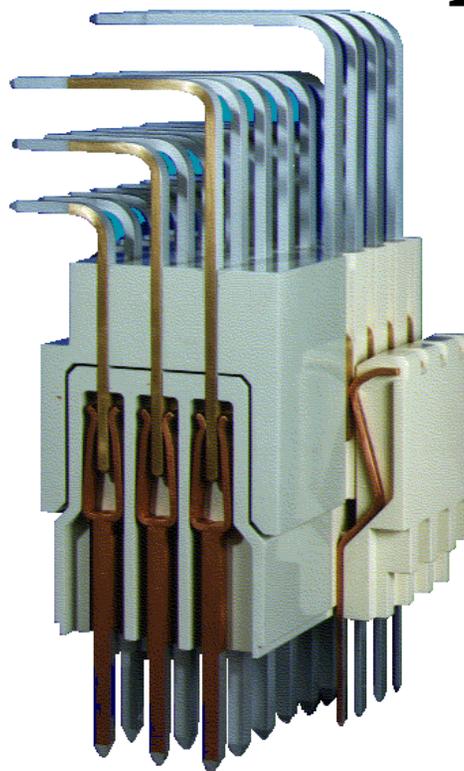


har-bus 64

Connector Update



by HARTING
March 1998

Printed Board Connector
Division



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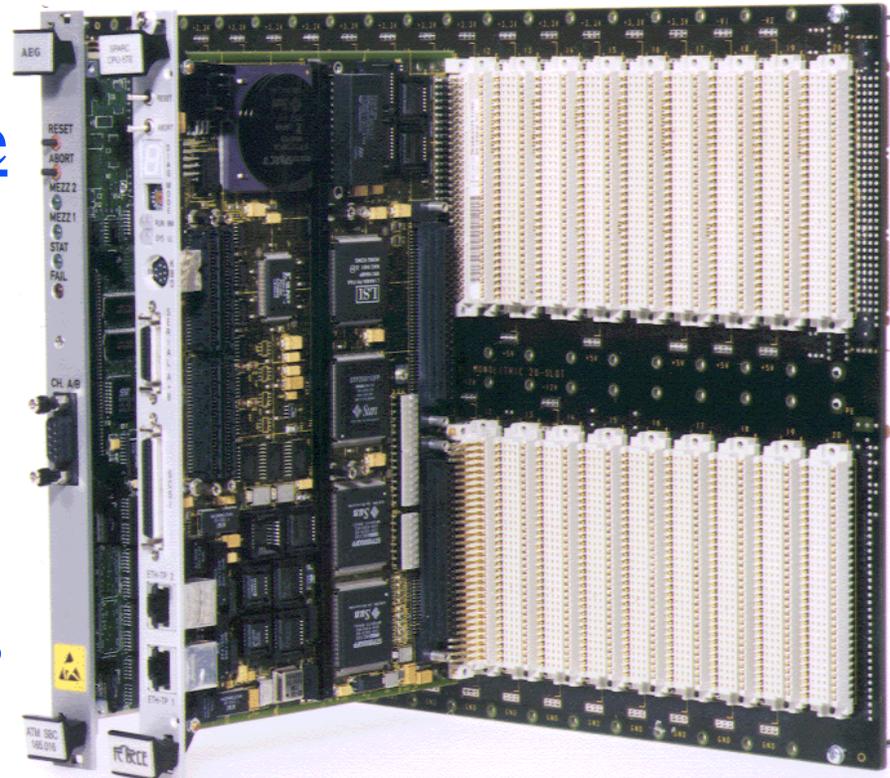
The contact density

former 19" technique

- 2 x 96 pins
- max. 180 N

latest systems

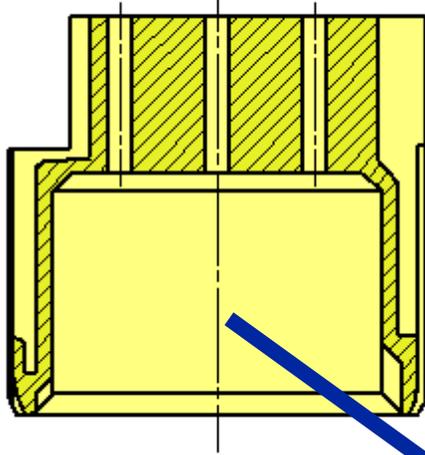
- 2 x 160 pins + 95 pins
- max. ~400 N



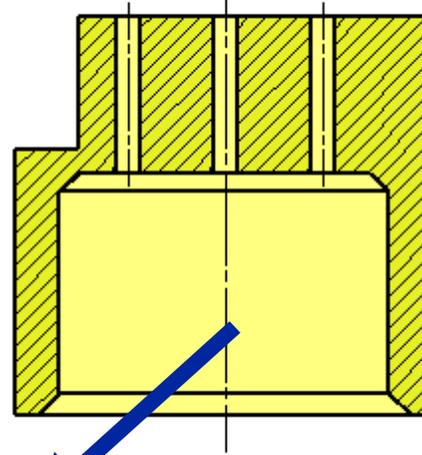
The connector design



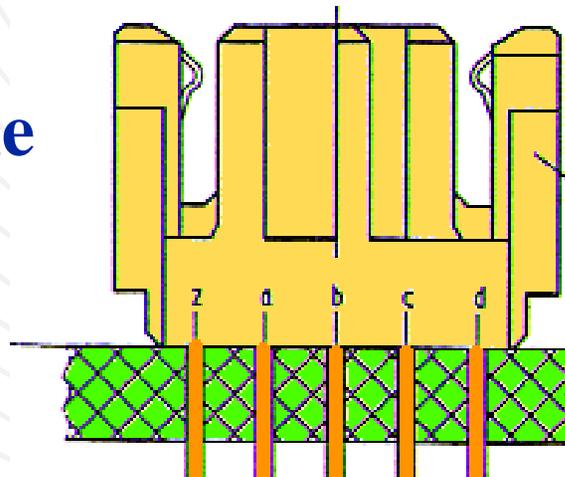
**new style:
five row friendly**



**old style:
no chamfered shroud**



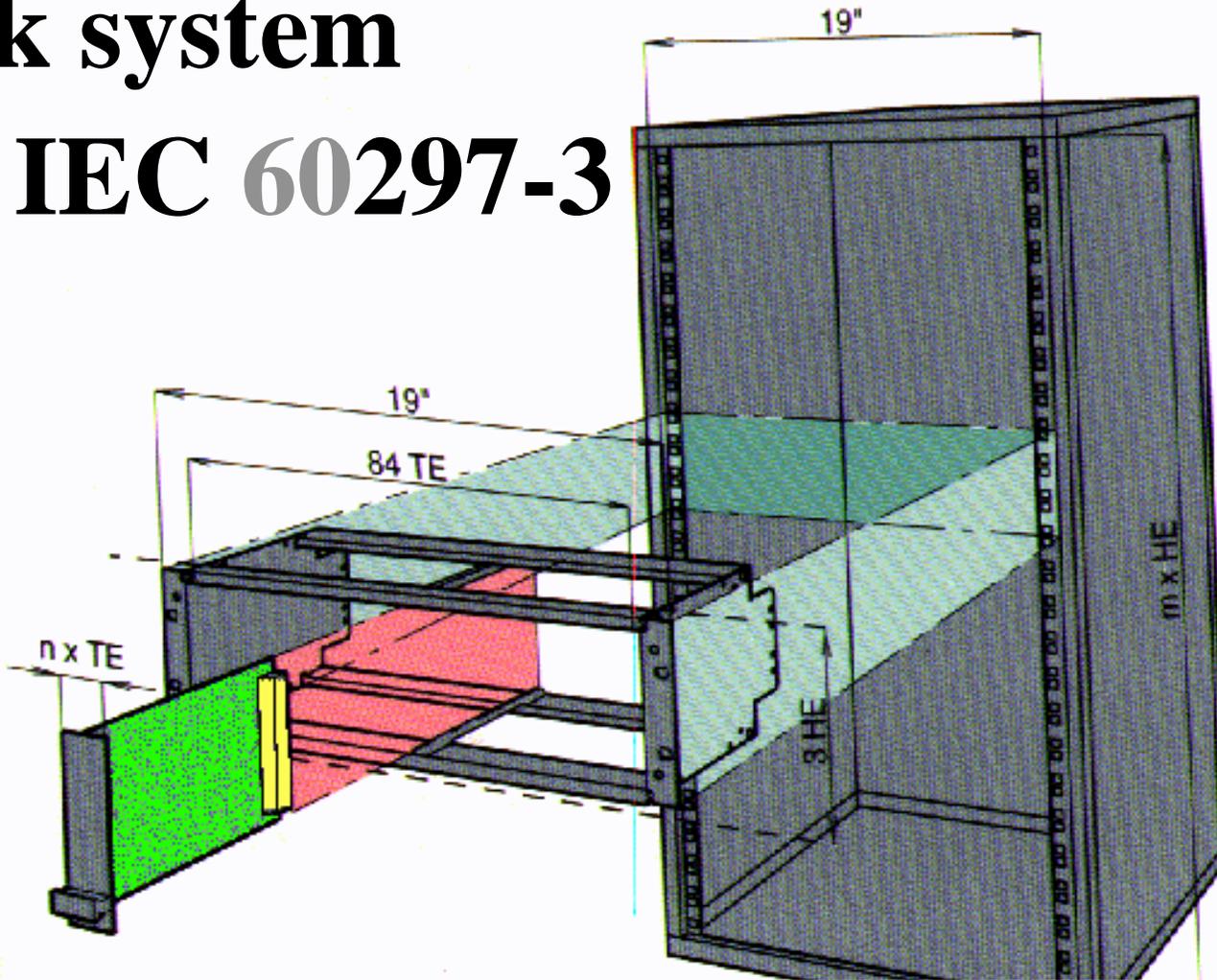
***har-bus* female
connector**



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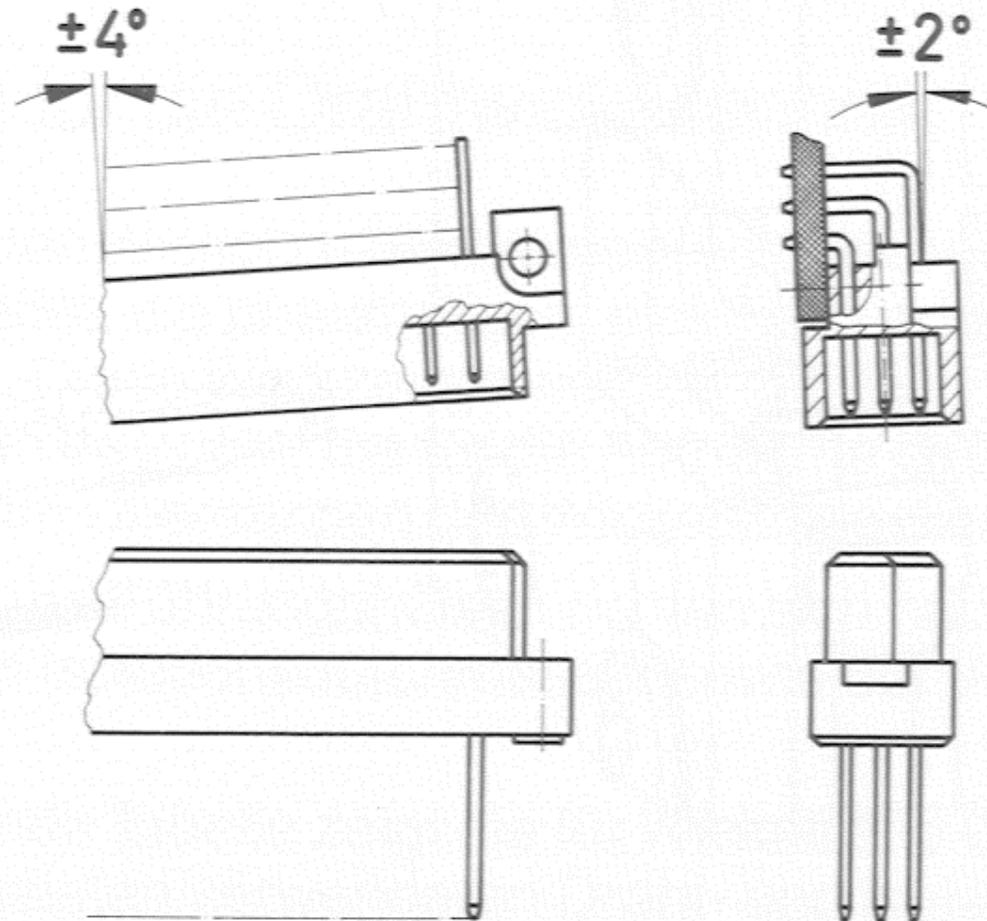
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Rack system acc. IEC 60297-3



System creates a complex chain
of tolerances depending on the
stiffness of the system!

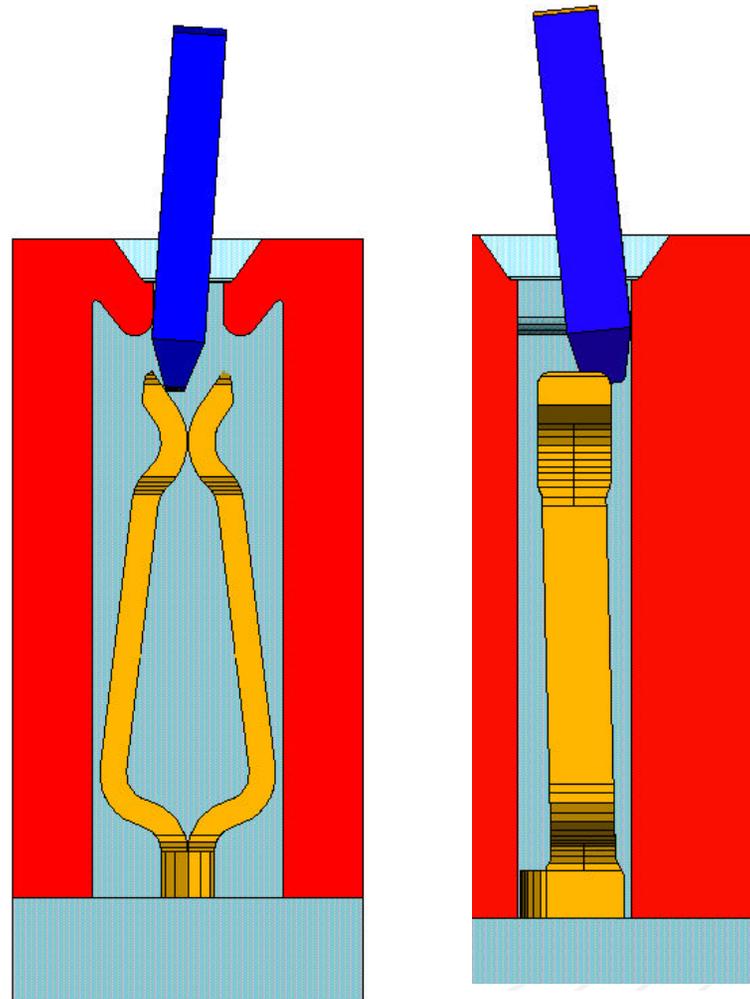
IEC 60603-2 connector mating conditions



HARTING

design approval conditions

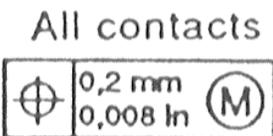
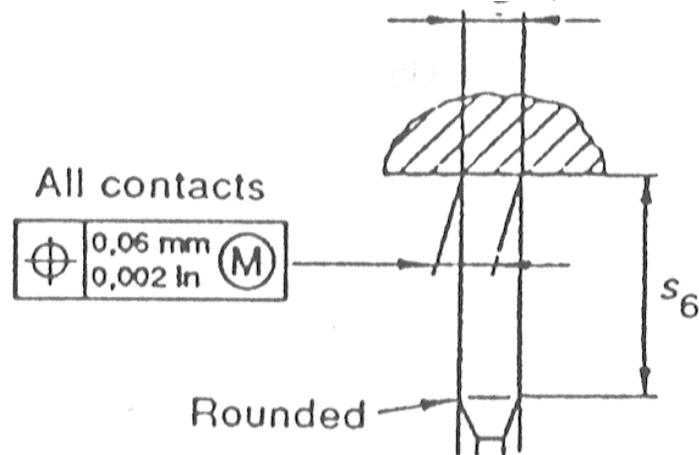
- 4° misalignment transversal
100% more than spec.
- 6° misalignment longitudinal
50% more than spec.



IEC 60603-2 male connector pins

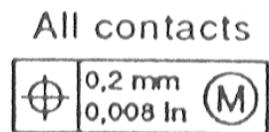
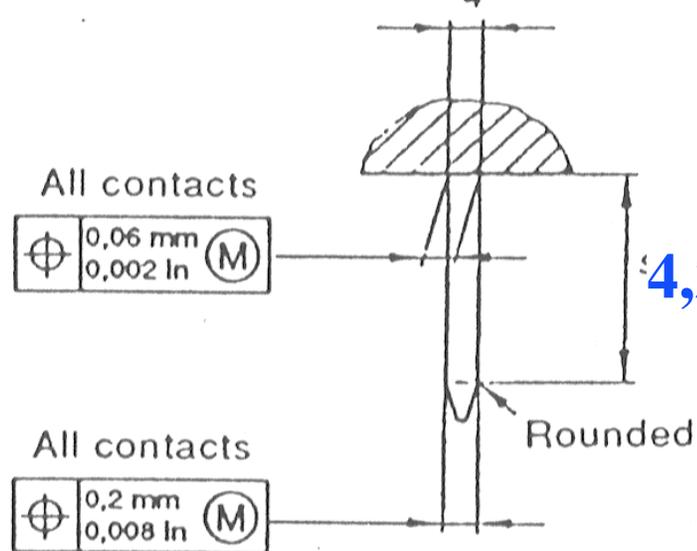
width

0,7^{-0,15}



thickness

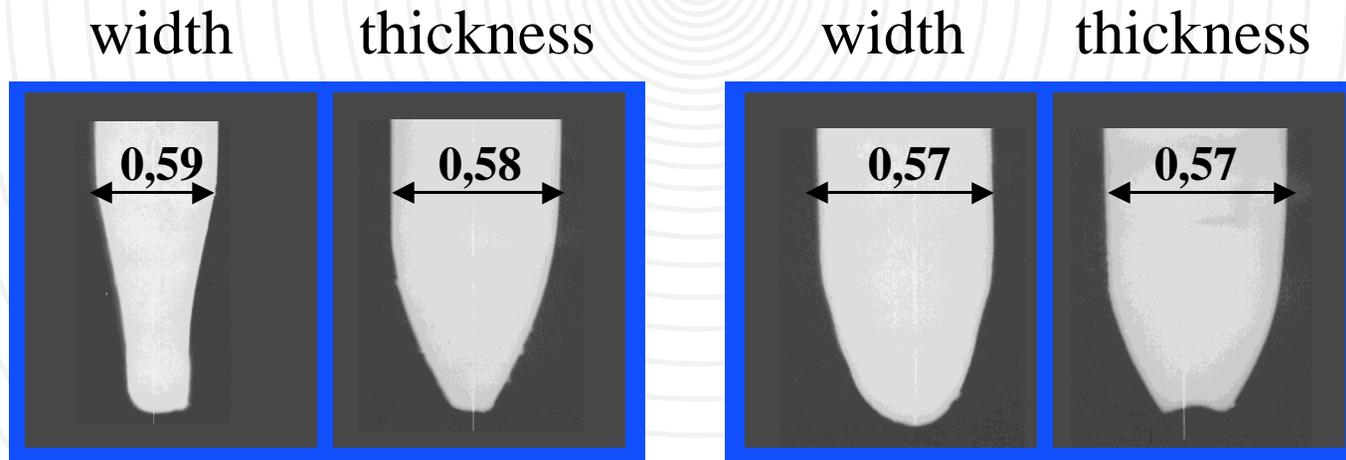
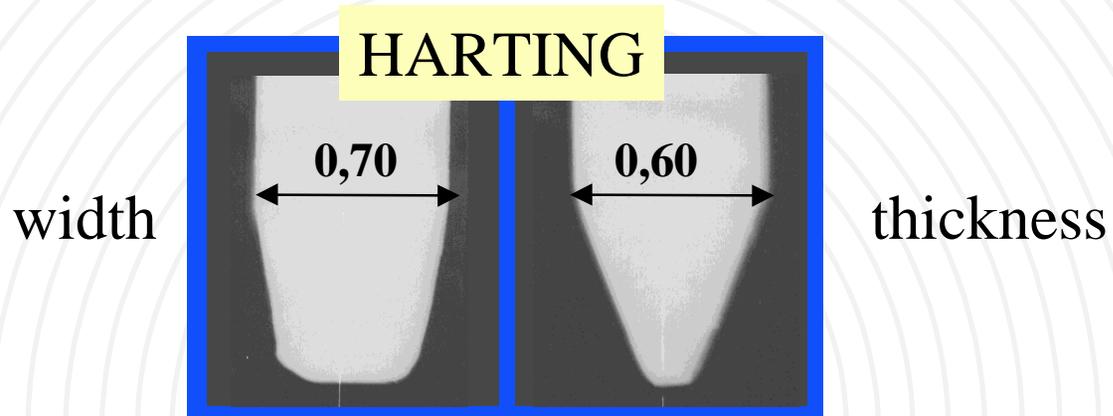
0,61^{-0,05}



IEC 170195

contact length: 4,8 - 5,0mm

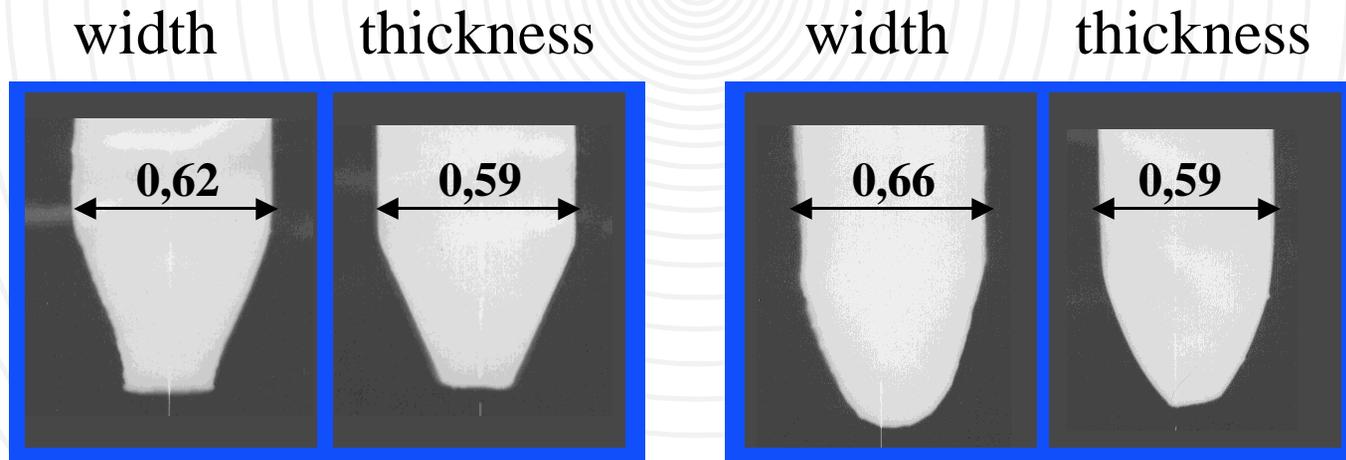
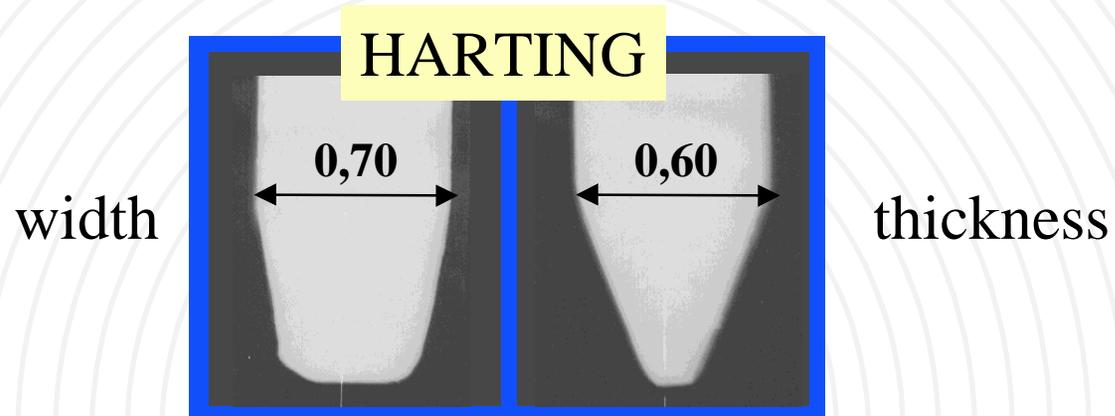
three row / five row



competitor A

competitor B

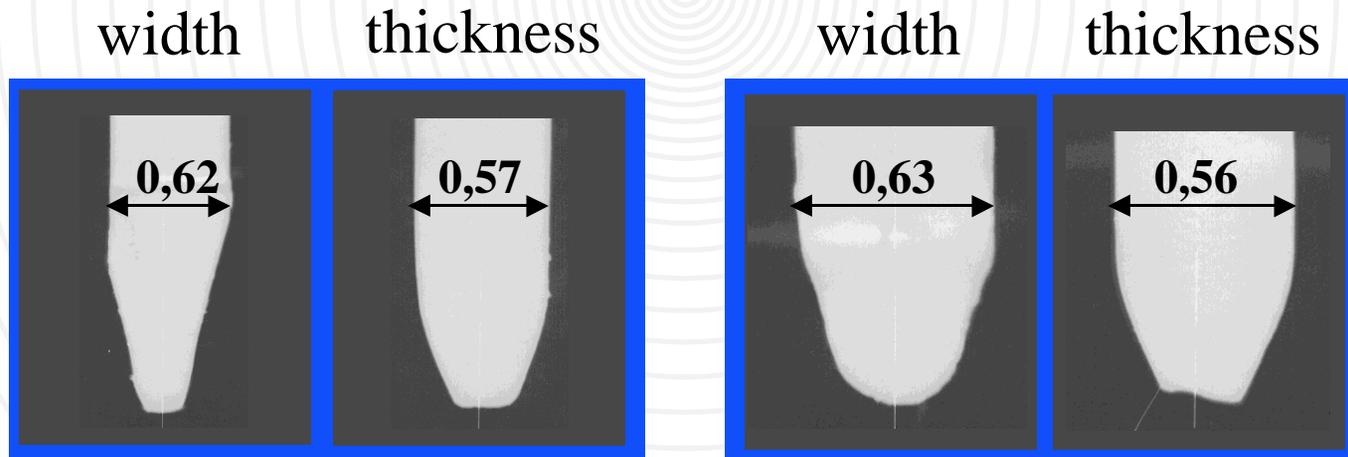
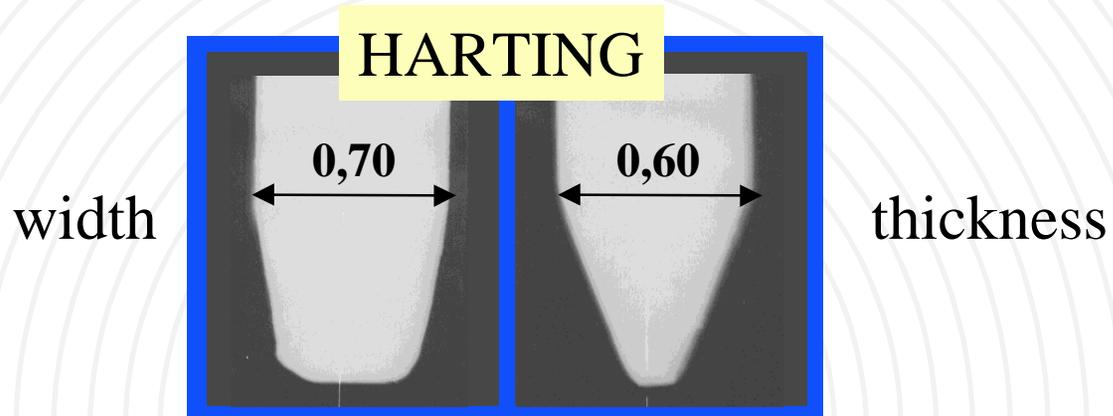
three row / five row



competitor C

competitor D

three row / five row



competitor E

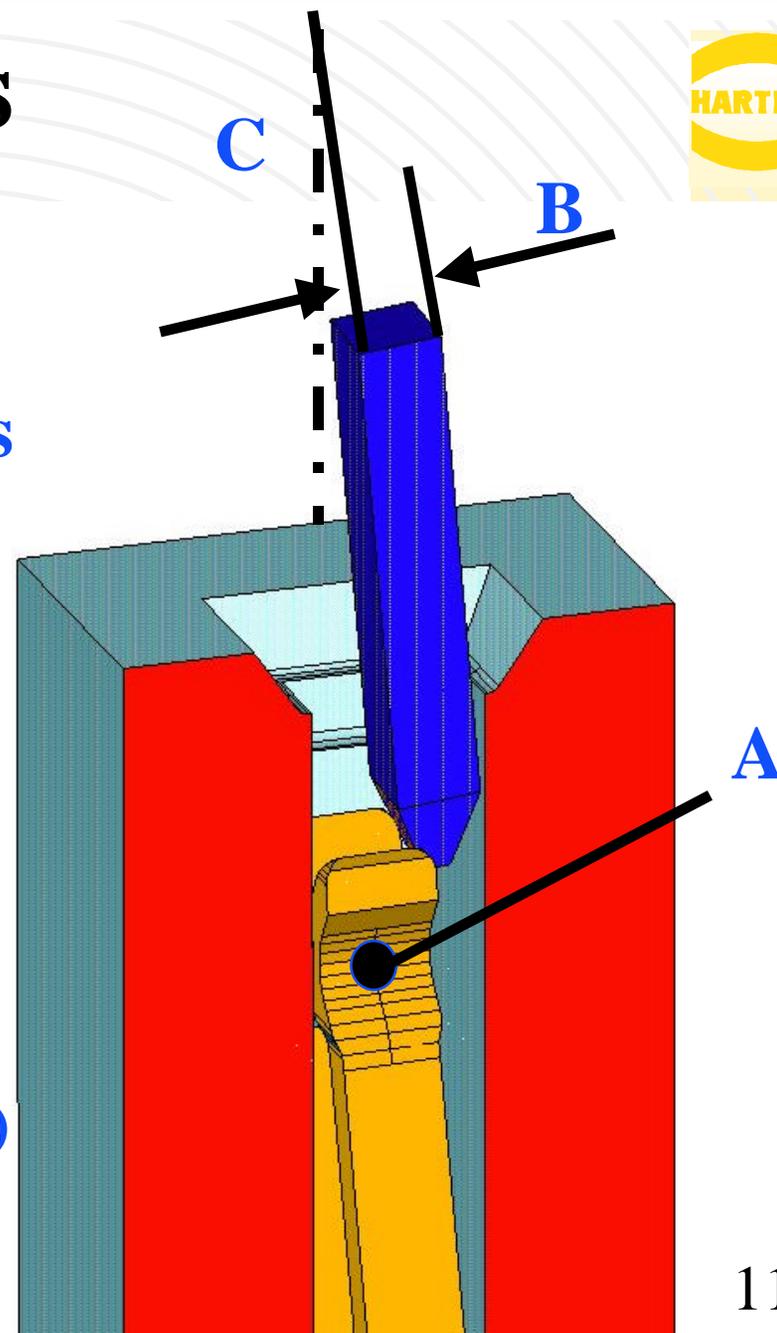
competitor F

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Mating problems under worst case

- A - misaligned female contacts**
- B - competitors' thin male contacts**
- C - max. misalignment due to insufficient stiffness of the system (backplane, guiding rails, rack)**



New modified female contact

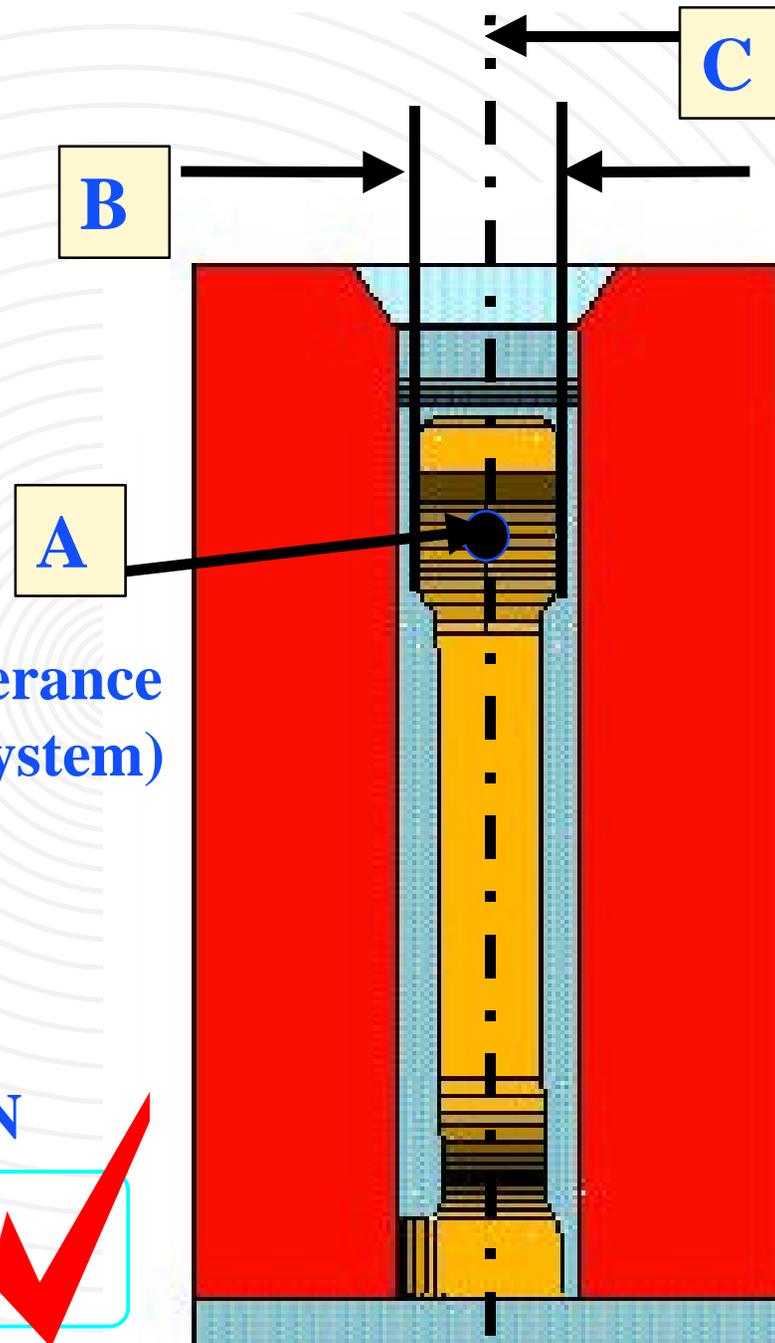
- A: Reduction of contact mating force**
- B: Maximized contact width**
- C: Minimized position tolerance (inspected by camera system)**

Mating force:

Specified: $\leq 160\text{N}$
Target : $\leq 100\text{N}$
Actual : $\leq 82-98\text{N}$

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5 row
3 row

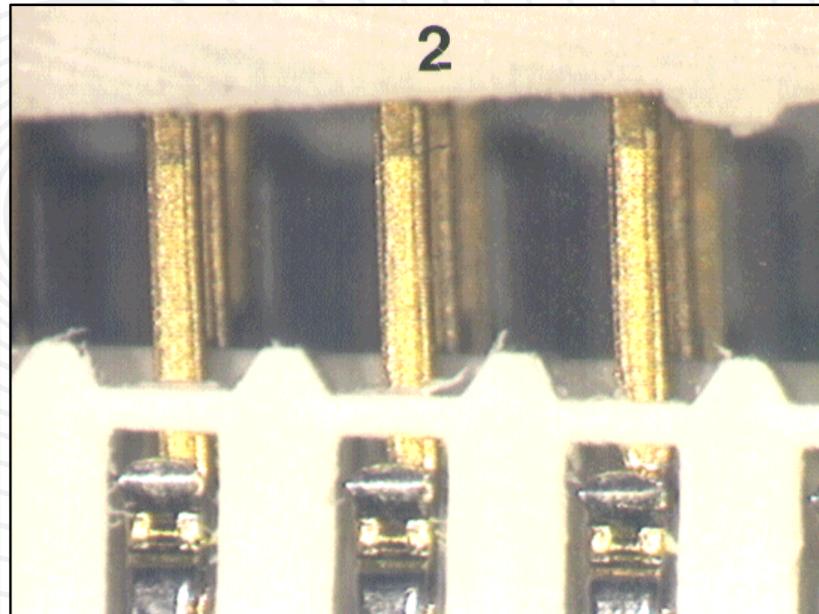
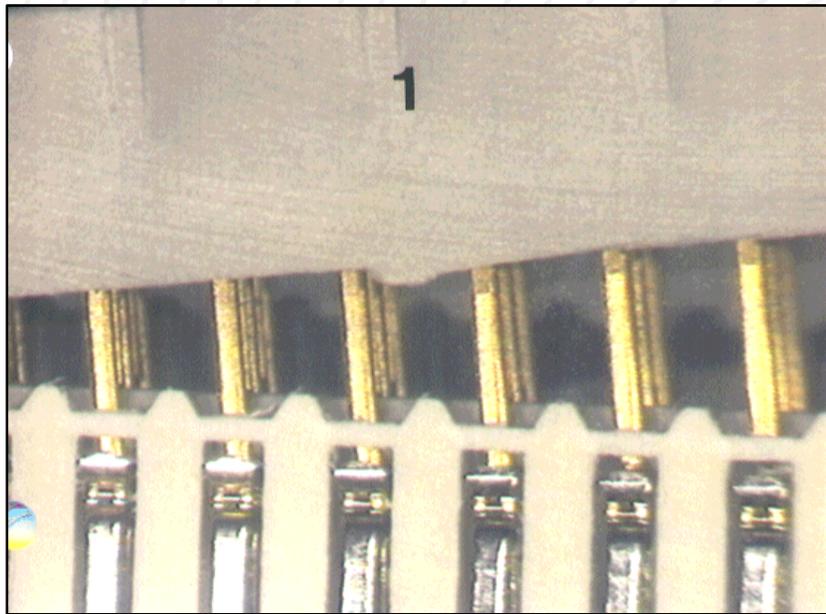


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Mating conditions



har-bus 64 / 3 row competitors male under worst case conditions (4-6° inclination, small connector blade)



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correct mating proven !

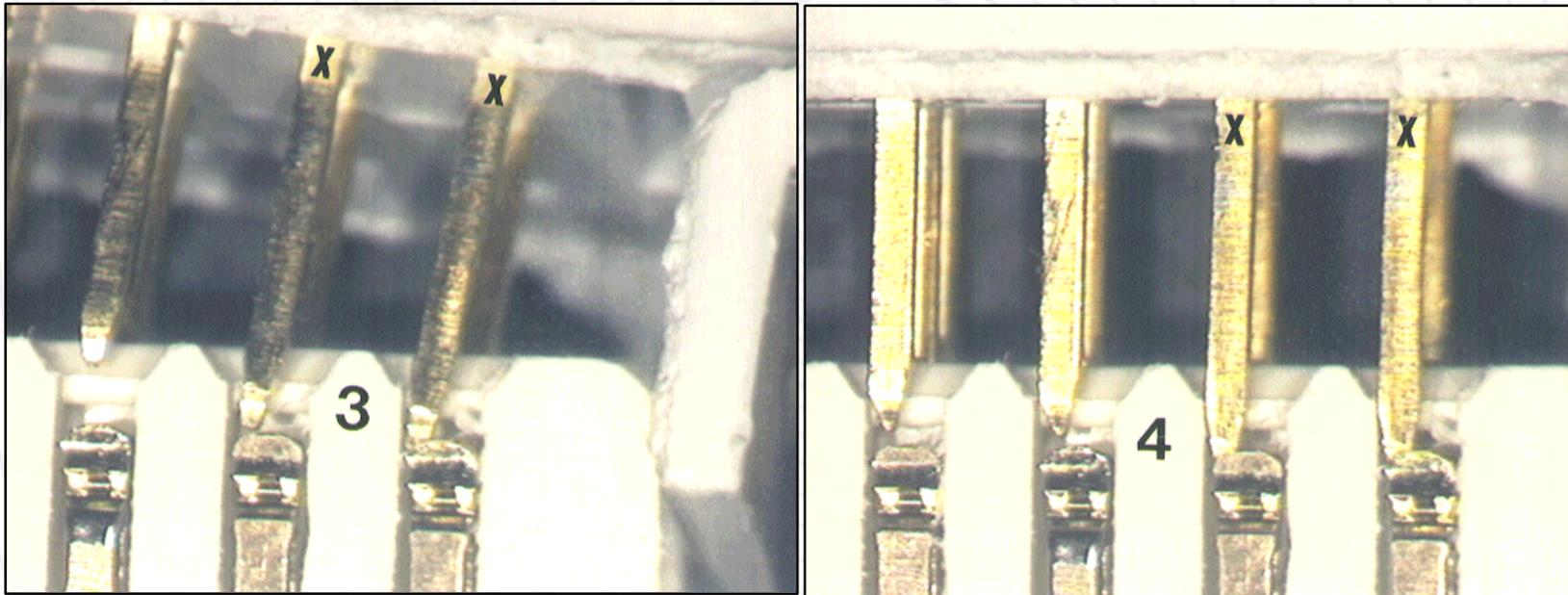
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Mating conditions



har-bus 64 / 3 row competitors male under worst case conditions (4-6° inclination, small connector blade)



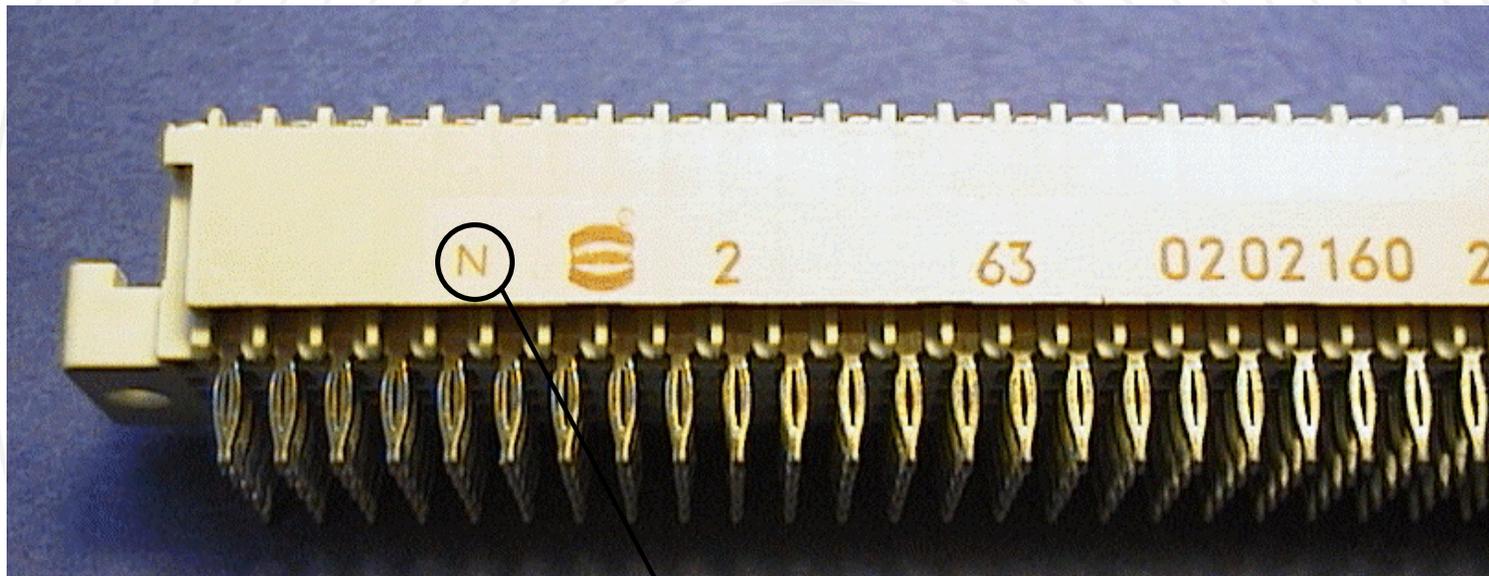
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correct mating proven !

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Identification of new *har-bus* 64 products

Production started in week 11/98



N = new version

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