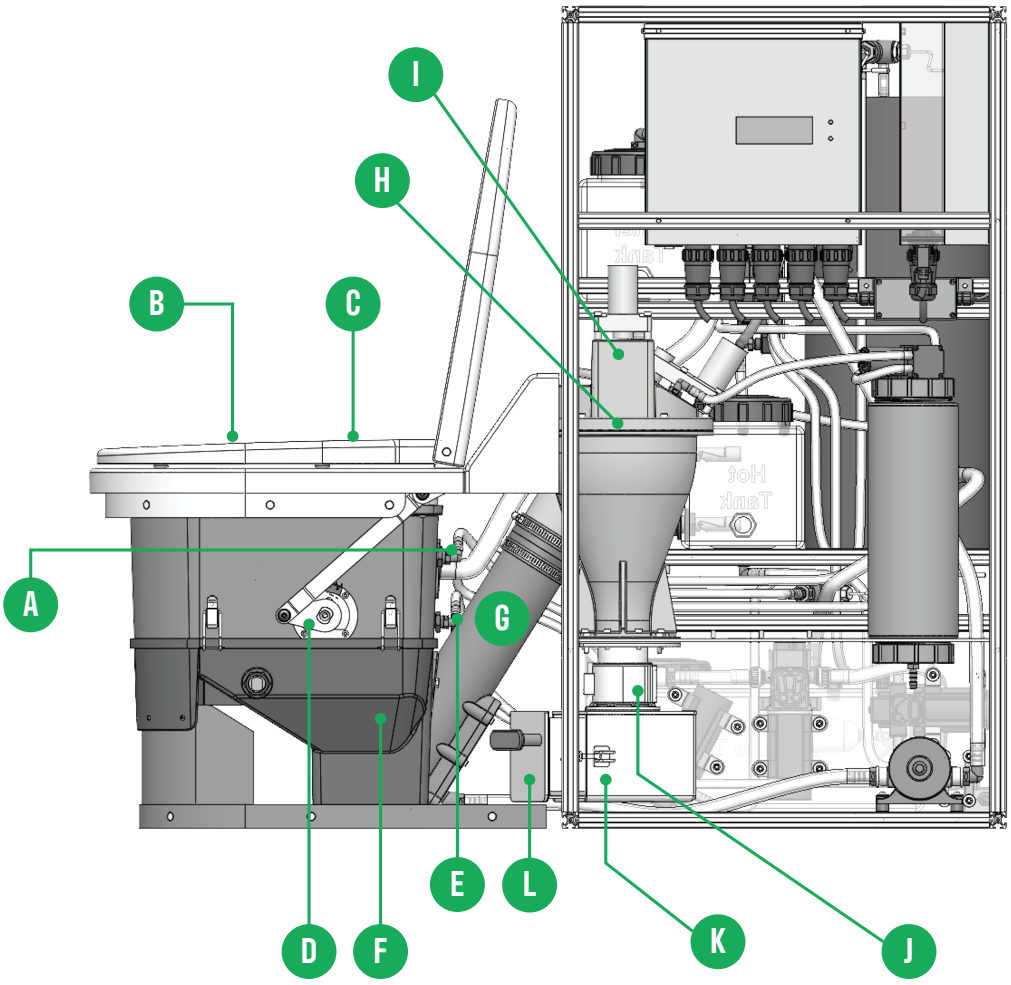
CIRCULAR TOILET

Cranfield University



SOLIDS

- **A** Pre-wetting nozzle
- **B** Rotating bowl
- **C** Self-sealing system to control odor
- **D** Rotating bowl mechanism
- **E** Nozzle spray to clean bowl
- **F** Lower tank
- **G** Dewatering screw separates liquids and solids
- **H** Solids enter and processed in torrefacation unit—operates in low-oxygen environment and temperatures 150-300˚C
- **I** Creates solids and water in vapor form
- **J** Now pathogen-free solids collect in the bottom of the chamber
- **K** Removable storage container for pathogen- free char
- **L** Char disposal output

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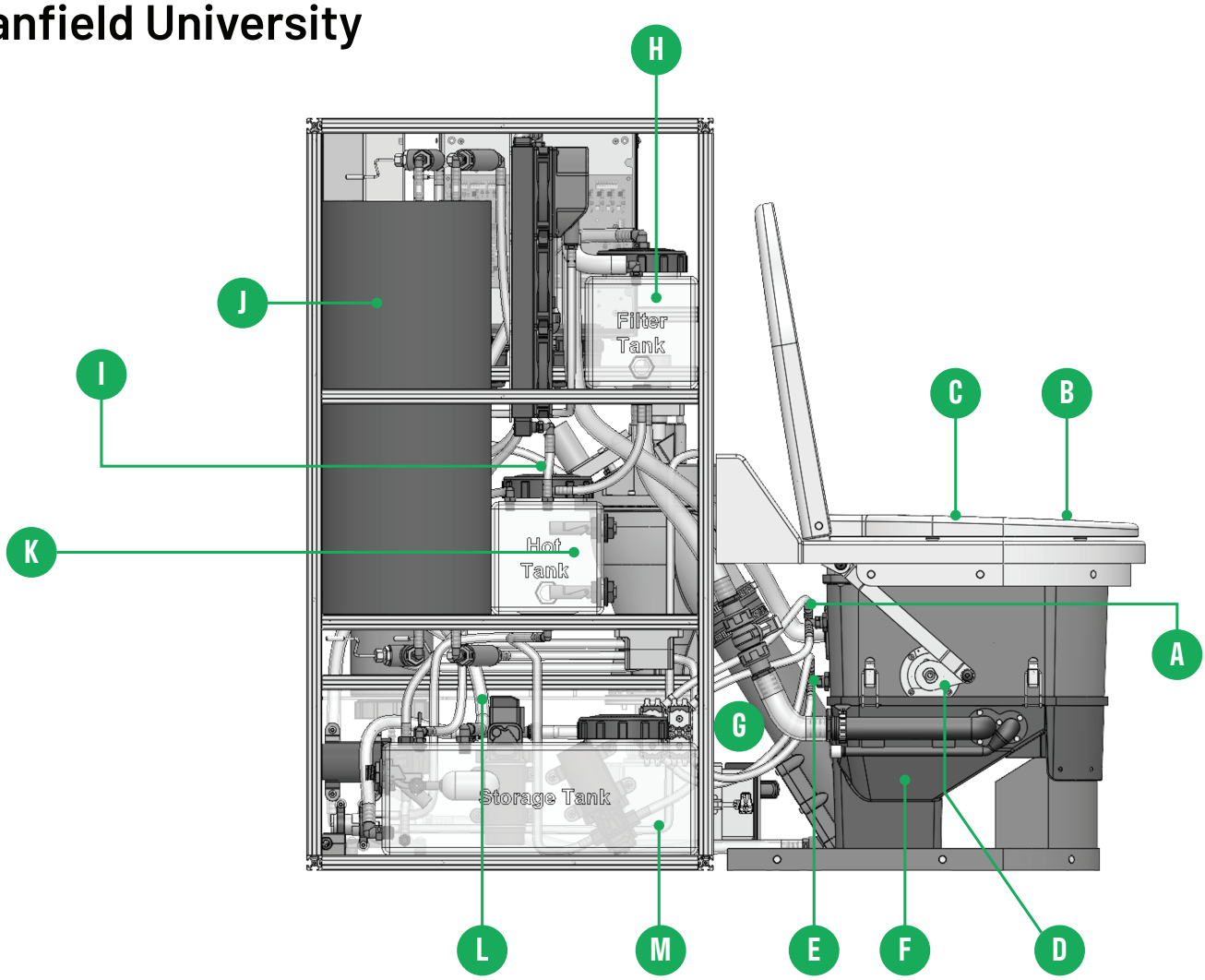

LIQUIDS

- **A** Pre-wetting nozzle
- **B** Rotating bowl
- **C** Self-sealing system to control odor
- **D** Rotating bowl mechanism
- **E** Nozzle spray to clean bowl
- **F** Lower tank
- **G** Dewatering screw separates liquids and solids
- **H** Liquids pumped up into holding tank, enough to service 5 people for 24 hours
- **I** Liquid heated before entering membrane unit
- **J** Membrane distillation unit—only liquid in vapor form passes through these hydrophobic membrane pores
- **K** Concentrated urine builds up in hot tank, diverted to the solids processing module
- **L** Pathogen free vapor exits membrane
- **M** Cooled, condensed, disinfected by UV, and stored in tank to be re-used for flushing