FluX AM | Use of Fluids in Material-Extruding Additive Manufacturing

Enabling Industries Through Cost-Efficient Small-Scale Pellet Extrusion

Motivation and Relevance

- Filament-based technologies are characterized by a low melting rate, high material costs and low layer bonding
- Current pellet-based processes are characterized by low extrusion accuracy, high extruder weight, and high extruder cost and they require granulate with homogeneous sizes

Approach

Evaluation of patent application from RWTH Aachen:

- Extruder with melting pot instead of extrusion screw
- Secondary fluid with low density to heat up pellets within liquid

Results

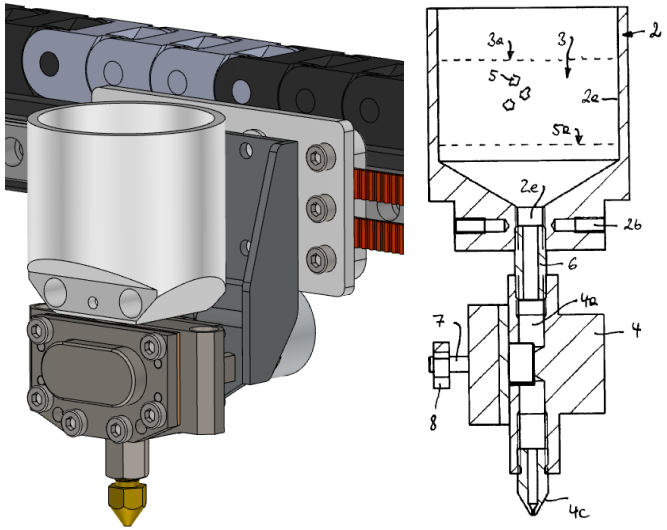
- Temporary extrusion rates up to 2.4 kg/h @ 0.4 mm nozzle (melting rate lower, 72 g/h at printing)
- Printed parts in filament quality can be achieved without specific requirements regarding the shape of input material

Research Area

- Pellet extrusion
- Productivity
- Print Quality
- Recycling

Partners

Picture



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