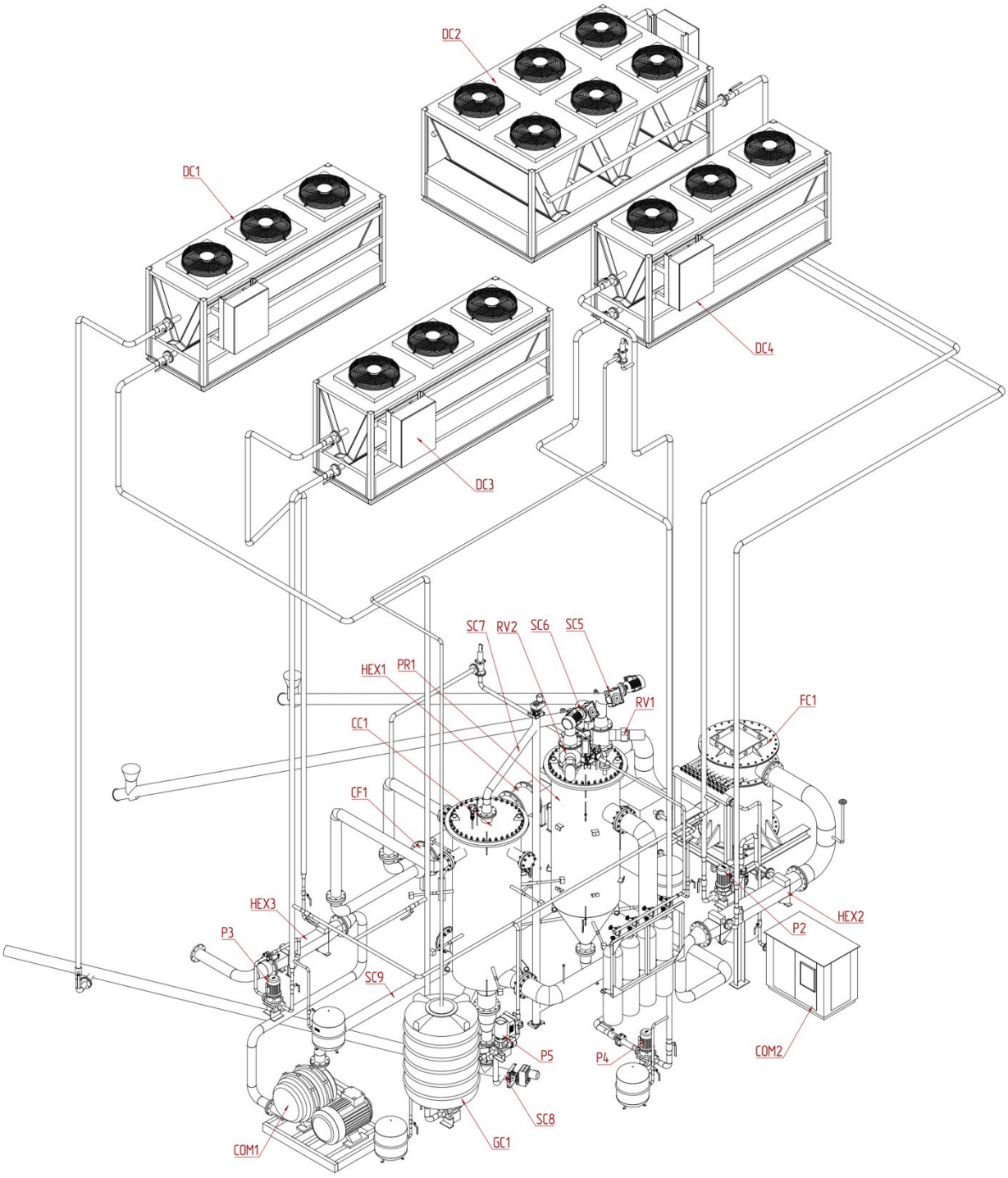
CETY HTAP DATA SHEET

HTAP (high temperature ablative pyrolysis) reactor is designed for thermochemical recovery of organic matter into synthetic fuel gas and biochar. Organic matter (biomass) is the various type of carbon based industrial, agricultural, forestry, wastewater and municipal waste or byproduct in solid state.

HTAP reactor system implements dual stages fast pyrolysis technology in two connected reactor vessels. In the first vessel high temperature pyrolysis extracts volatiles and produces char, in the second vessel thermos-catalytic cracking of volatiles occurs using char from the first vessel as the catalytic promoter material for complete conversion of volatiles into tar free high heating value syngas.

Technical specification

Description	Unit	Value
Biomass quantity, dry basis	t/day	30
Biomass moisture content	%	2…5
Biomass fraction size	mm	1…3
Auxiliary power connection	Vac	400
Auxiliary power consumption, cold start	kWh	350
Auxiliary power consumption, continuous operation	kWh	150
Automated control	-	PLC
Data logging	-	PLC
Operator interface	-	HMI
Syngas output quantity	Nm3/day	39000
Syngas heating value	MJ/Nm3	16
Syngas composition	% vol.	O2=0, CO2=0.34, N2=5.01, H2=36.18, CO=30.23, H2O=0.07, CH4=26.74, C2H6=0.82, C2H4=0.38, C2H2=0.23
Syngas discharge pressure	kPa	132
Biochar discharge quantity	t/day	5,4



Equipment	Description
PR1	Pyrolysis reactor with induction heater
CC1	Catalytic cracking reactor
CF1	Syngas cyclone filter
FC1	Syngas Ceramic candles filter
COM1	Syngas compressor 45kW
COM2	Ceramic filter purging compressor 7.5kW
SC5, SC6	Biomass auger transporter d=159mm
SC7, SC9	Biochar auger transporter d=108mm

SC8	Biochar auger transporter d=159mm with cooling water jacket
RV1, RV2, RV3, RV4	Airlock gate biomass and biochar
P1, P2, P3, P4, P5	Water-glycol pump 2.2kWe, 1.5kWe, 0.55kWe, 0.55kWe, 1.6kWe
DC1, DC2, DC3, DC4	Dry cooler 50kWt, 200kWt, 50kWt, 50kWt
HEX1, HEX2, HEX3	Syngas heat exchanger
GC1	Water-glycol buffer tank