

VASCO ASHM equipment modification instructions

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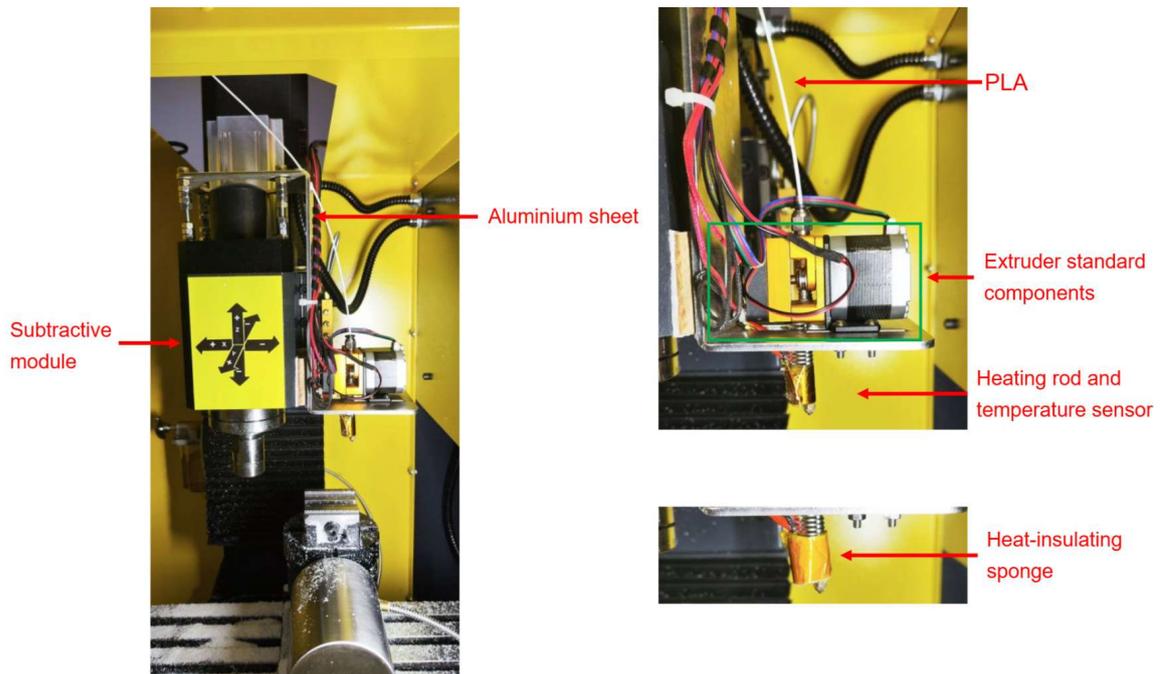
We converted a desktop 5-axis subtractive machine (YORNEW Benchtop 5 Axis CNC MX220) into a simple 5-axis hybrid machine by adding an external additive extruder parallel to the tool spindle.

See our paper “**VASCO: Volume and Surface Co-Decomposition for Hybrid Manufacturing**” for more experiment’s details.

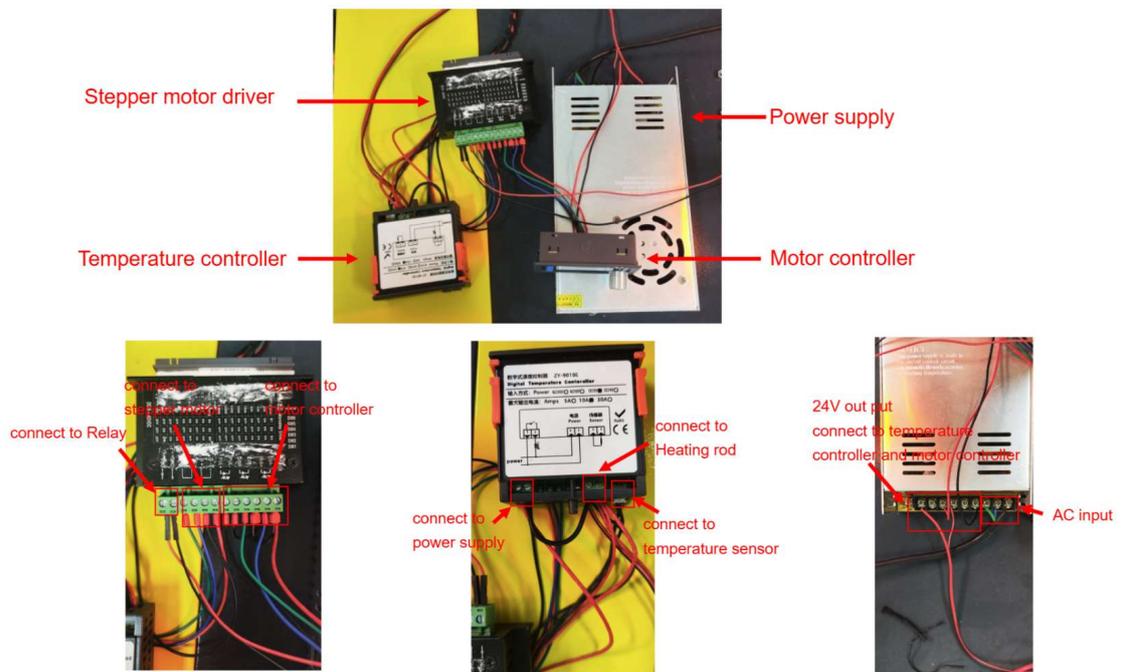
Our project page:

[VASCO: Volume and Surface Co-Decomposition for Hybrid Manufacturing \(fanchao98.github.io\)](https://github.com/fanchao98)

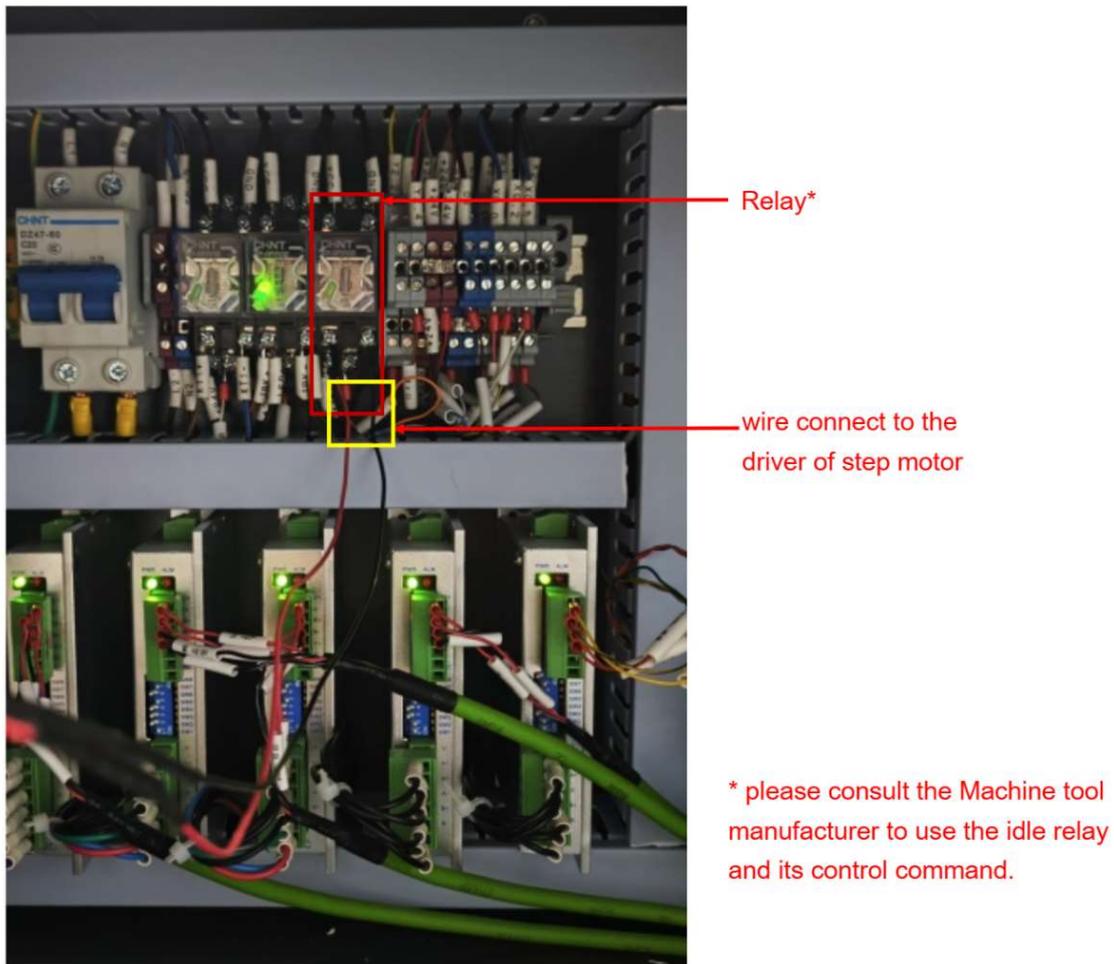
Components inside the machine:



Components outside the machine:



Modification of the subtractive machine itself:



Here are the purchase links for the components:

Motor controller

https://item.taobao.com/item.htm?spm=a1z09.2.0.0.71922e8dUXG0Q8&id=687949194762&_u=91qjoe3157a5

Temperature controller

https://item.taobao.com/item.htm?spm=a1z09.2.0.0.36cf2e8dKS49h3&id=623606379684&_u=u1qjoe319006

Stepper motor driver

<https://m.tb.cn/h.5hpHH2M?tk=OV2FWYISmMb>

Power supply

<https://m.tb.cn/h.5hpHU6w?tk=c55MWYlhpO7>