FOOD PROCESSING

ADDITIVE LAYER MANUFACTURING MACHINE

LOW NOISE   **MULTI-AXIS**   **HIGH-LOW TEMPERATURE**   **FOOD GRADE**

ChocALM can produce a 3D object of any shape in chocolate from a computer design. The machine software breaks down a 3D computer image into layers, applies coordinates for deposition and maps the necessary path. The 3-axis Cartesian coordinate system is connected to a temperature controlled chamber that holds the chocolate. The tempered chocolate is squirted through a nozzle over the path of a layer. Then the z-axis surface, on which the chocolate is deposited, is lowered to make space for the next layer. This layer-by-layer process forms the unique 3D design.

CHALLENGE

Dr. Liang Hao, a professor at Exeter University, challenged his engineering students with a masters project. Since current methods of manufacturing custom designed chocolates use an inflexible and expensive mold, he encouraged them to push the boundaries of additive layer manufacturing (ALM) technologies by working with a highly commercial and appealing material...chocolate. ChocALM is the result of that challenge.

SOLUTION

Five HepcoMotion® PDU2 belt driven units (1 x-axis, 2 y-axes and 2 z-axes) provide the linear movement for ChocALM. Its zero backlash allowed a guaranteed tolerance in the deposition system of 0.6mm. The motor mounting and keyed shaft also made it possible to attach suitably sized stepper motors. Even though the machine is still in the development stages, it has been designed so that food grade materials and components, such as the PDU2 units, can easily be incorporated for commercial use. Future developments include two nozzles for concurrent deposition and active cooling to speed the build process.

BISHOP WISECARVER

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