

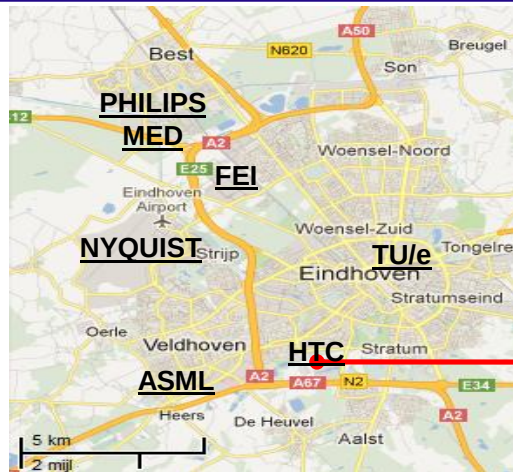
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HEIN **MA**nagement & **DE**velopment

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supplier piezo ceramic solutions

HEINMADE BV

High Tech Campus 9
5656 AE Eindhoven
www.heinmade.com
info@heinmade.com



High Tech Campus:
PHILIPS R&D
NXP
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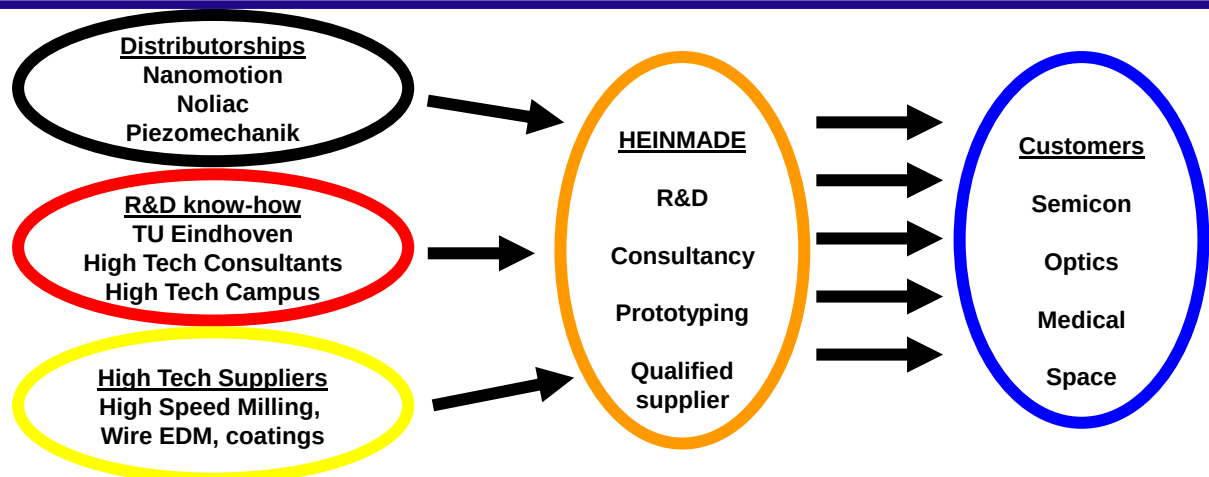
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Way of Working

Big through collaboration

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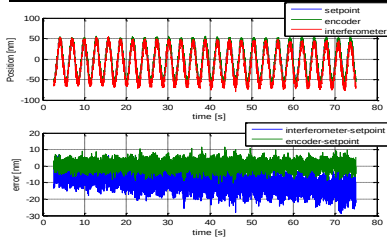


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Overview competences



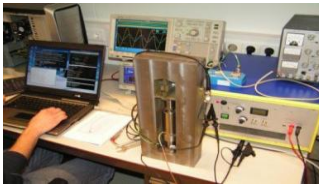
High Force Positioner ;

- Max speed 10 mm/sec.
- Min speed 1 nm/sec.
- Maximum load 1000 N.
- Stiffness $5e7$ N/m.
- Sine ampl 50 nm, 0.3 Hz.
- RMS error enc. 2.2 nm.



Active damping;

- Mass ~ 1000 kg.
- Stiffness ~ $3e8$ N/m
- Vibration reduction to sub-nanometer
- Cross talk $>10e-6$ (sensor/actuator).



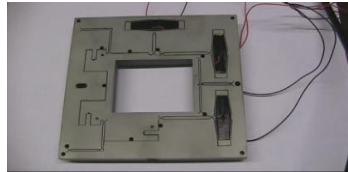
Fast Tool Servo;

- Stroke 100 µm
- Full stroke freq. 200 Hz
- Stiffness $5e8$ N/m

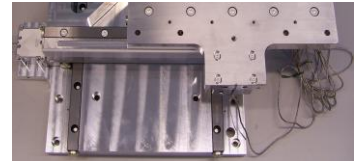
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Nanostages;

- Stroke XY 400 µm
- Rotation Z 1 deg
- Stiffness $1e6$ N/m
- UHV compatible



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Long Stroke XY ;

- XY stroke 200 mm.
- Load 25 kg, UHV 10^{-6} Torr.
- Max speed 50 mm/sec.
- Error 100 µm/sec < 50 nm.

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END