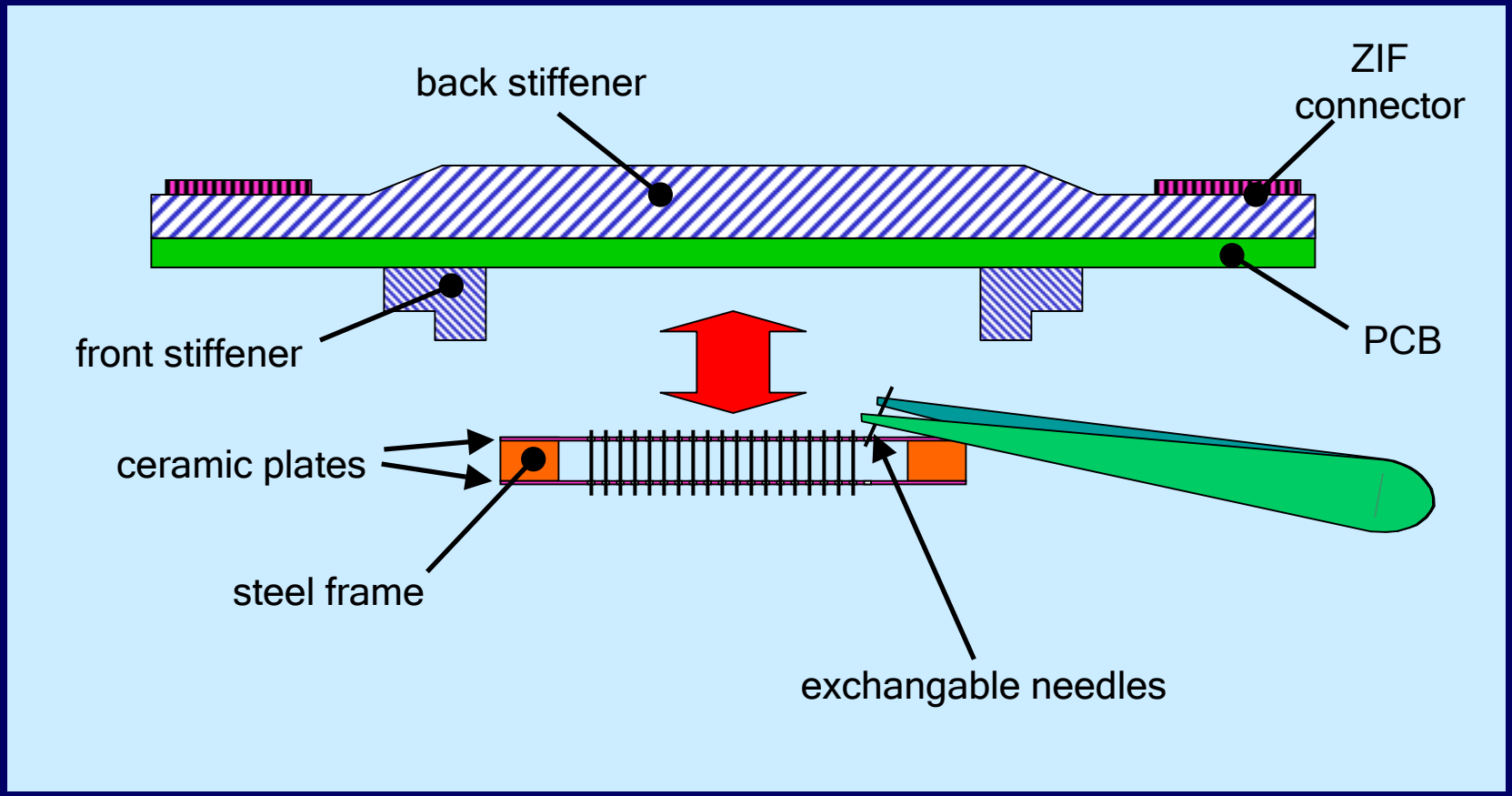
XXL: mechanical Structure of the Direct Attach ViProbe ®



ViProbe ® XXL: separation of mechanical and electrical functions

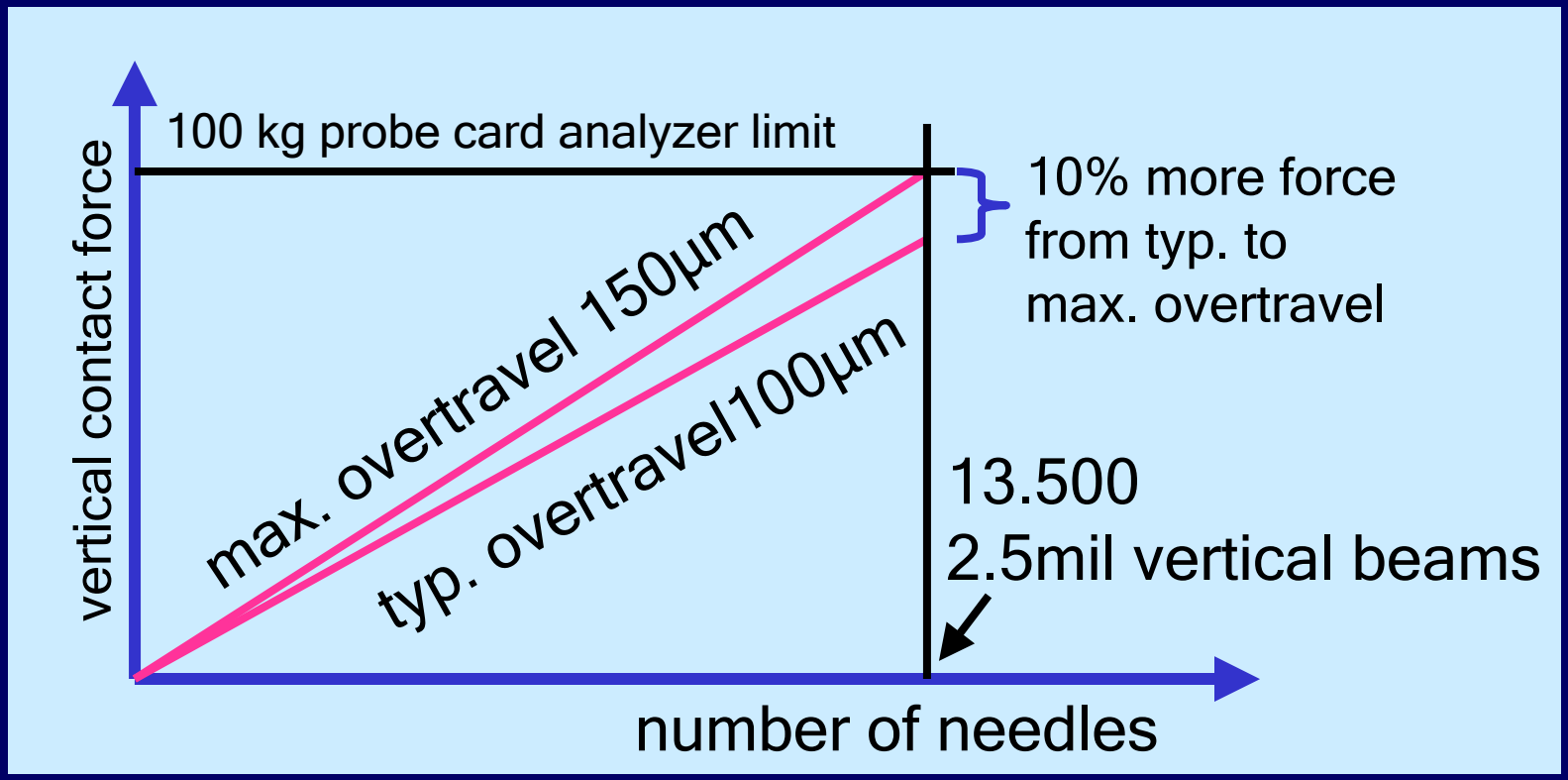


ViProbe ® XXL : Replaceable Head for Easy Maintenance



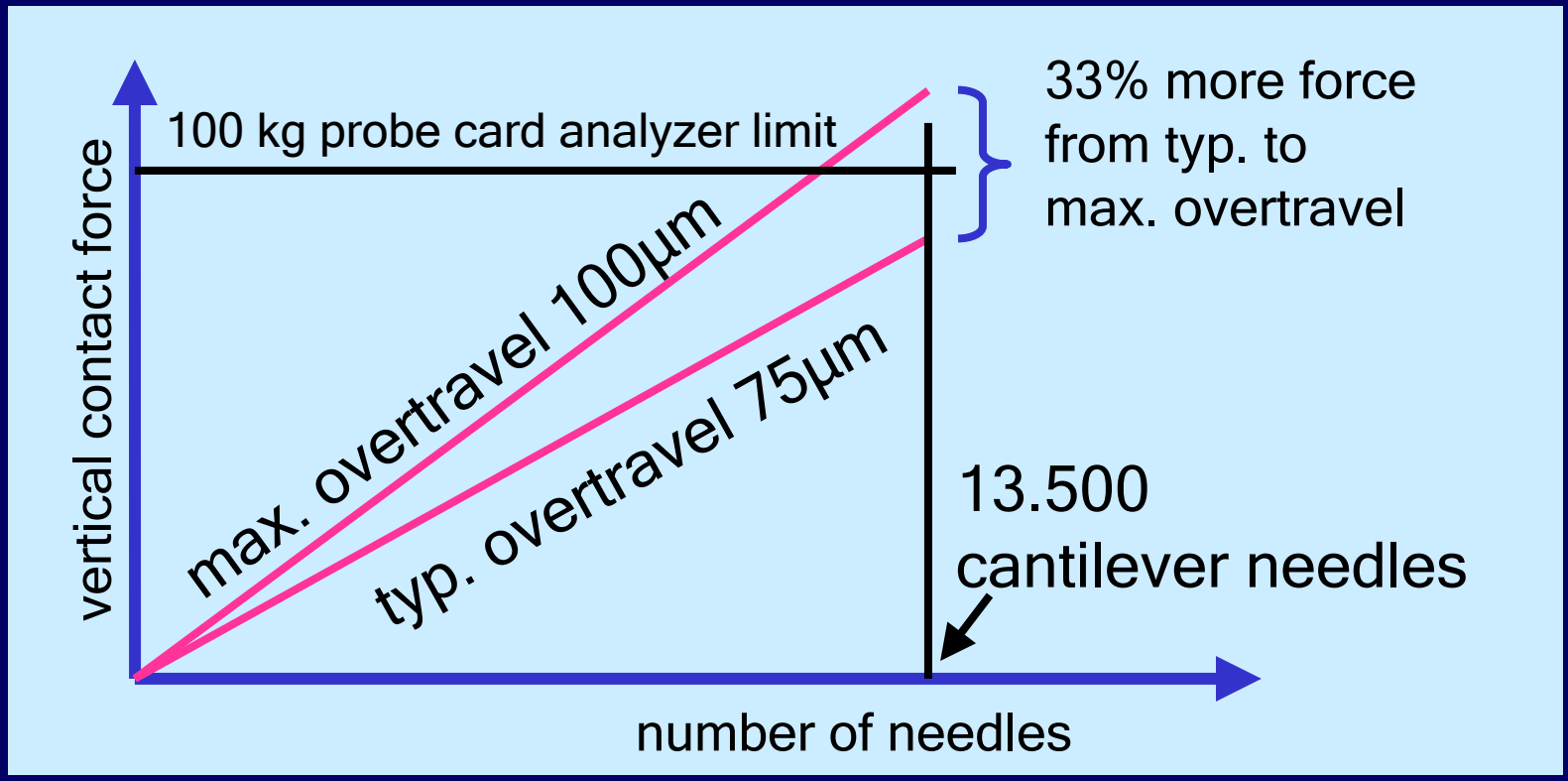
ViProbe ® XXL : Vertical Force Limitations

The vertical buckling beam shows a small force rate at working conditions



ViProbe ® XXL : Vertical Force Limitations

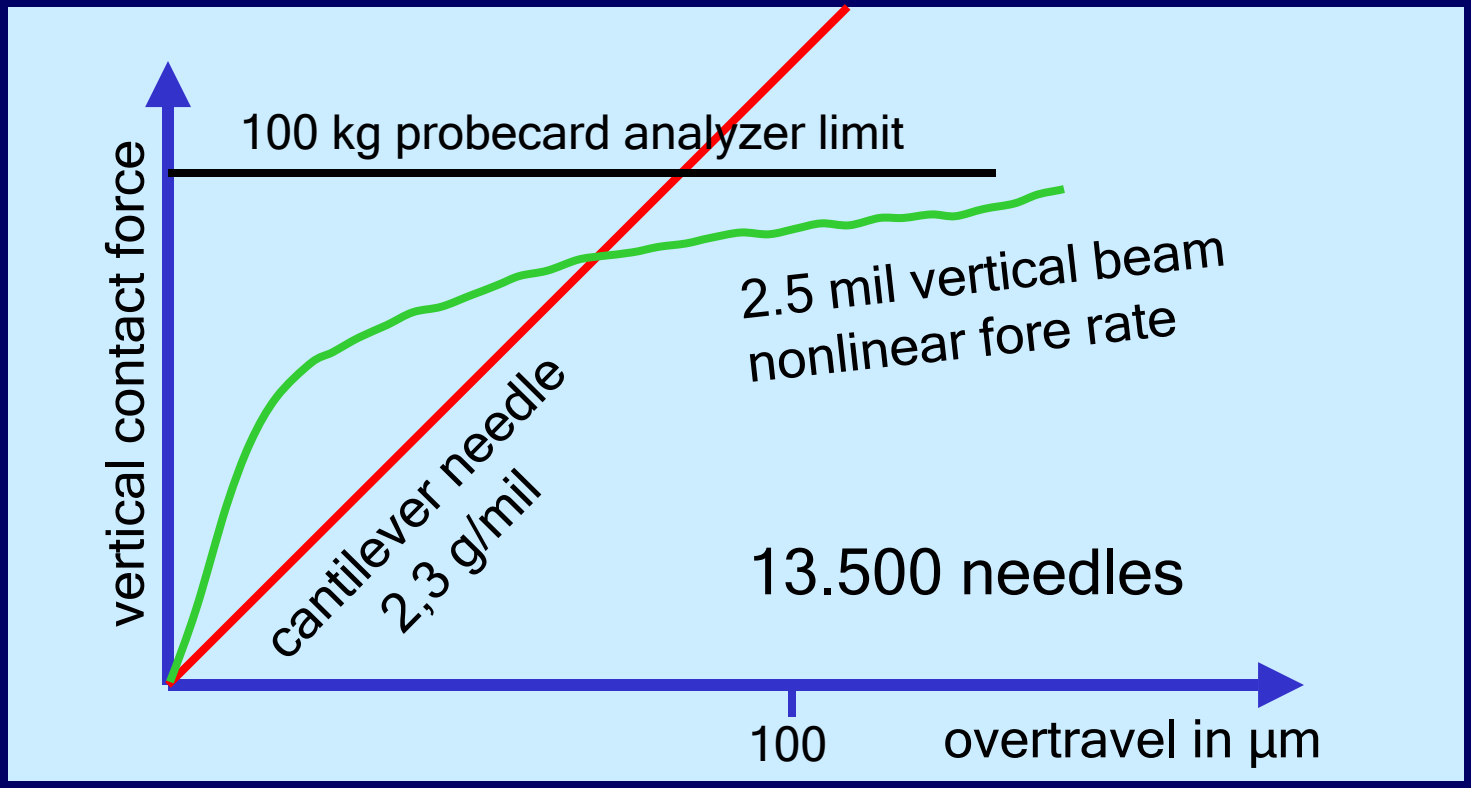
The cantilever needle shows a high force rate



ViProbe ® XXL : Vertical Force Limitations

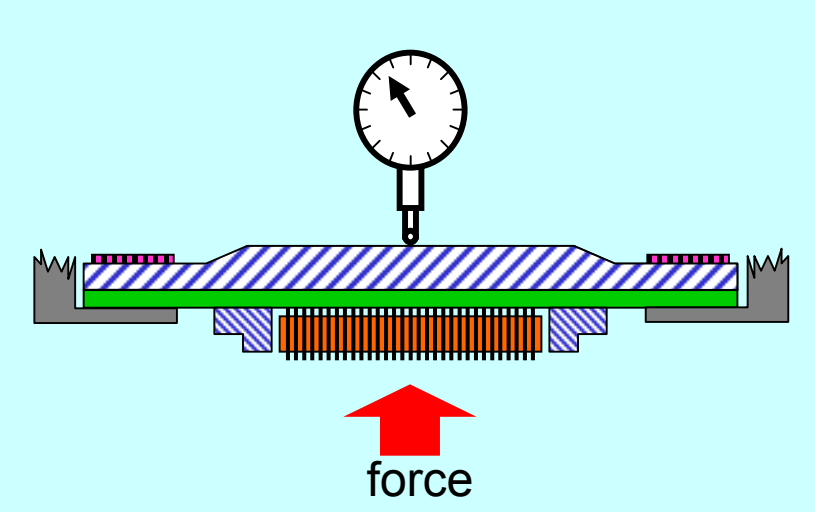
The buckling beam force to overtravel ratio is not linear

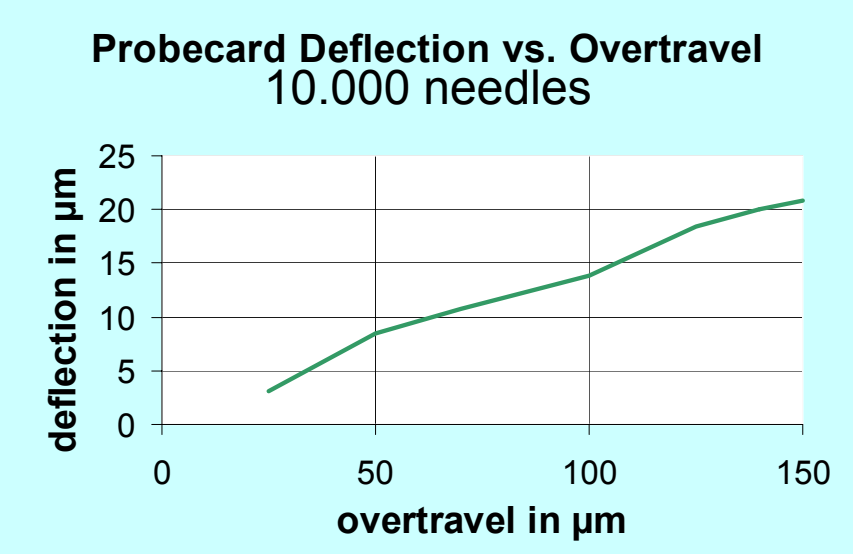
Probe card analyzer force limit is not a problem until appr. 13.500 beams



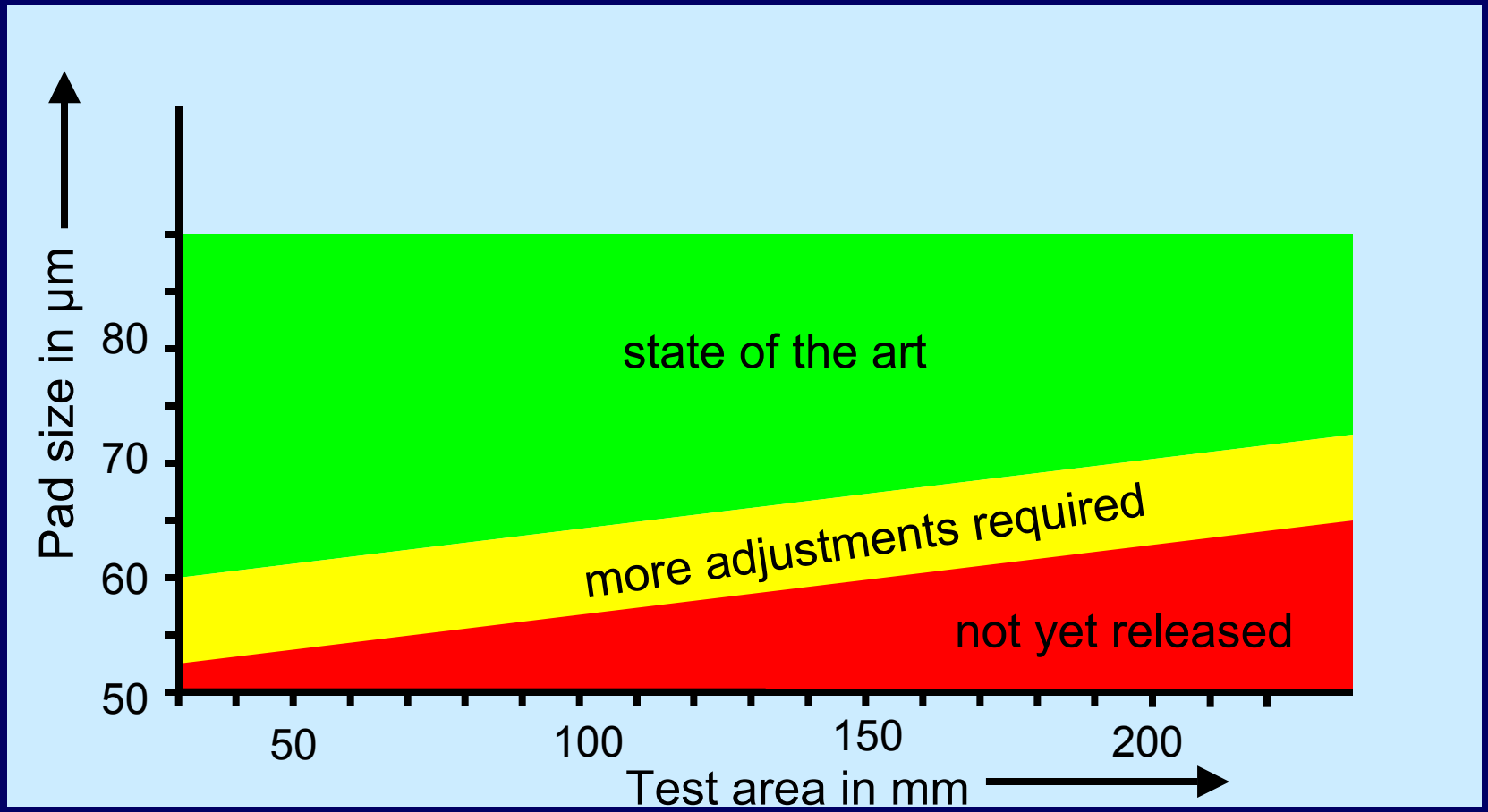
ViProbe ® XXL : Probe card deflection

The stiffness of the probe card directly influences the planarity





ViProbe ® XXL : Pad size Limitations vs. test area dimension

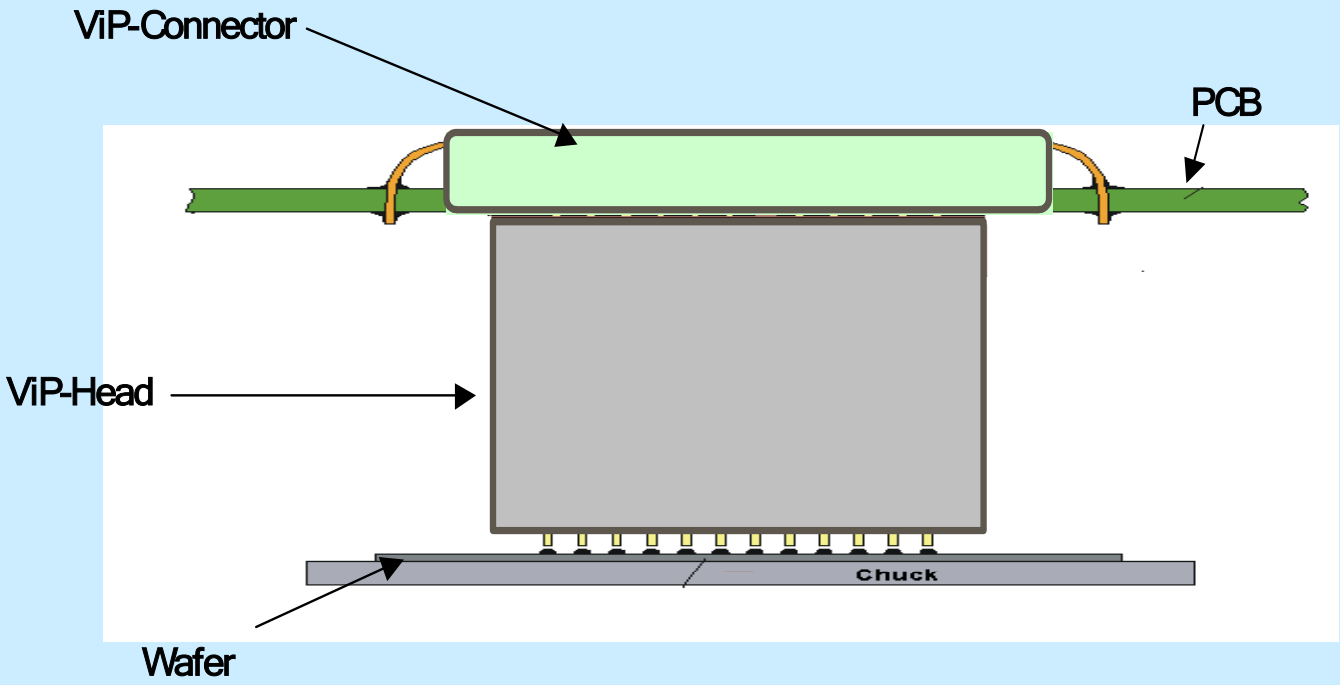


ViProbe ® XXL : Current growth limits

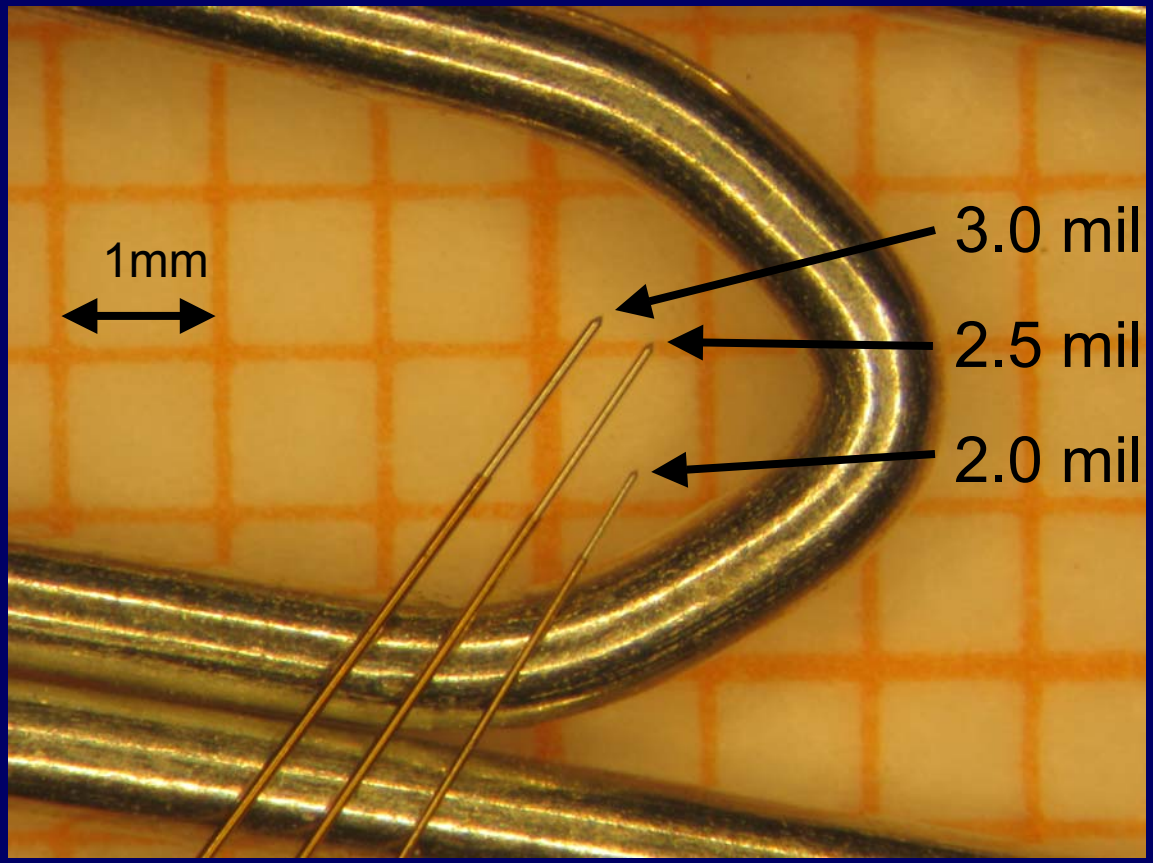
Item	**Limit**
I/O-count	tester I/O capability
needle count	probe card analyzer force
test area	chip pad size

ViProbe ® 80µm: Mechanics

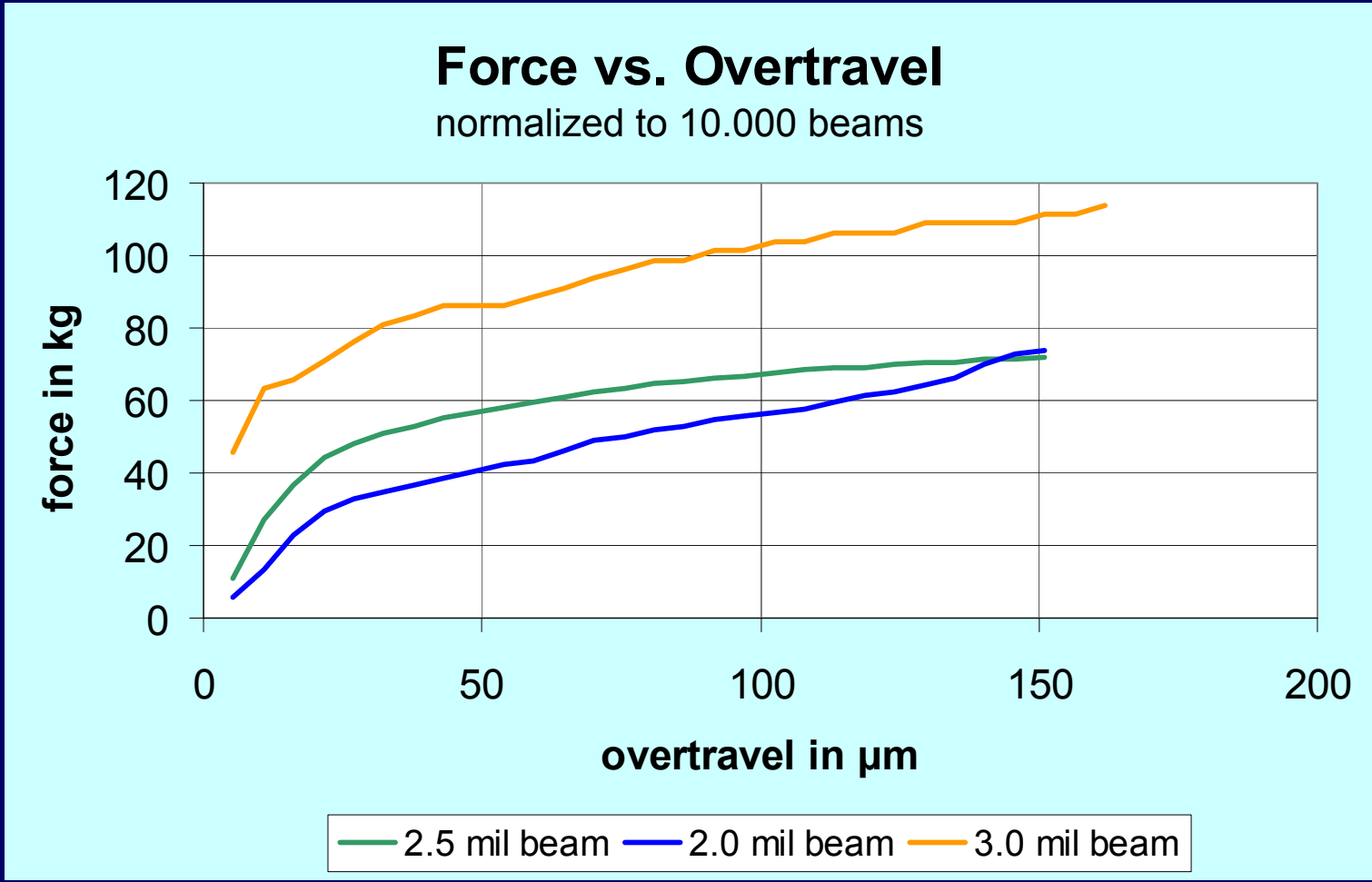
Wired Connector version



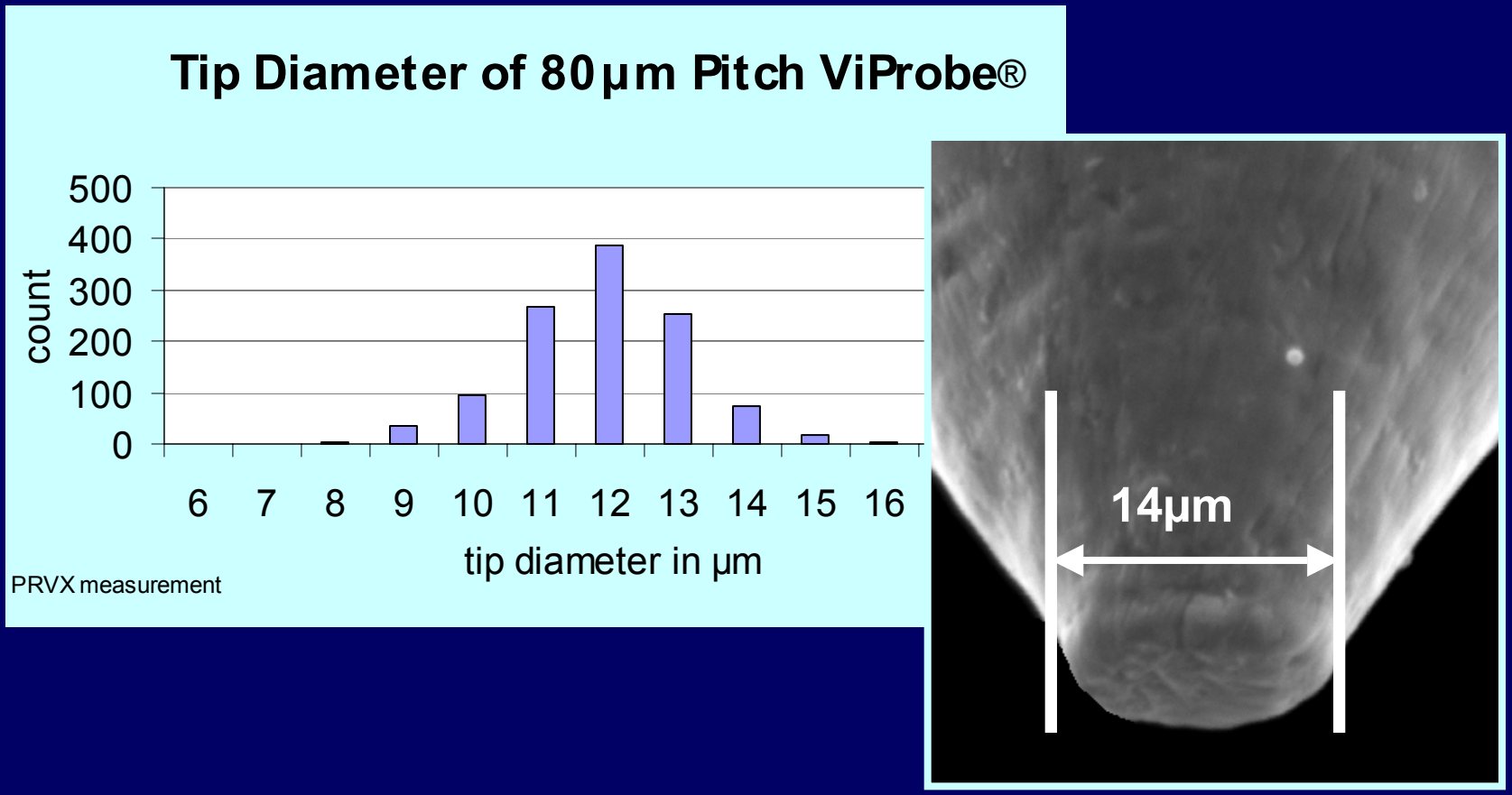
ViProbe ® 80µm: Needles (“Beams”)



ViProbe ® 80µm: Force vs. Overtravel Comparison to larger beams

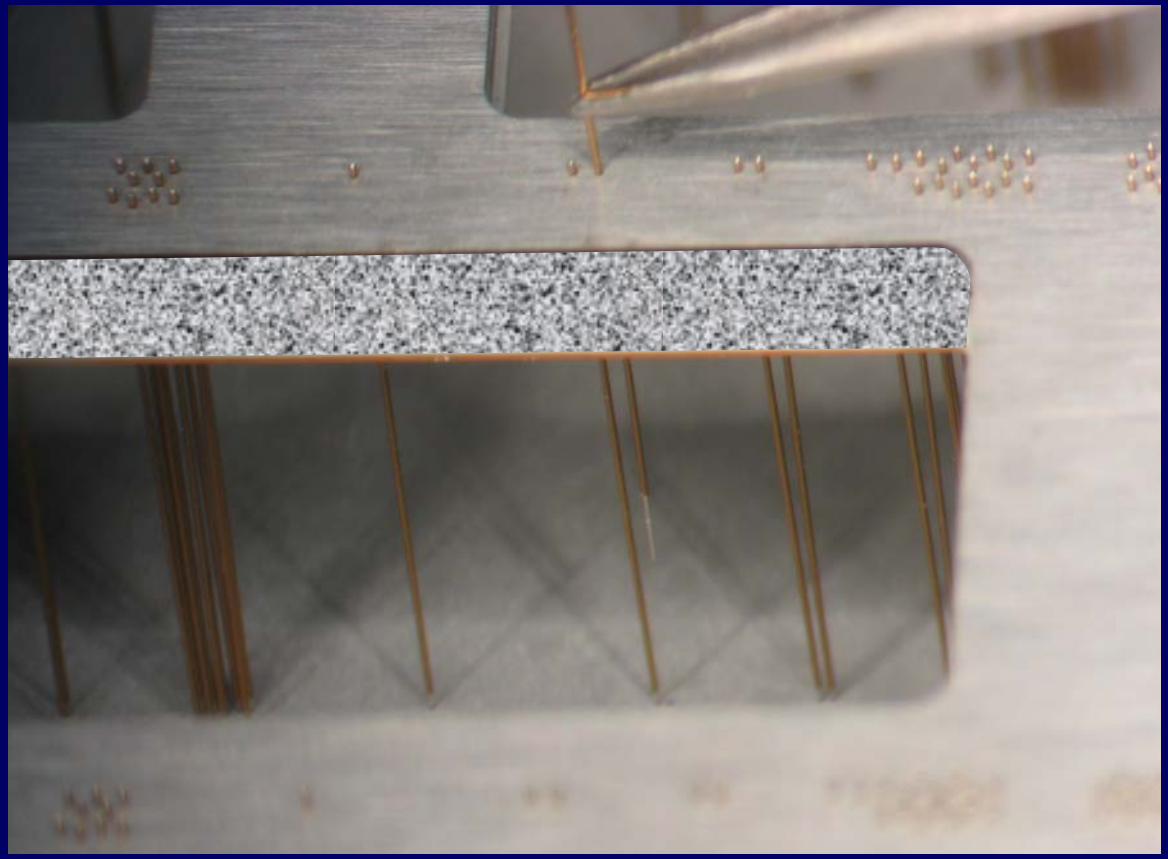


ViProbe ® 80µm: Tip Diameter

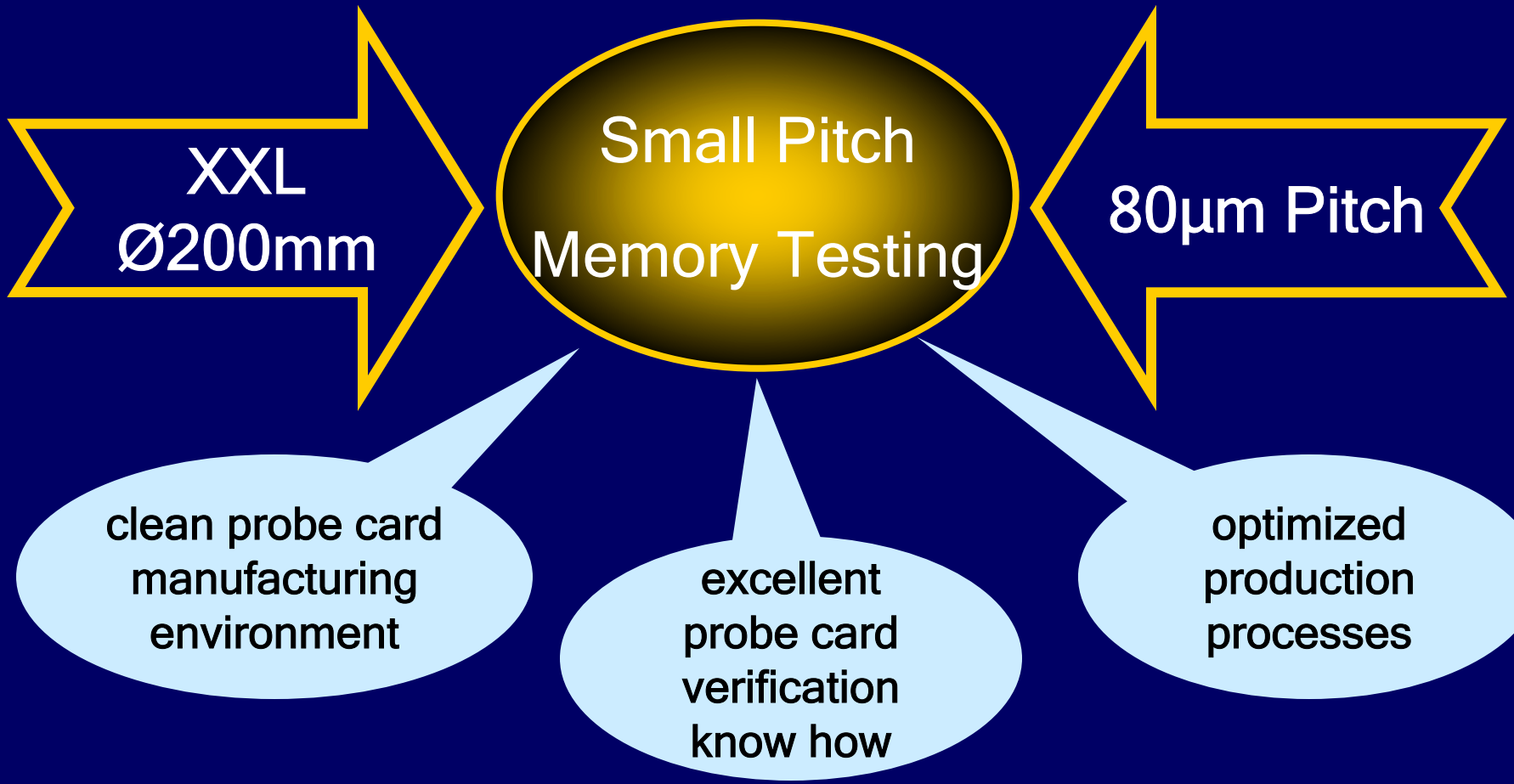


ViProbe ® 80µm: Maintenance

easy maintenance due to free access to the needles

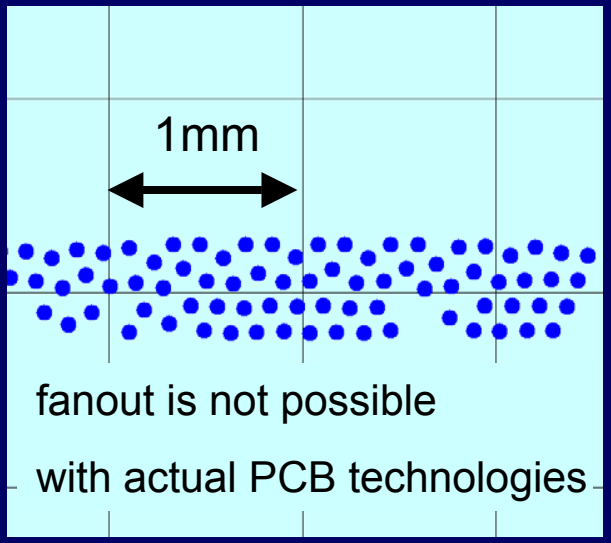


The Merge: 80µm Pitch on Ø200mm XXL

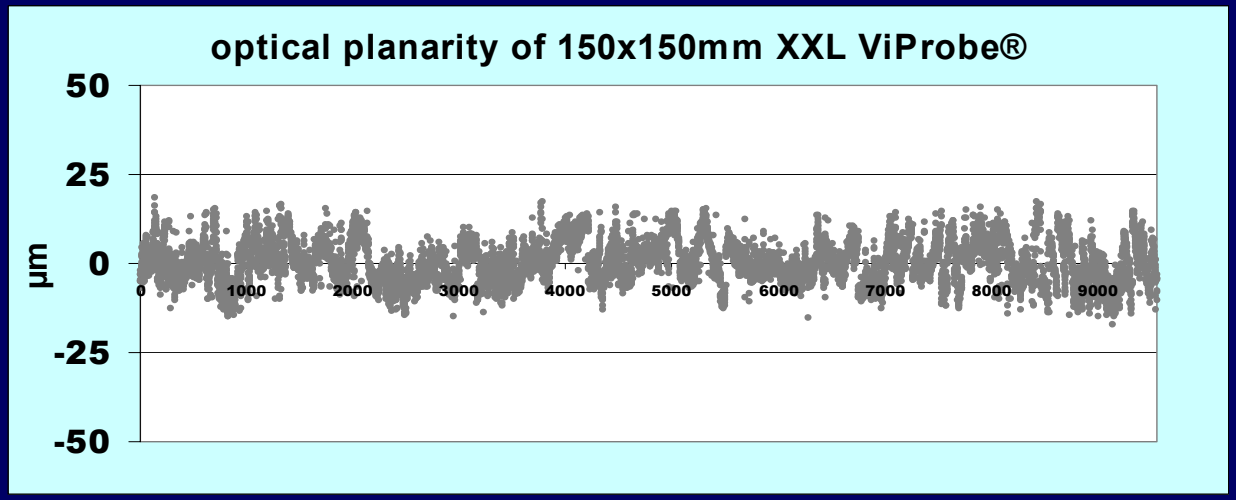


Challenges to Solve

- Routing density of
  direct attach connector



- planarity on large area



Rollout of first 80µm/200mm prototypes by end 2005

XXL: a Look Ahead

What are todays limits to test 300mm in one touchdown?

- Tester I/O capability
- probe card analyzer I/O capability and vertical force
- alignment accuracy
- prober stability

It’s feasable to build such a probe card, testing it and finding a suitable, stable prober are the real challenges.

Thank You.

Feinmetall GmbH
Herrenberg, Germany
www.feinmetall.de