

Continuous Bench Scale Hydrothermal Liquefaction Unit – CBS1

CBS1 – Continuous Bench Scale Unit Facts:

Flow rate: up to 15 kg/h

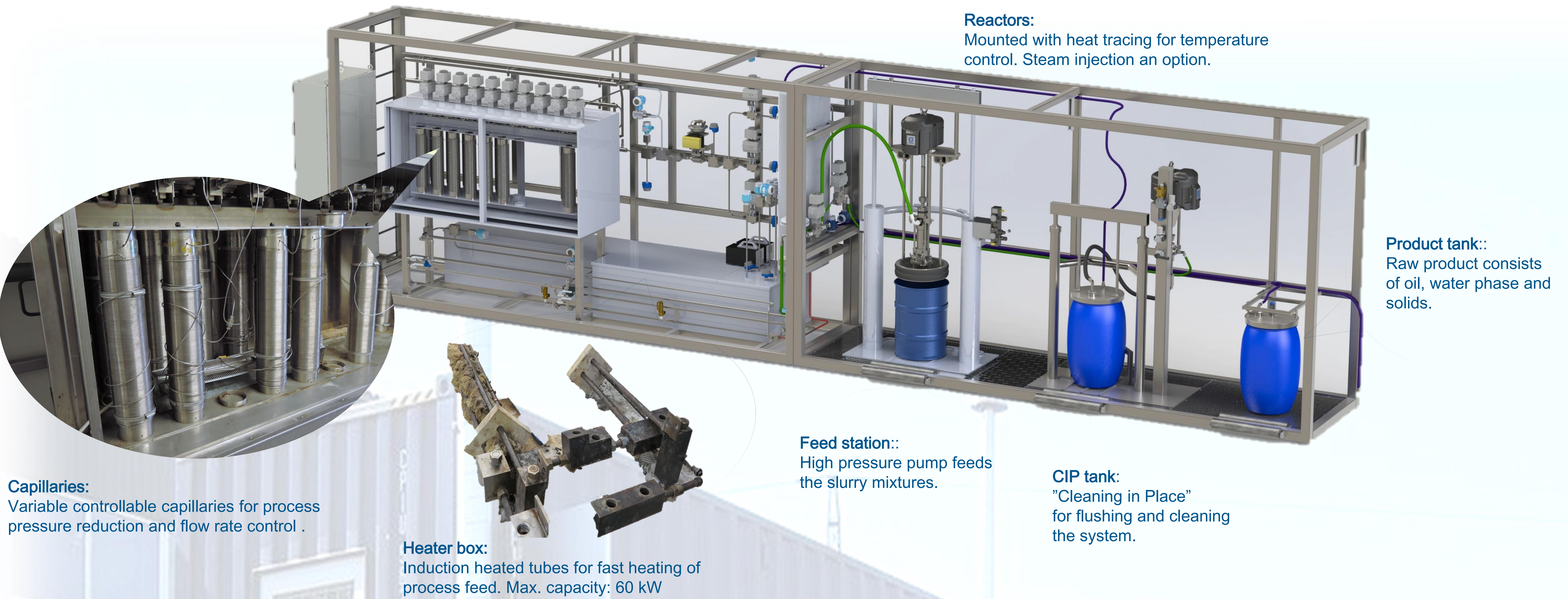
Pressure: up 350 bar

Temperature: up to 450 °C

Oil production capacity: 1-3 kg/h

Fully automated core process

High data density

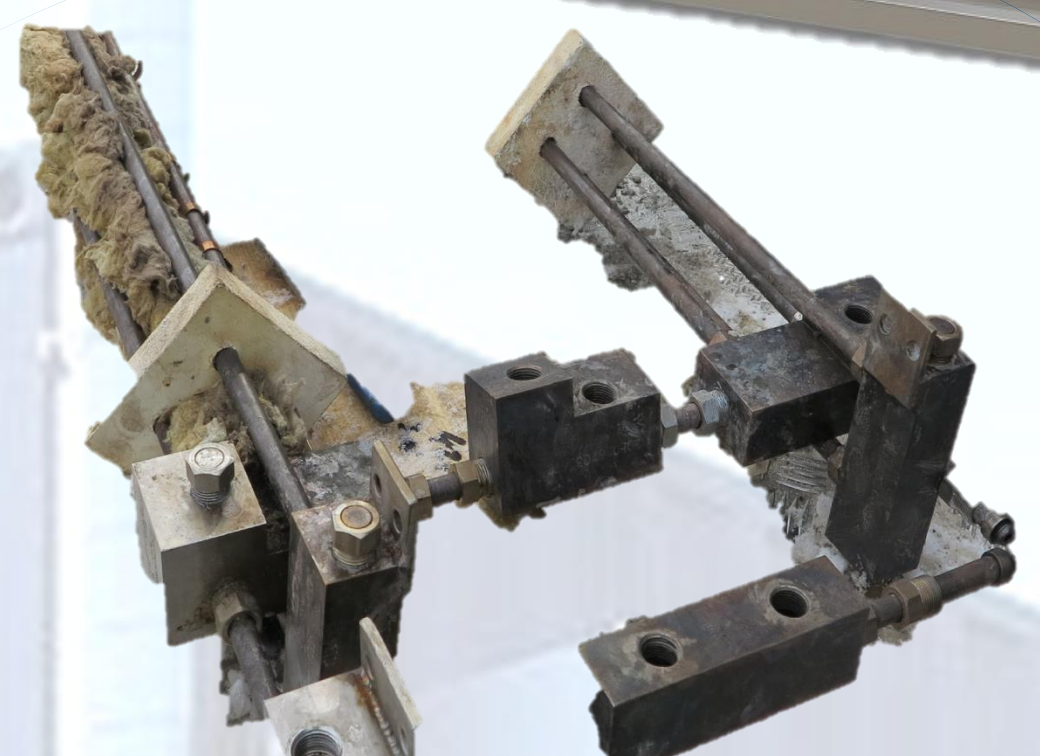


Reactors:
Mounted with heat tracing for temperature control. Steam injection an option.

Product tank:
Raw product consists of oil, water phase and solids.



Capillaries:
Variable controllable capillaries for process pressure reduction and flow rate control .



Feed station:
High pressure pump feeds the slurry mixtures.

CIP tank:
"Cleaning in Place" for flushing and cleaning the system.

Heater box:
Induction heated tubes for fast heating of process feed. Max. capacity: 60 kW

Pretreatment Container



Feed hopper:
As-received material is loaded into the hopper. The hopper then feeds the hammer mill by internal augers.



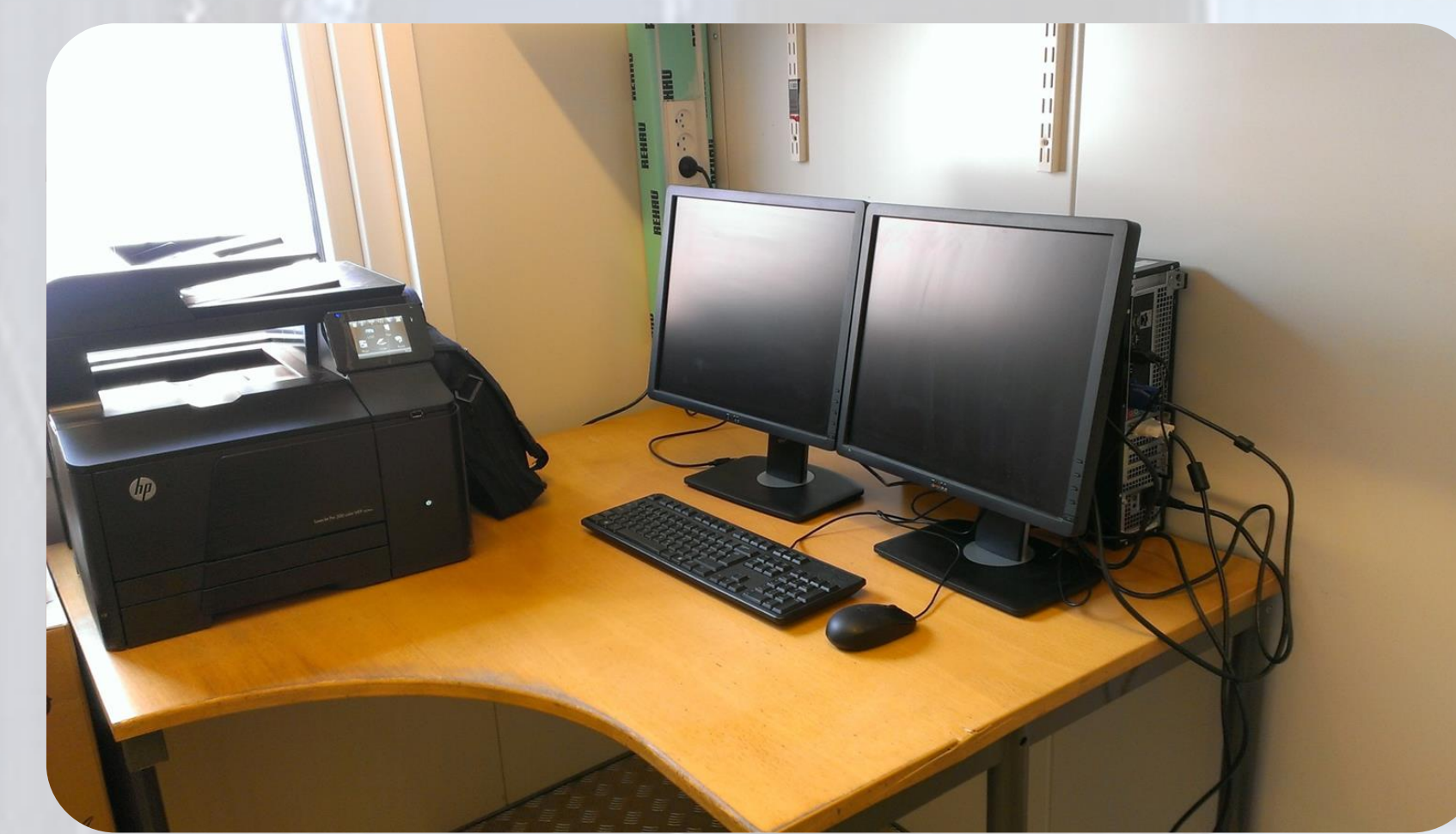
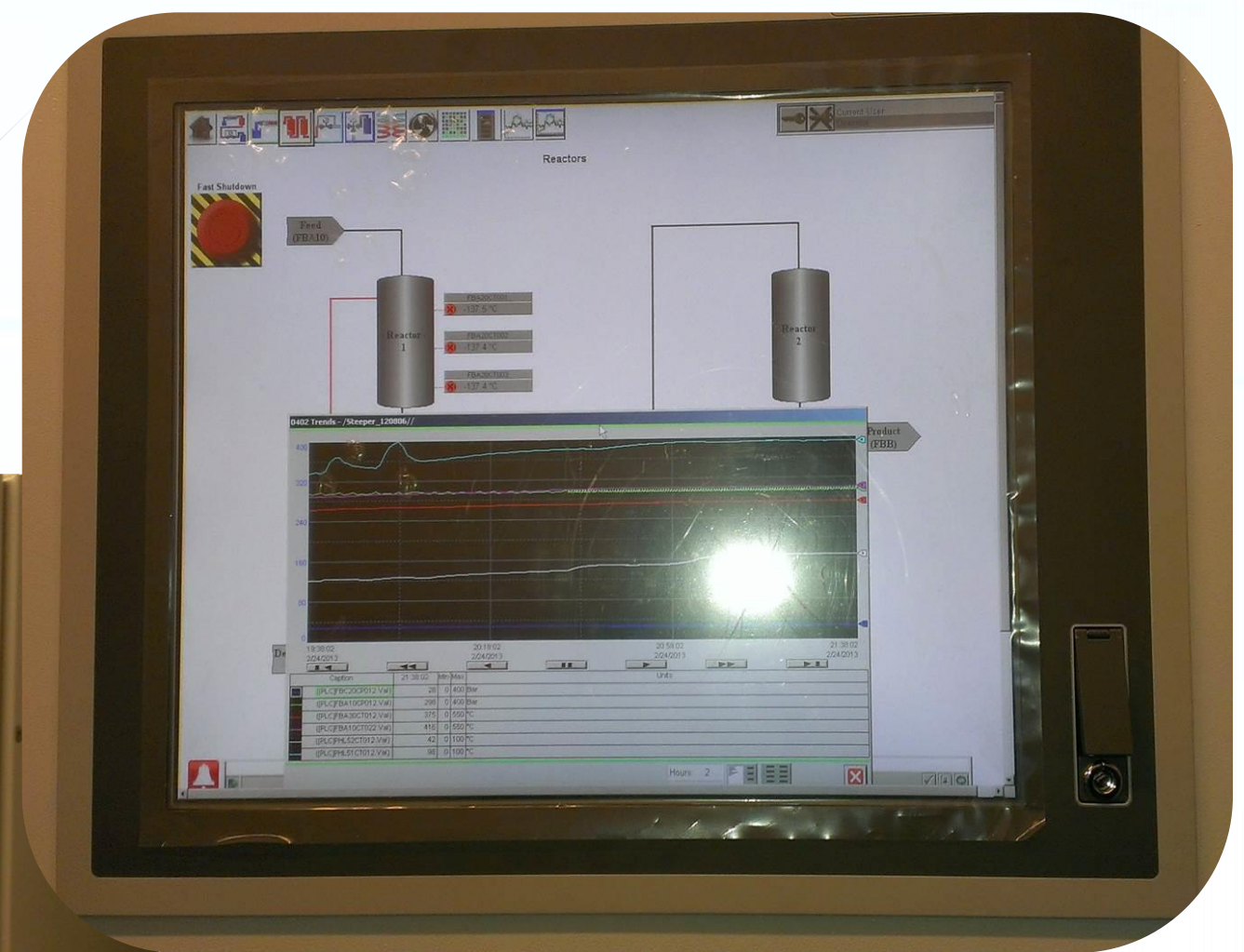
Hammer mill:
Used for shredding feed material. Changeable screens allow for particle size restrictions.



Mixer:
Milled material is mixed with water, additive solvent and catalysts. Capable of mixing high viscous mixtures.

Control & Utility Container

PLC controller:
Fully automation of the CBS1 by the PLC controller. Online measurements of process conditions throughout the entire plant, enables Establishment of energy and mass balances.



Gas analyzer:
The online gas analyzer measures the gas flow and the gas composition.

