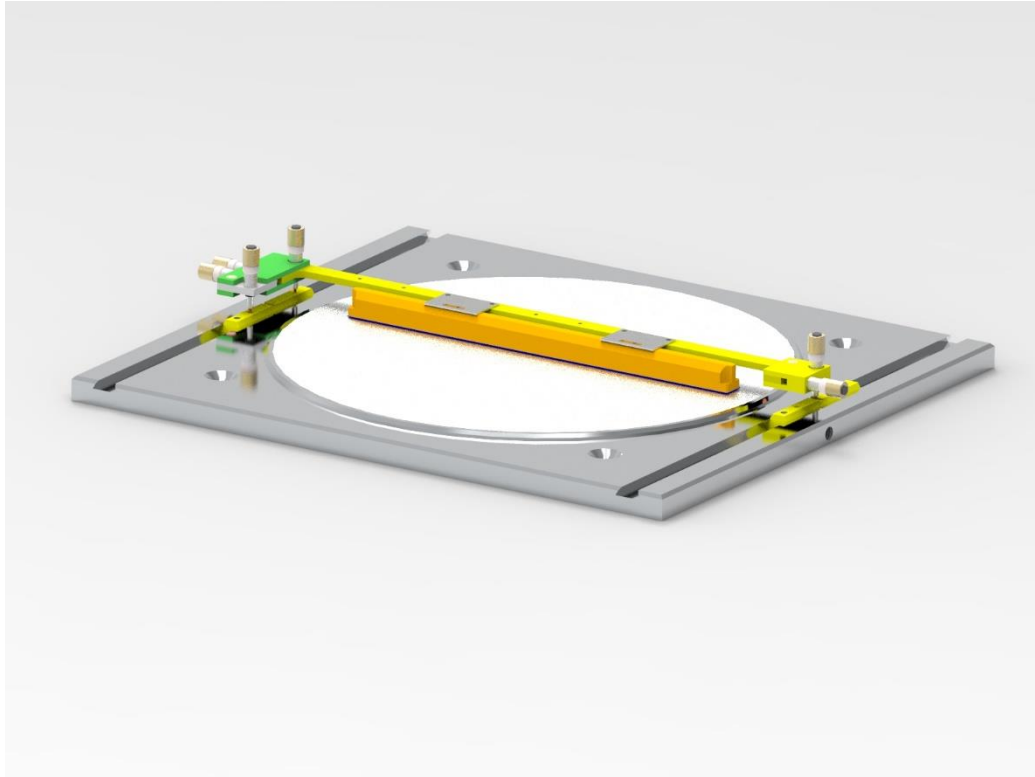


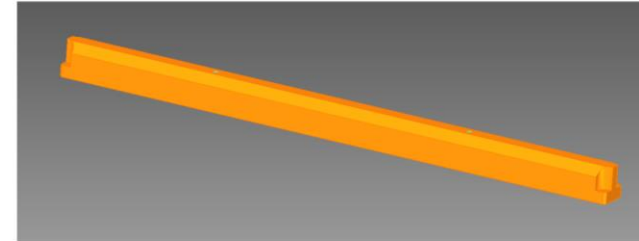
Verry brief utrecht update

In principle wp2/3 MOST handling tools. Some developments might be useful for Big Chip handling

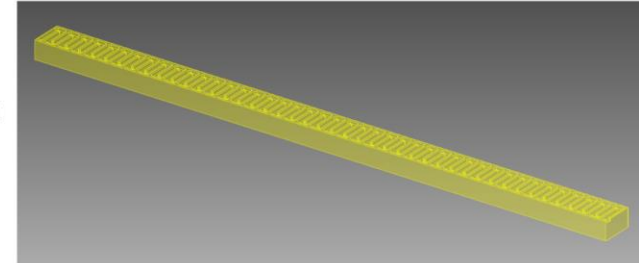
From utrecht metaphor grabbing table and 6dof positing/lifting tool + a couple vacuum holders



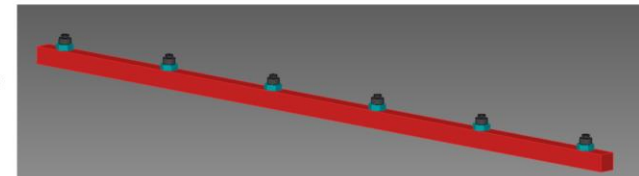
metapor



Esd plastic with pattern

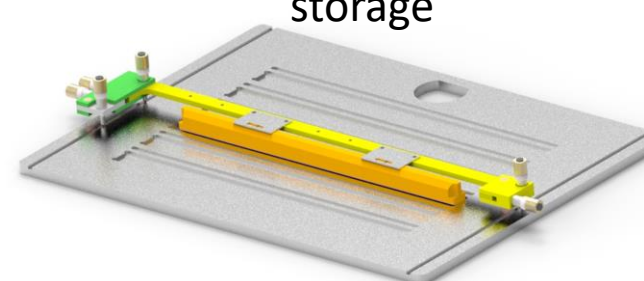


Suction cups



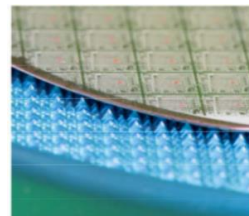
storage

Reverence to waver flat edge/nudge



Esd PC  $10^6$   $10^7$  Ohm/square is orderd  
For tray and grabber

@CERN "pin" table



TECHNICAL CHARACTERISTICS

WSV Kunststoffen BV  
 Callcenter/telefoon: 3060 86 17105217  
 Tel. 030-2622838 Fax 030-2623325  
 wsv@wsv.nl www.wsv.nl

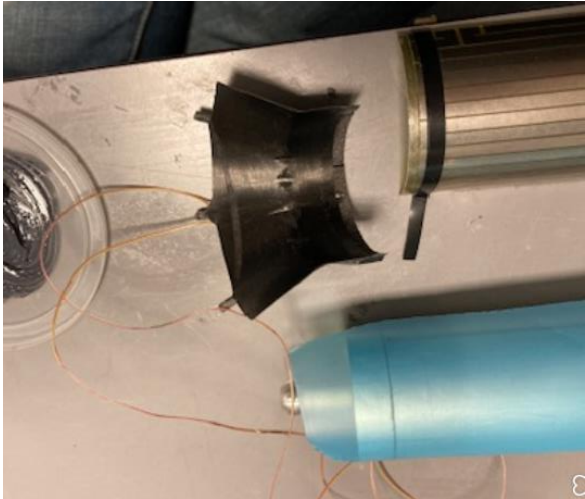
ESLOW®-DC ESD  
 POLYCARBONATE PC 407 AS  
 Static dissipative (antistatic) plastic sheets

ELECTRICAL	Symbol	Unit	PC 407 AS
Surface resistivity	A070-D-001	Ω/sq	10 <sup>6</sup> - 10 <sup>7</sup>
Volume resistivity	A070-D-002	Ω/cm	10 <sup>6</sup> - 10 <sup>7</sup>
Surface constant	A070-D-100	Ω/sq	10 <sup>6</sup> - 10 <sup>7</sup>

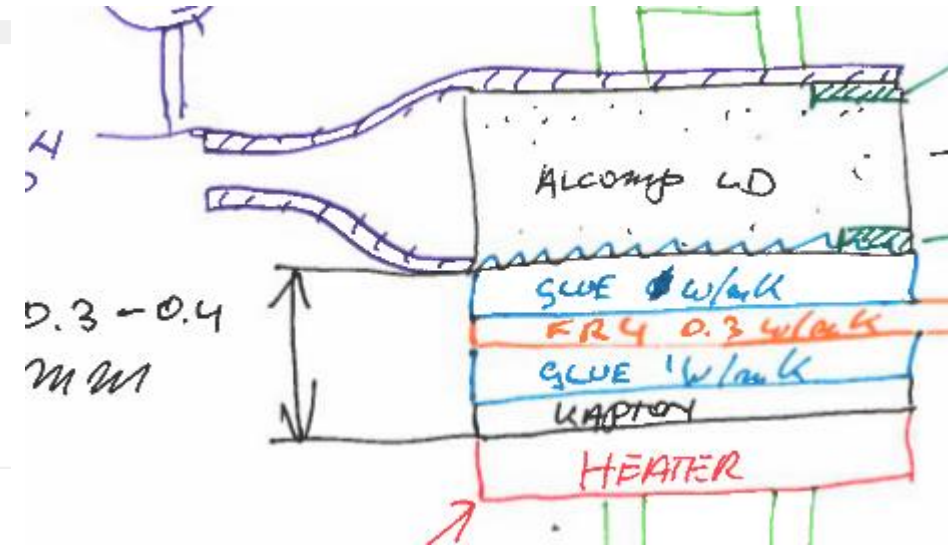
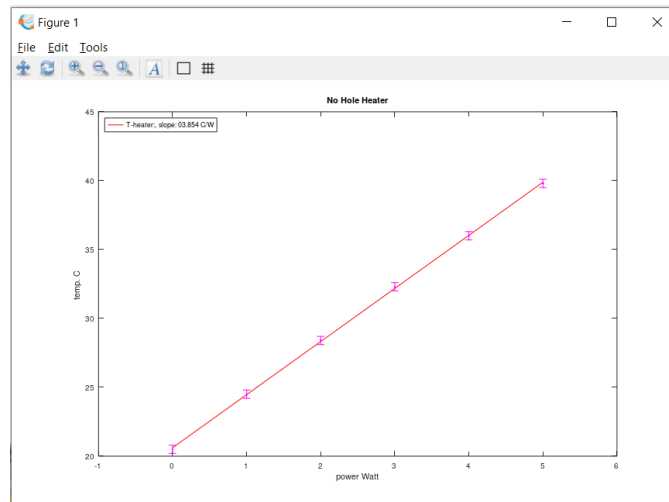
PHYSICAL	Symbol	Unit	PC 407 AS
Density	A070-D-010	g/cm <sup>3</sup>	1,20
Water absorption	A070-D-011	%	0,1
Flexural modulus	A070-D-012	MPa	2300
Tensile strength	A070-D-013	MPa	60

MECHANICAL	Symbol	Unit	PC 407 AS
Tensile strength	A070-D-010	MPa	60
Flexural strength	A070-D-011	MPa	2300
Impact strength	A070-D-012	kJ/m <sup>2</sup>	10
Hardness	A070-D-013	MPa	10

Judith finished her thesis (success!)

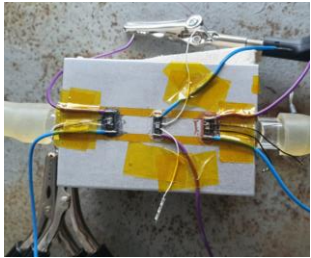


Summary: No Hole Foam cooling  $4\text{ }^{\circ}\text{C/W}$   
@ aprox 4m/s on matrix



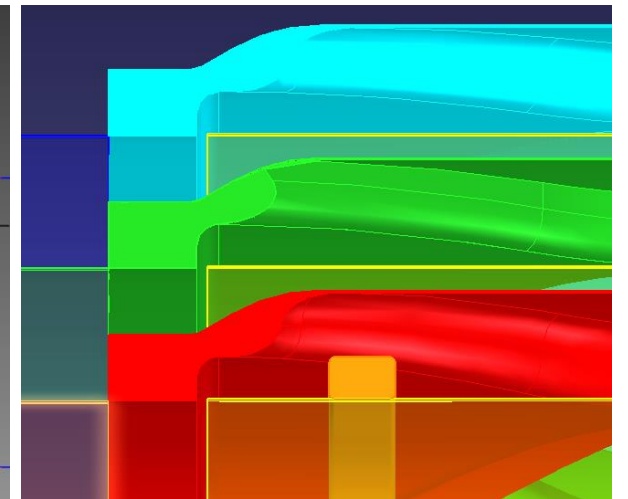
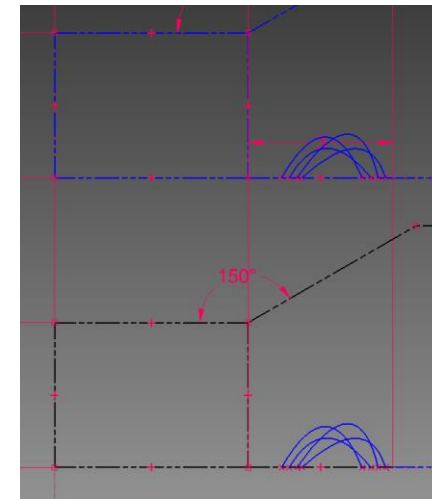
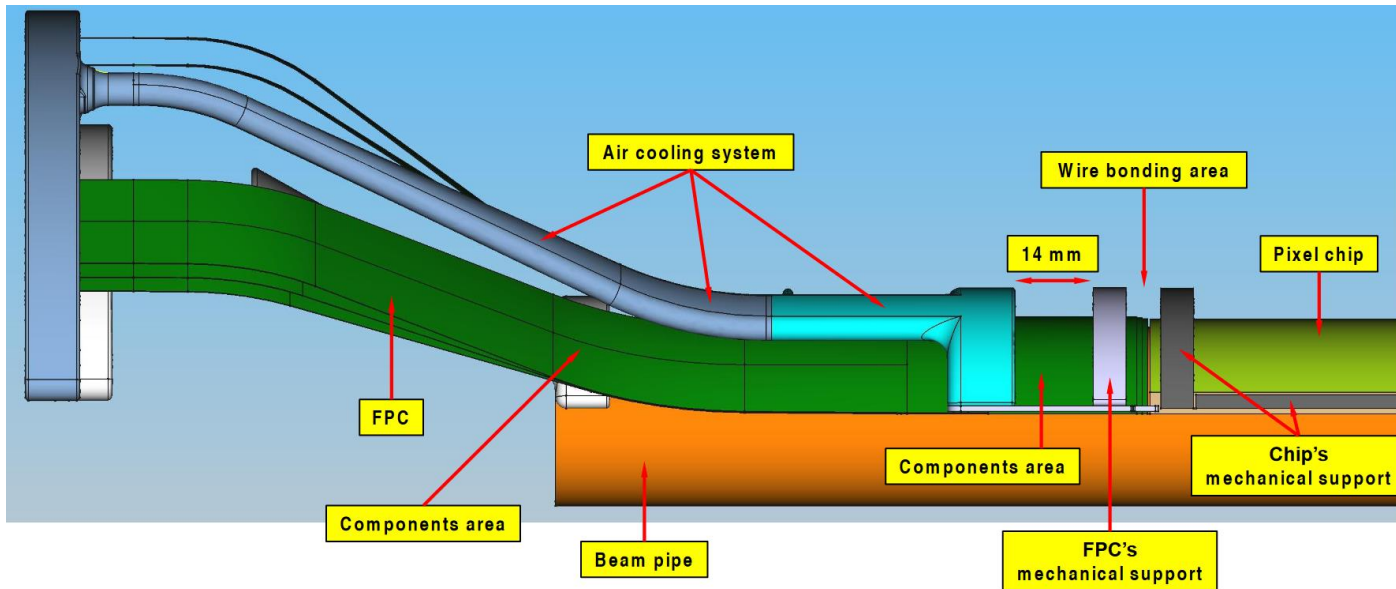
Note heater to foam gluing went a bit bad so is about 0.4mm glue/fr4 e.t.c. expect room for improvement see next slide

New student just started. Aim to build L0-L1-L2 No-Hole cooling



Testing glue (so far nothing above  $1\text{w/mK}$ ) ordered some more hope to start Soon on small test with carbon foam then move to L0

Aim to add space according to latest bonding design (need to stretch a bit in z to keep printing time reasonable)



For ease of access to temperature sensors we need separate layers with proposal for Mounting and fixing constraints leaving some room for thermal expansions

