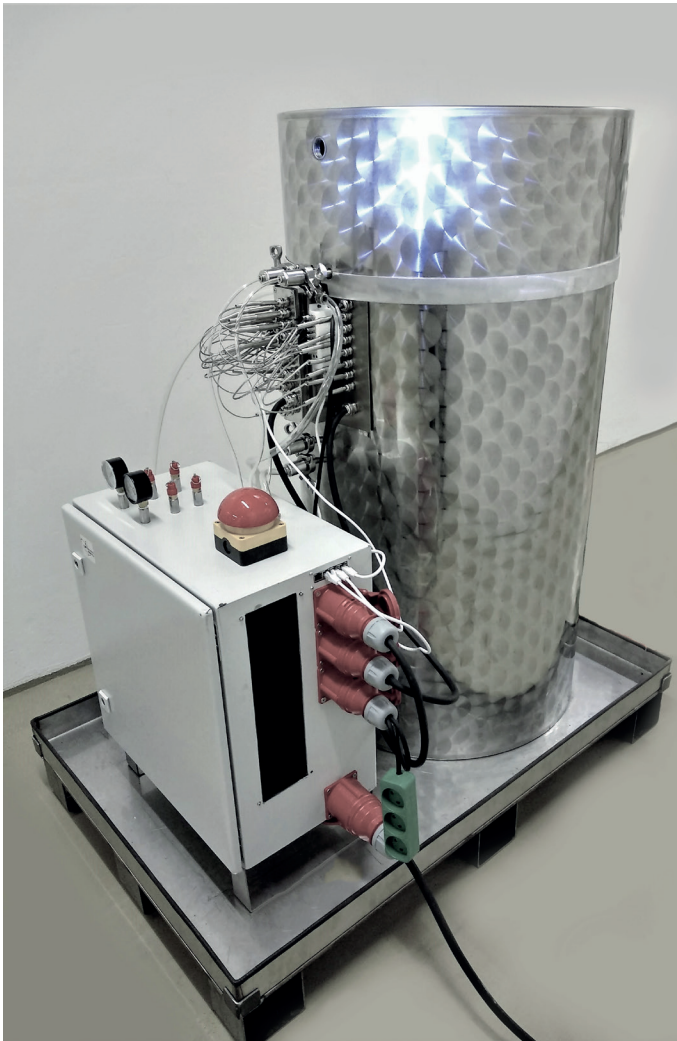


40 LITER MOLTEN SALT LOOP DATASHEET



CA Portable Salt Loop can come with one of the following salts*:
NaCl, FLiNaK, LiF-ThF4

Copenhagen Atomics's (CA) portable salt loop is designed as an accessible testing and development platform for researchers and engineers.

The loop can be used to perform various experiments, such as tests of valves, pumps, materials, gaskets, graphite, flow conditions, special instruments. It is also suitable for measurements of instruments, corrosion, plate out, heat exchangers, salt properties, etc.

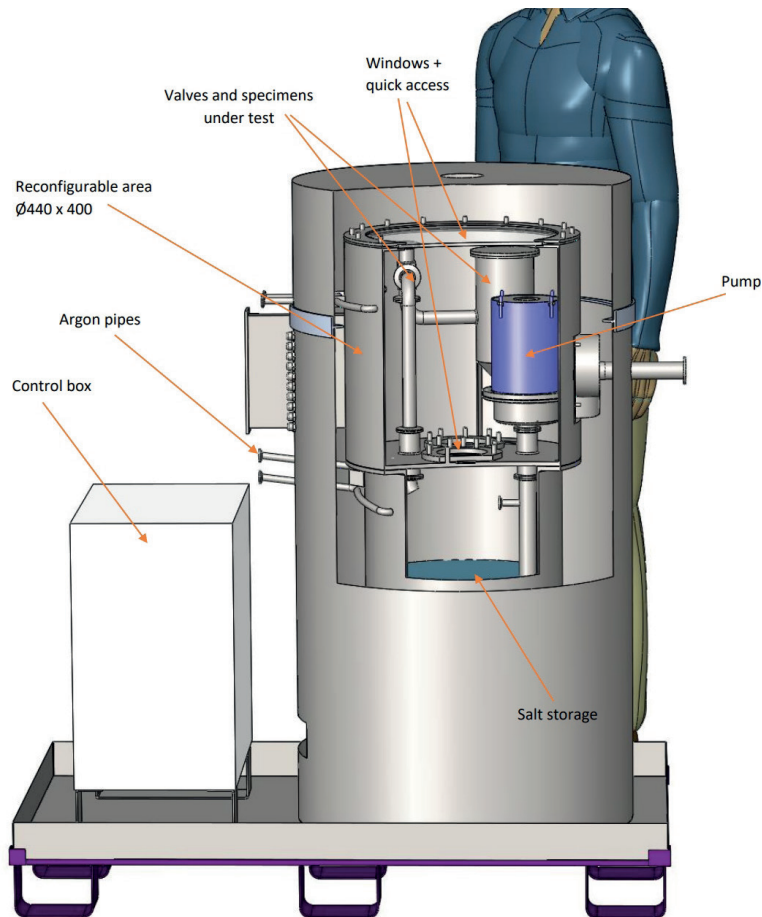
The ability to test materials, components and technologies at relevant dynamic conditions (fluoride molten salt, temperature, flow rate and atmosphere) enables to speed up development of components and materials and demonstrate the durability and feasibility required for approval. The loop is constructed in a modular setup that enables to connect components such as heat exchangers and thus test efficiency and durability at dynamic conditions.

Loops must be attached to a supply of cover gas (Argon or Helium). Cover gas system is not included in the offer from Copenhagen Atomics. It is possible to purchase an inexpensive gas pressure cylinder with Argon from a welding supplier in most parts of the world. Copenhagen Atomics specialists will be happy to provide you with advice and more information about connectors.

*The list to be extended

Copenhagen Atomics Portable Salt Test Loop for Thorium and Uranium Salts

(Insulation and details are not shown for clarity)



Generic loop technical specifications	
Max input power	11kW (16Amp – 400Volt)
Max temperature	700°C. (850°C with reduced life expectancy)
Max flow speed	80 liter per minute *
Min flow speed	10 liter per minute *
Max salt load	40 liter
Cover gas	Argon (Pressure gas cylinders not included)
Typical initialization and heat-up time	3 hours
Cover gas flow valves	4 valves, electrically operated
Salt pump	2kW, software controlled flow speeds
Total loop wait	400 kg (including salt)
Height	1400 mm
Base	Steel EUR-pallet 800x1200 mm

* Flow rates may vary depending upon the density of the salt used

Included sensors on generic loop	
Digital Temperature sensors	35 sensor points (1 sample per second)
Digital Pressure sensors	2 sensor points (1 sample per second)
Digital gas flow sensors	2 sensor points (1 sample per second)
Analogue pressure gauge	2 sensors (-0.2 bar -> +2 bar)
Heating elements	4 elements

Generic loop materials	
Salt tank	Stainless steel 316
Pump	Stainless steel 316
Pipes	Stainless steel 316
Valves	Stainless steel 316

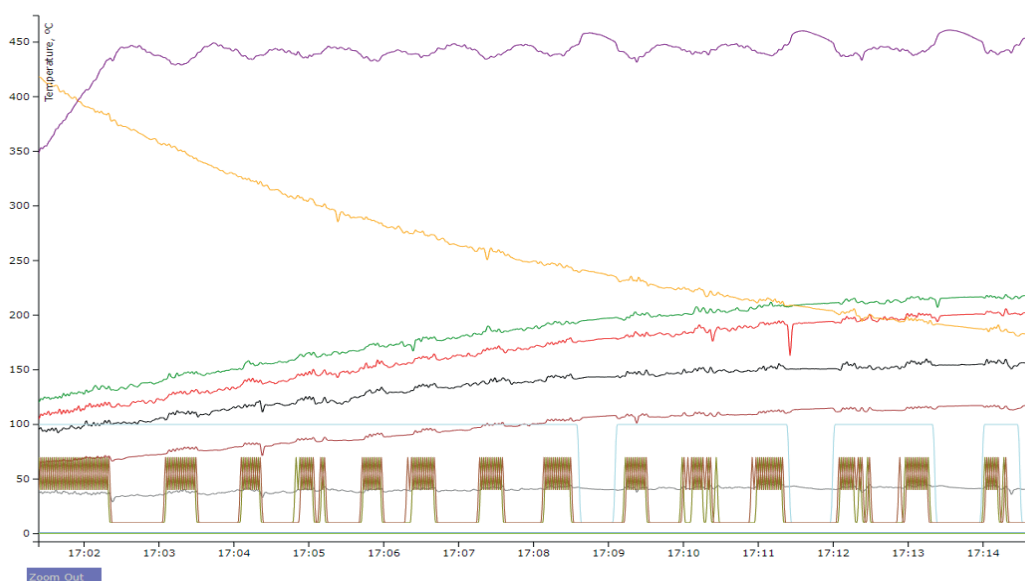
Control software and mobile app

The Loop come complete with control software, which can be operated from a mobile phone app. Graphs of operating conditions are hosted in the cloud and can be viewed via any web browser and downloaded as .csv files for further analysis.

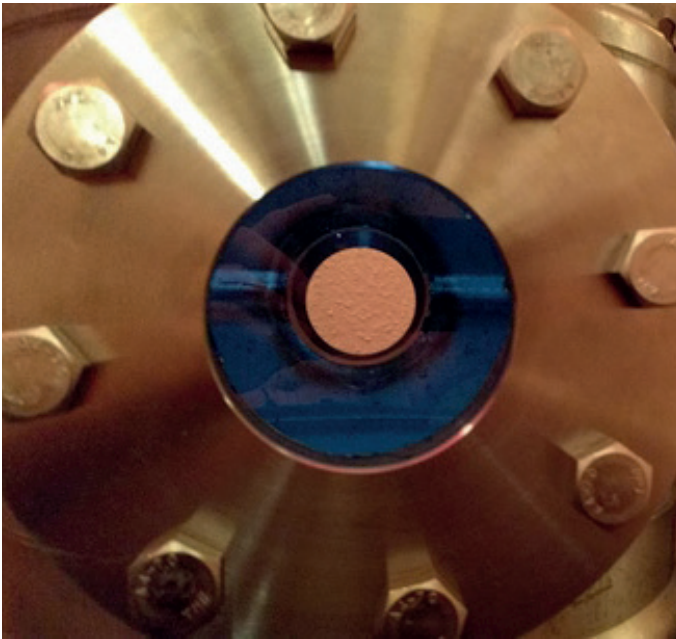
Control box must be connected to the internet via WiFi. A generic loop can show up to 35 input/output plot lines in graph. Users can enable/disable selected plot lines and zoom into specific areas.

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Example of the web graph:



Customized Salt Loop



This is an example of a customized loop with inspection windows.

About Copenhagen Atomics

Copenhagen Atomics is based on a philosophy where we encourage collaboration between teams from different countries, both in industry and academia. The three main areas that we focus our efforts on are measurement systems, chemistry and control systems.

Copenhagen Atomics was founded in 2015 and our main workshop and lab are located in Copenhagen.