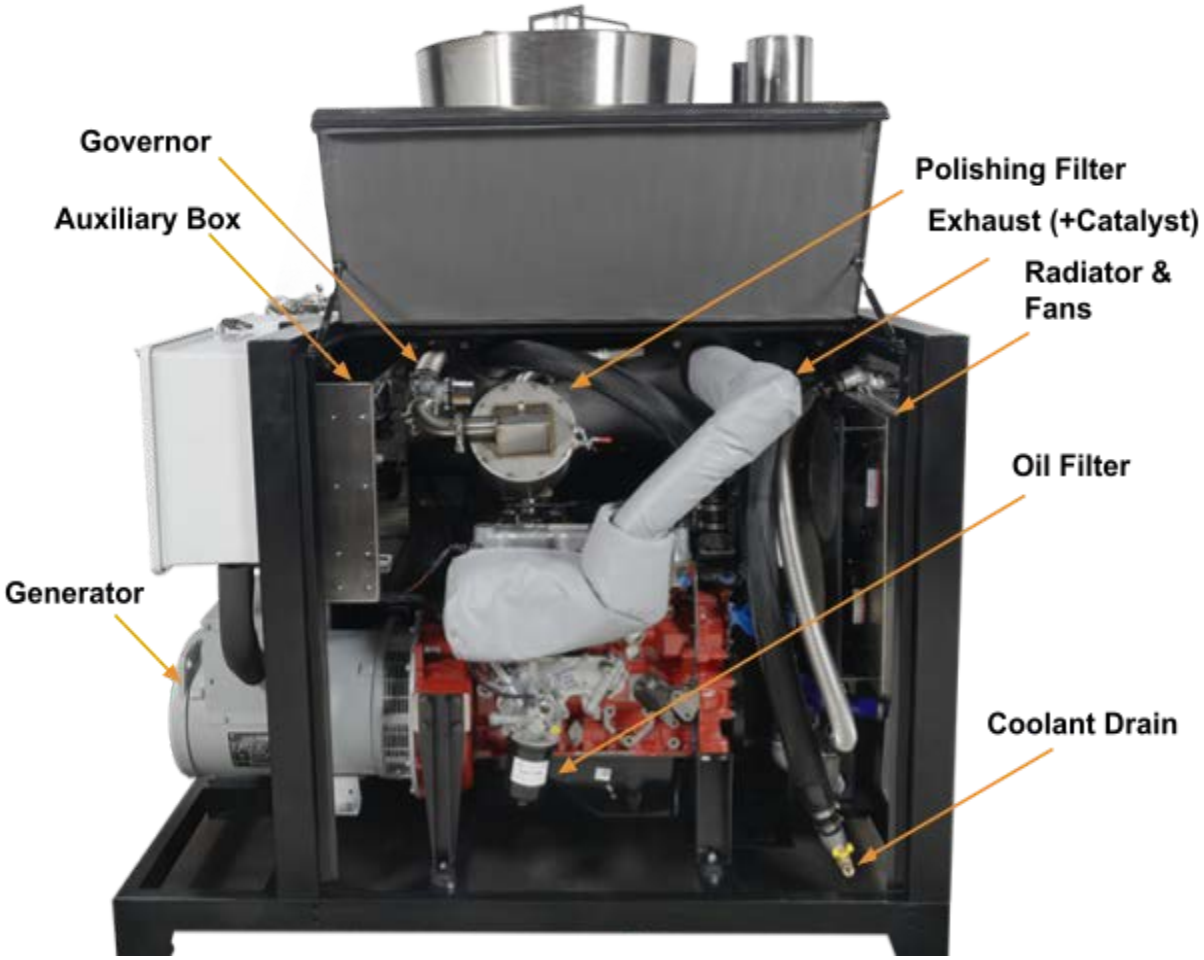
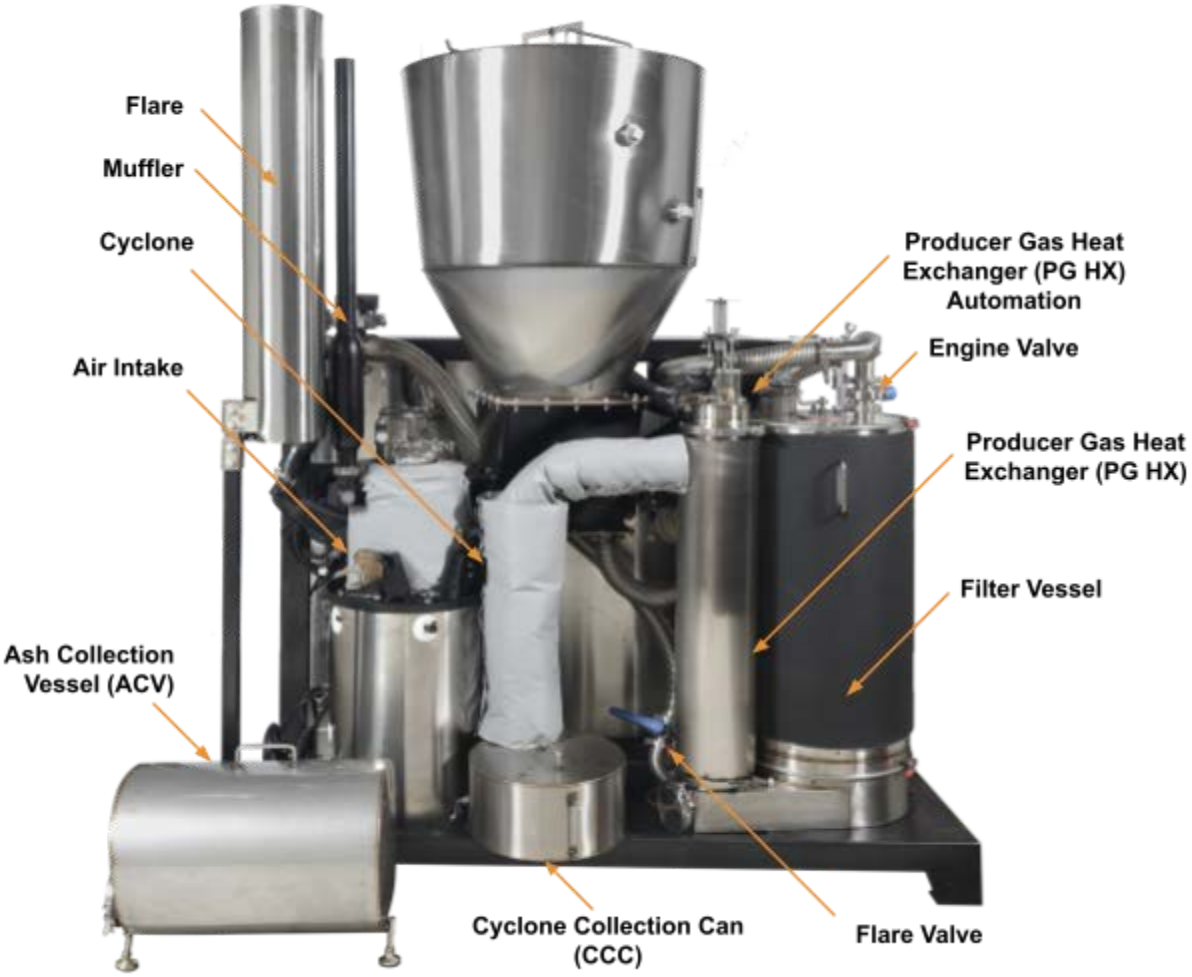
PP30 v2.01 Component Reference

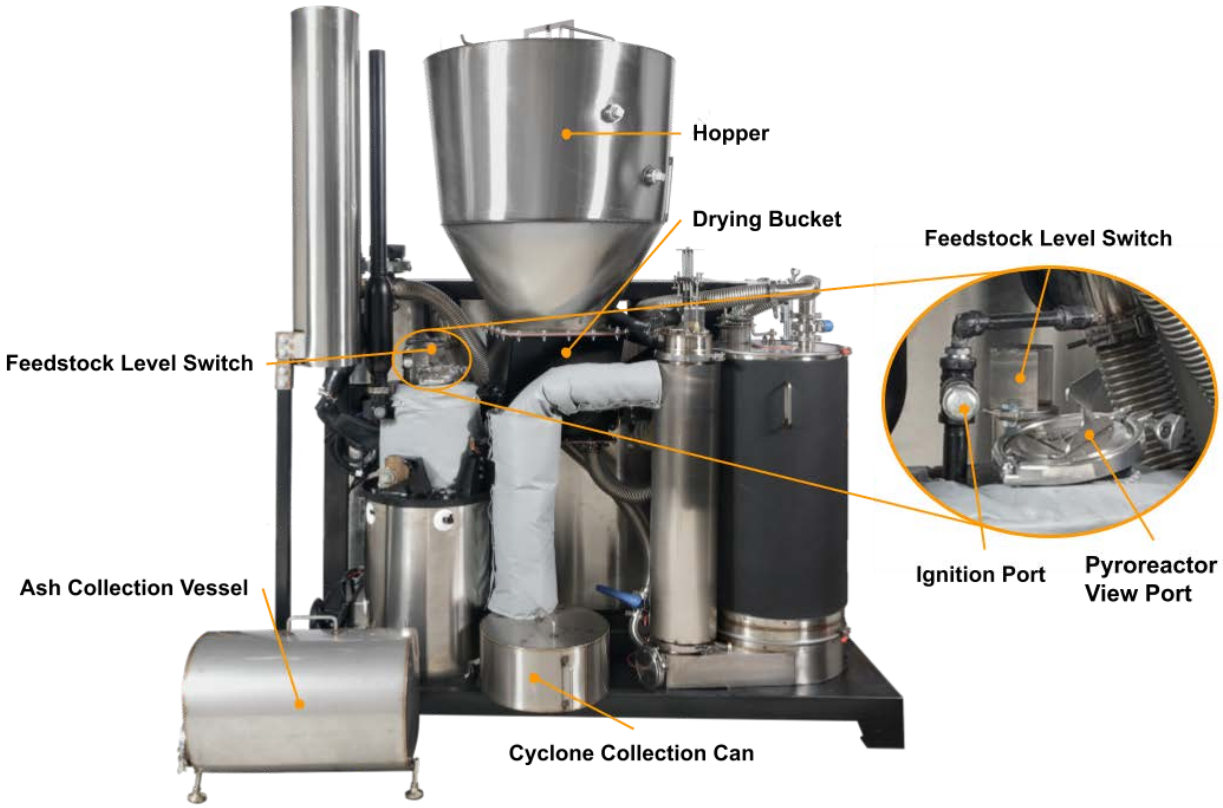
Power Pallet PP30


Governor
Auxiliary Box
Polishing Filter
Exhaust (+Catalyst)
Radiator &
Fans
Oil Filter
Generator
Coolant Drain


Flare
Muffler
Cyclone
Air Intake
Ash Collection Vessel (ACV)
Producer Gas Heat Exchanger (PG HX) Automation
Engine Valve
Producer Gas Heat Exchanger (PG HX)
Filter Vessel
Cyclone Collection Can (CCC)
Flare Valve

Gas Making System

Feedstock Feed System



Pyroreactor with Ash Collection Vessel

Label	Description	Label	Description
1	Feedstock Switch	**5**	Ash removal system motor
2	Inlet from drying bucket	**6**	Reactor access door
3	Exhaust inlet to Pyroreactor	**7**	Air inlet with check valve
4	Grate basket shaker motor	**8**	Ash Collection Vessel (ACV)

Label	Description	Label	Description
1	Ignition port (shown with extension)	**4**	Pyroreactor view port
2	Outlet to exhaust stack	**5**	Cyclone
3	Ash removal port	**6**	Cyclone Collection Can (CCC)

Gas Cowling and Pyroreactor

The Pyroreactor fits into the gas cowling in the assembled gasifier.

Label	Description	Label	Description
1	Gas cowling (inner vessel)	**5**	Inlet from drying bucket
2	Gas cowling insulation shroud[1]	**6**	Air lines
3	Ash-out auger	**7**	Projected hearth
4	Grate basket shaker motor		

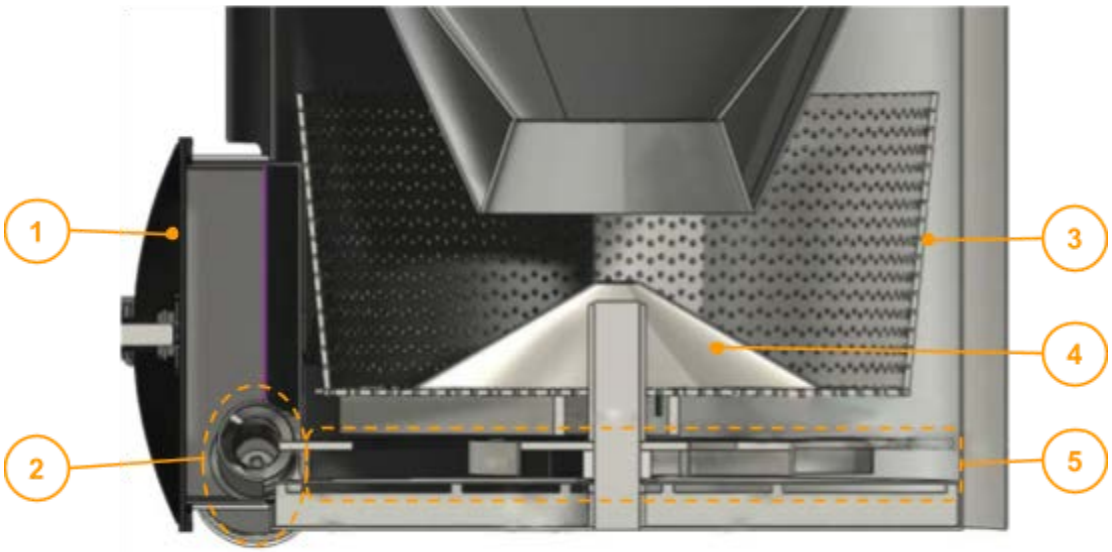
1

Pyroreactor cross section

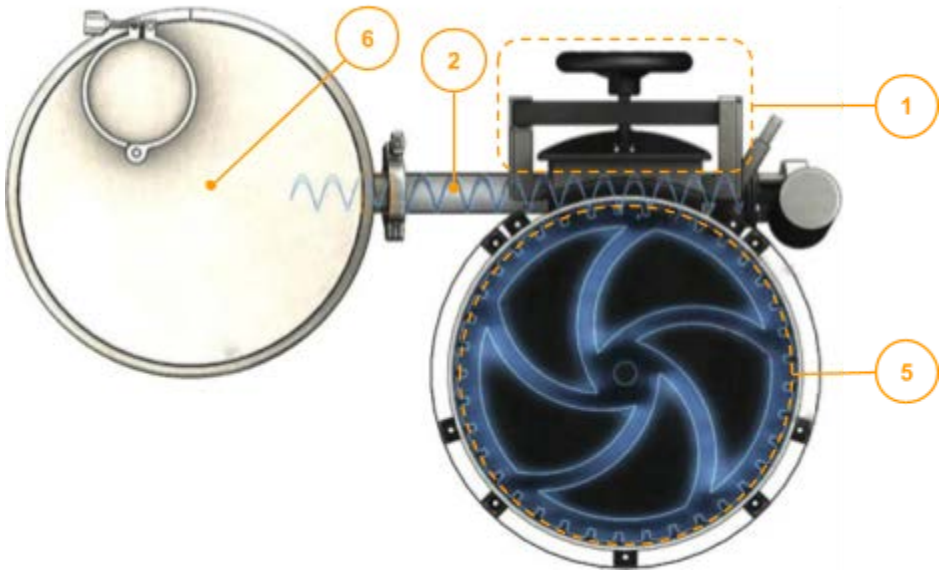
Label	Description	Label	Description
1	*Pcomb* pressure barb	**6**	Air lines
2	Lighting tube	**7**	Projected hearth[2]
3	Pyrolysis column	**8**	Grate basket
4	Air nozzles	**9**	Ash scroll
5	Exhaust inlet to Pyroreactor		

[2] Perlite insulation not shown. ‘Projected’ simply means it protrudes and is only supported from above.

Cross-section detailed view of grate basket and ash handling system

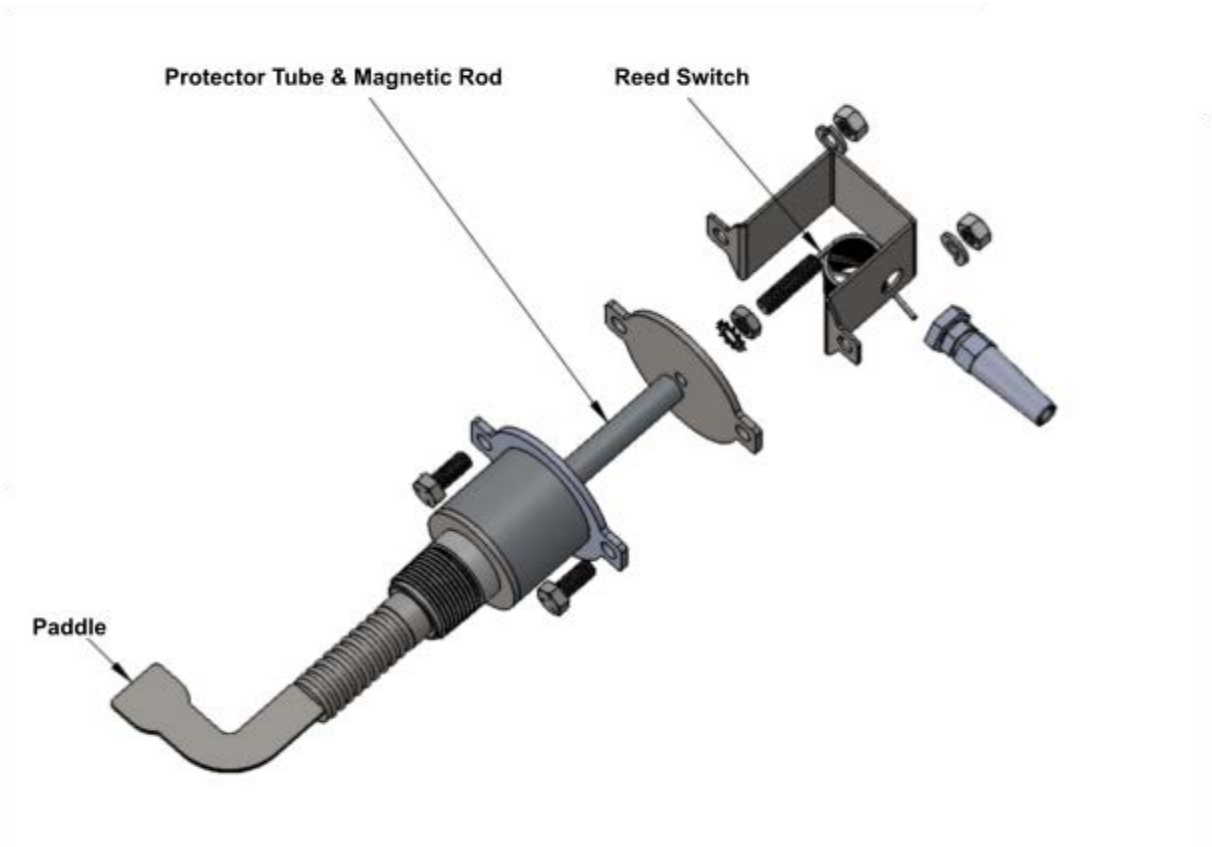


Transparent top view of ash handling system

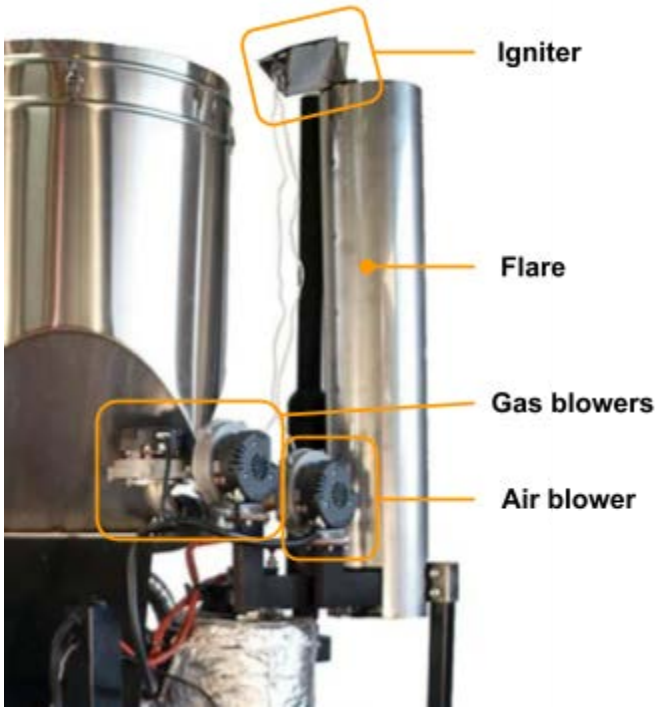


Label	Description	Label	Description
1	Reactor access door	**4**	Activator cone
2	Ash-out auger	**5**	Scroll plate
3	Grate basket	**6**	Ash collection vessel

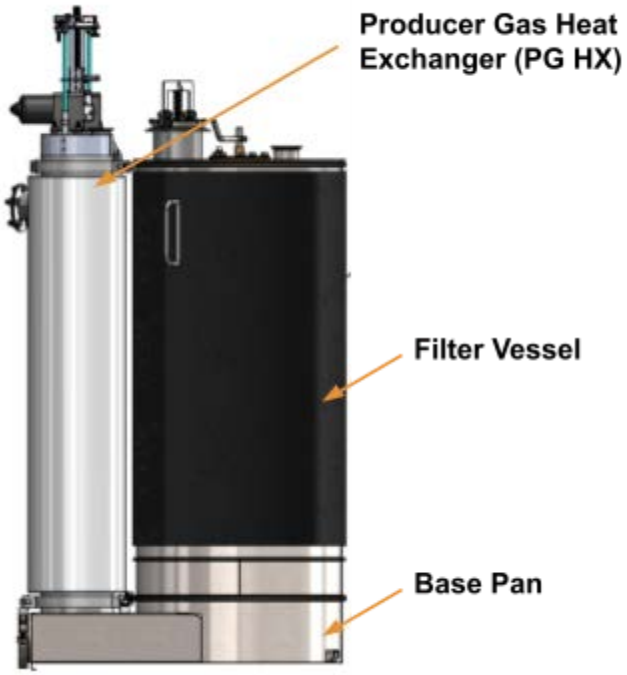
Feedstock Switch



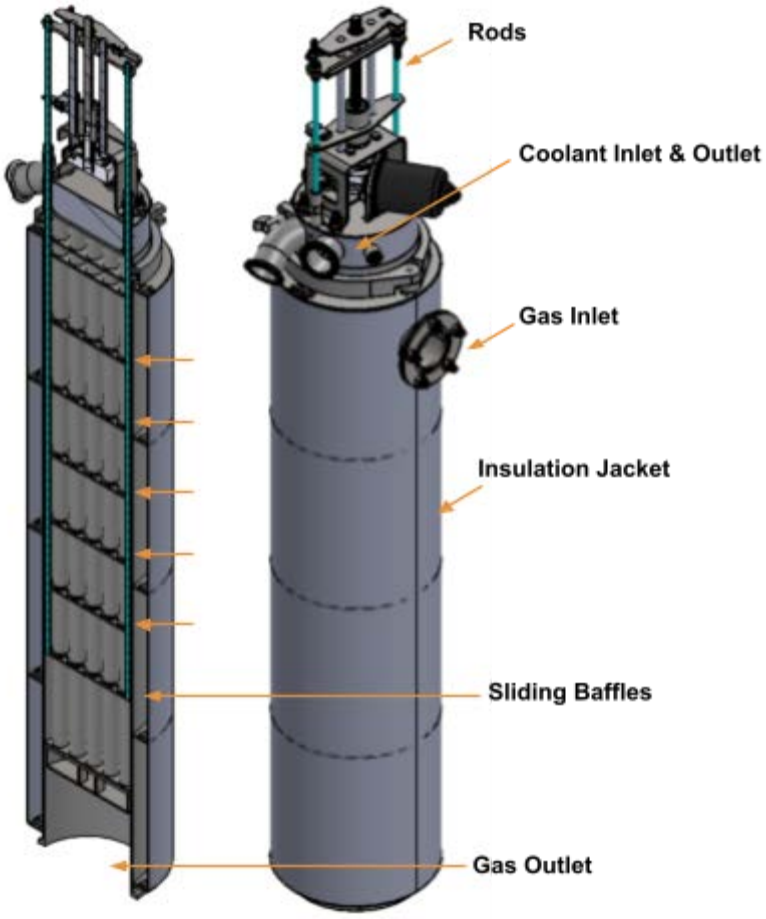
Flare



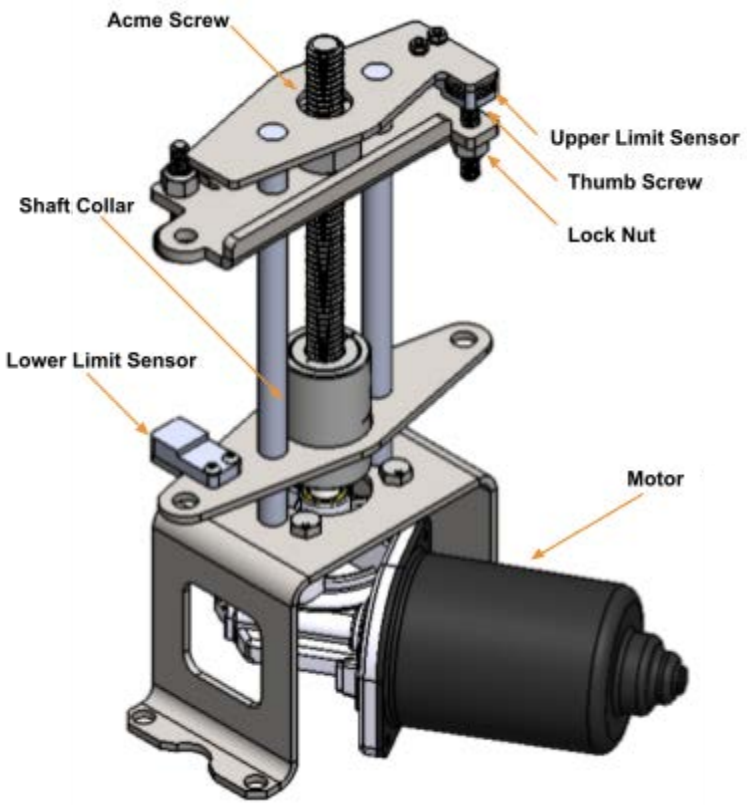
Filter System



Producer Gas Heat Exchanger (PG HX)

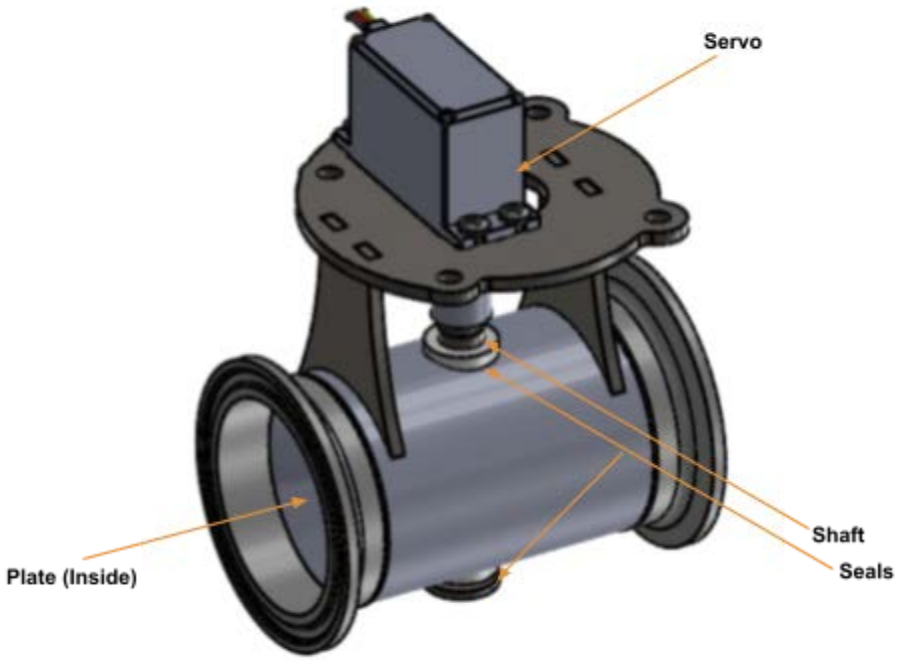


Producer Gas Heat Exchanger (PG HX) Automation



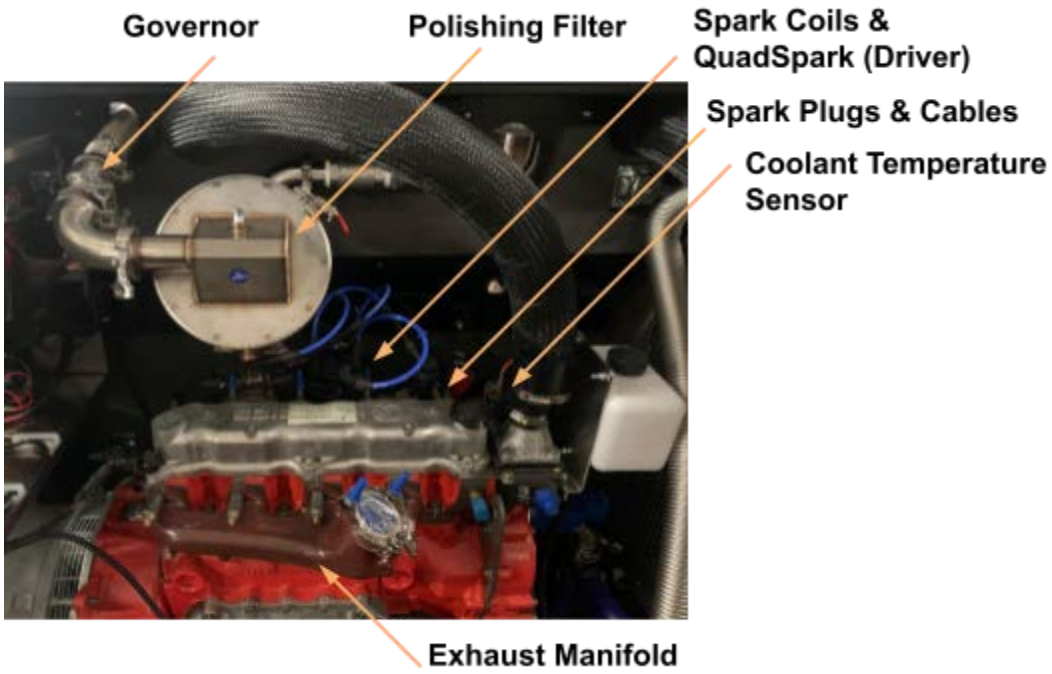
Filter Vessel and Base Pan

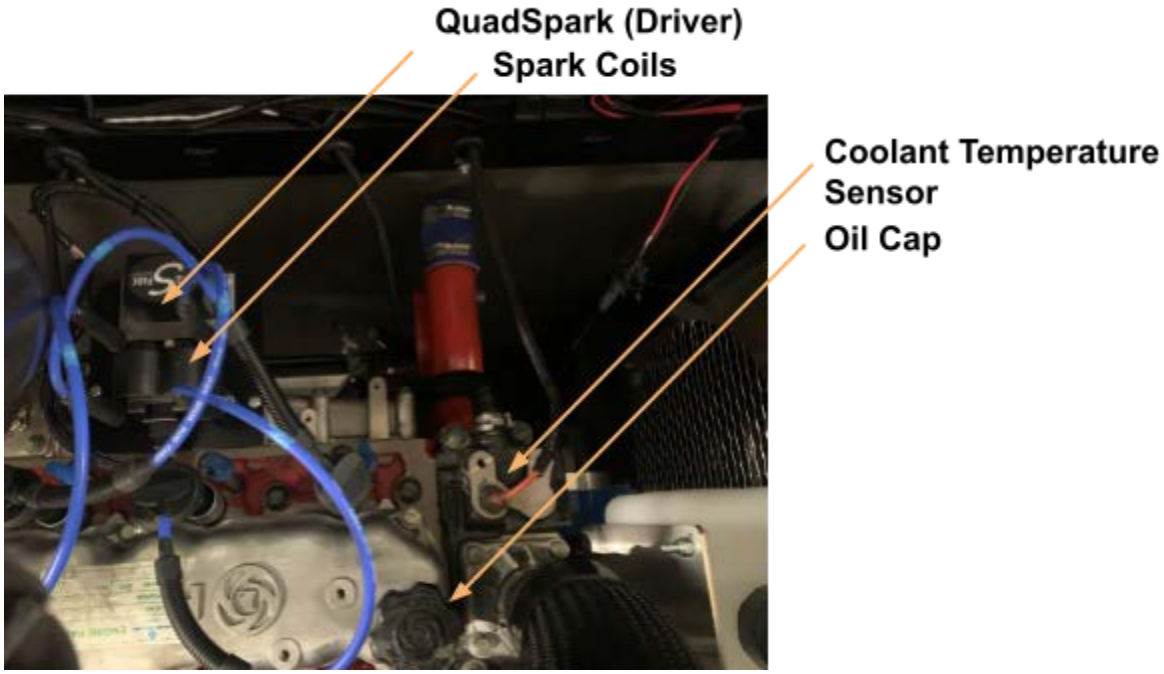
Air Servo



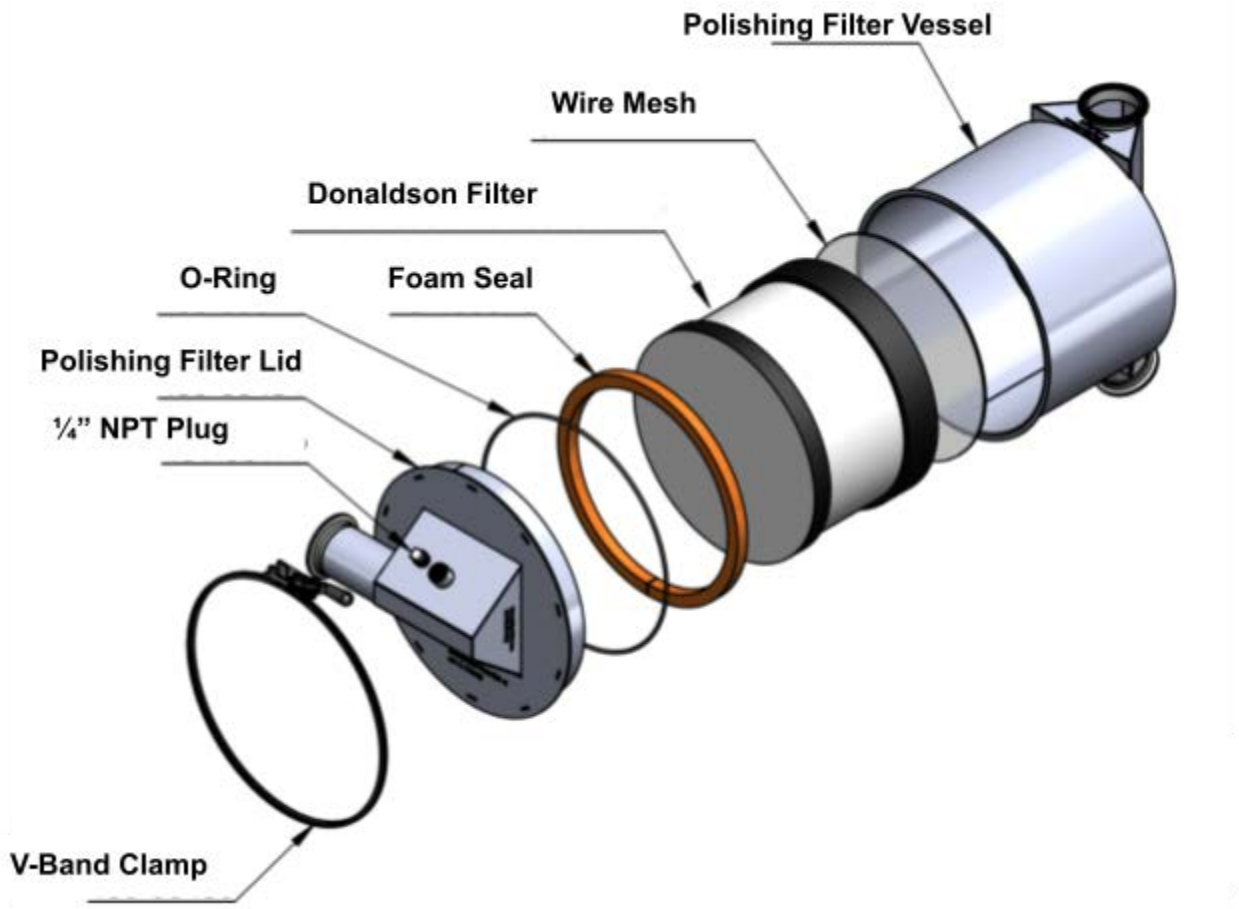
Power Generation System

Engine

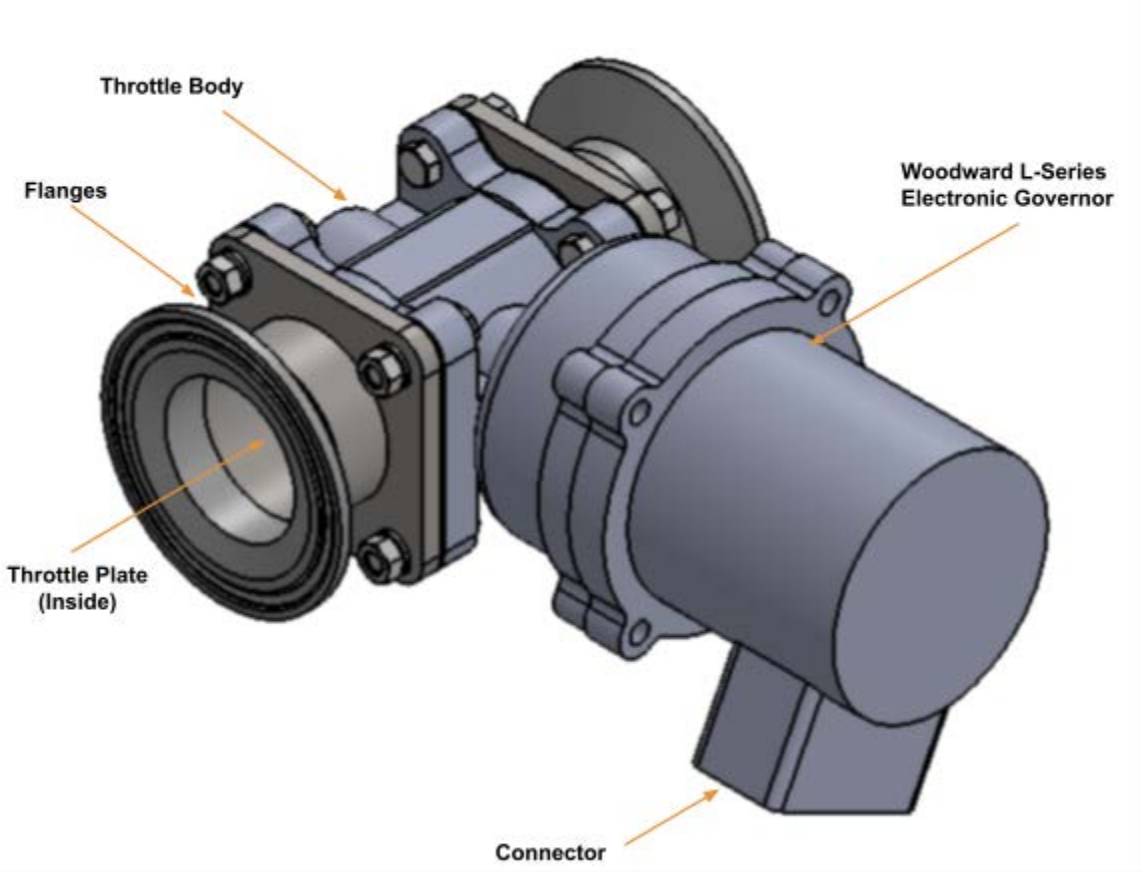




Polishing Filter

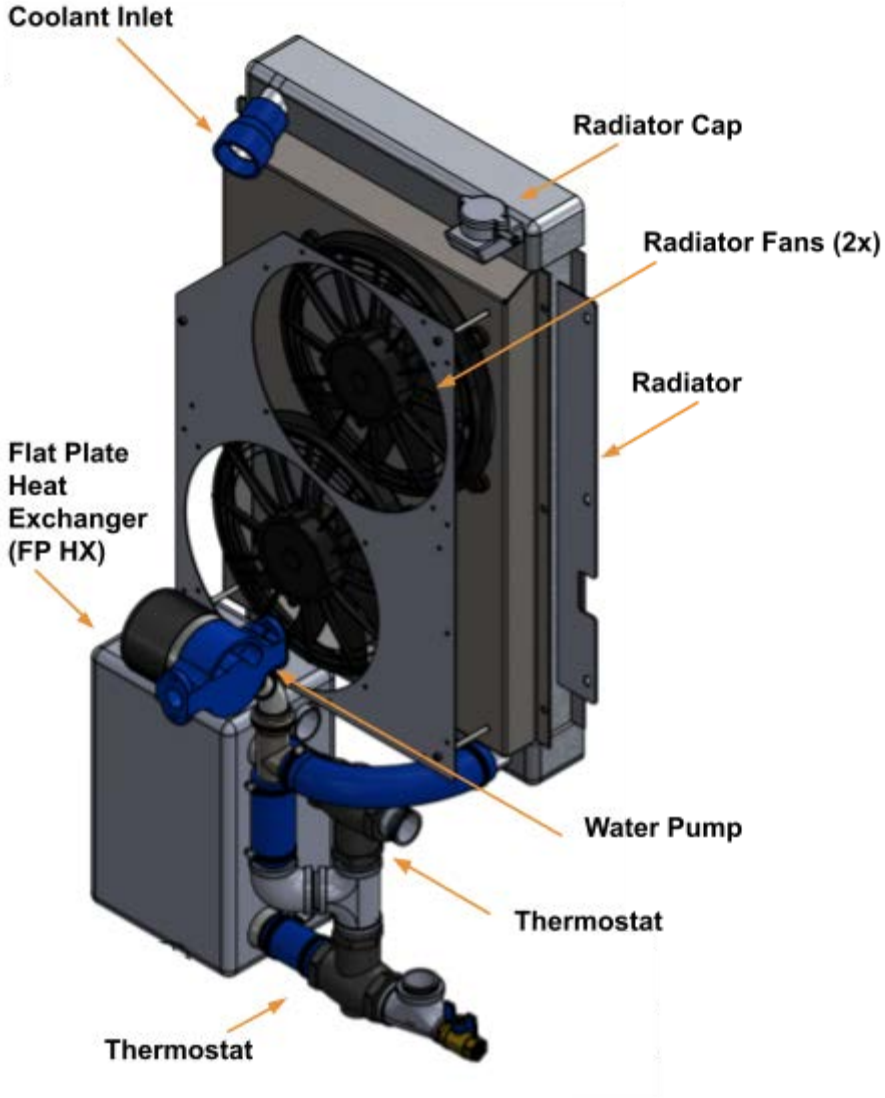


Governor


Throttle Body
Flanges
Woodward L-Series
Electronic Governor
Throttle Plate
(Inside)
Connector

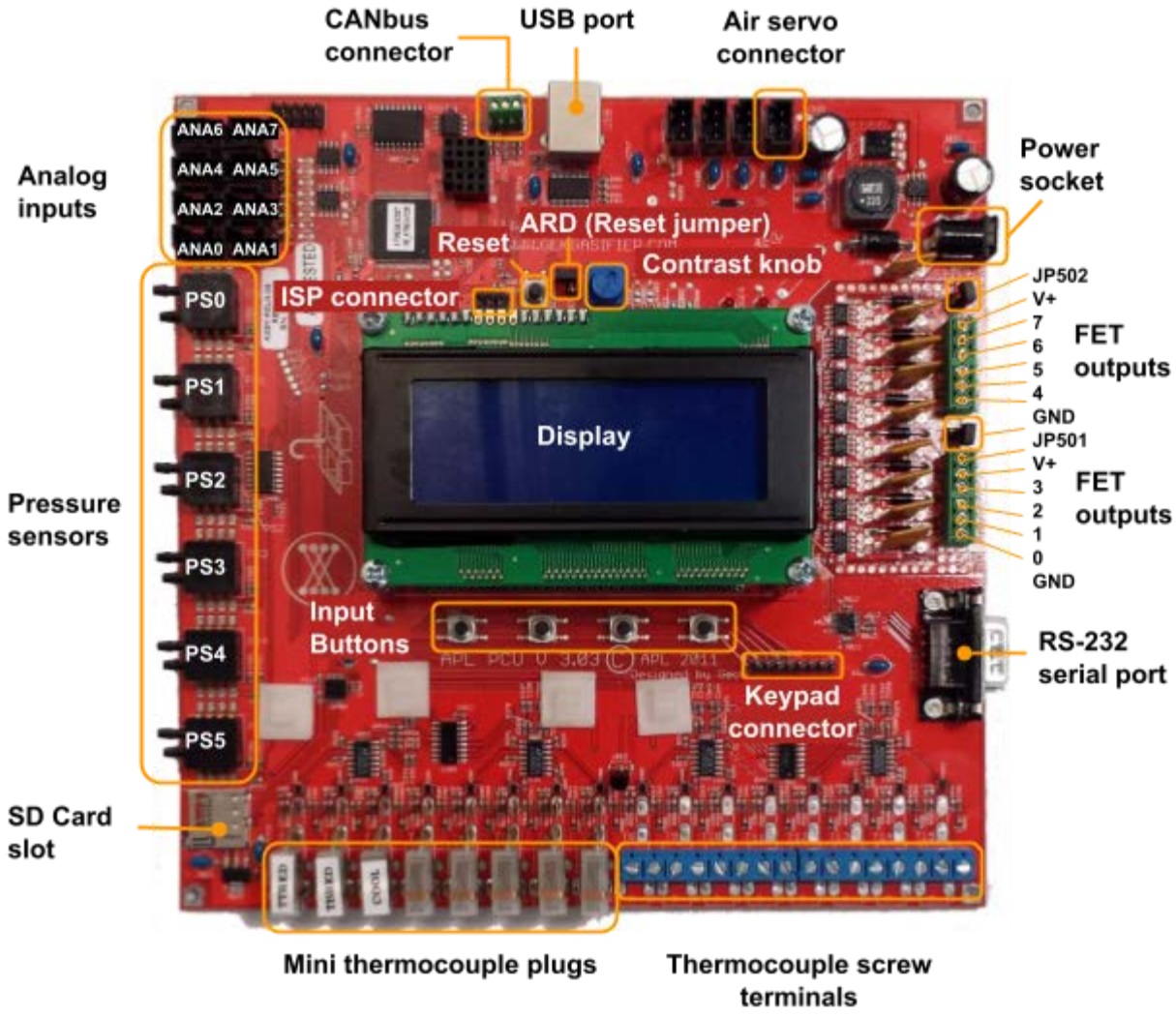
Oxygen Sensor

Cooling Package

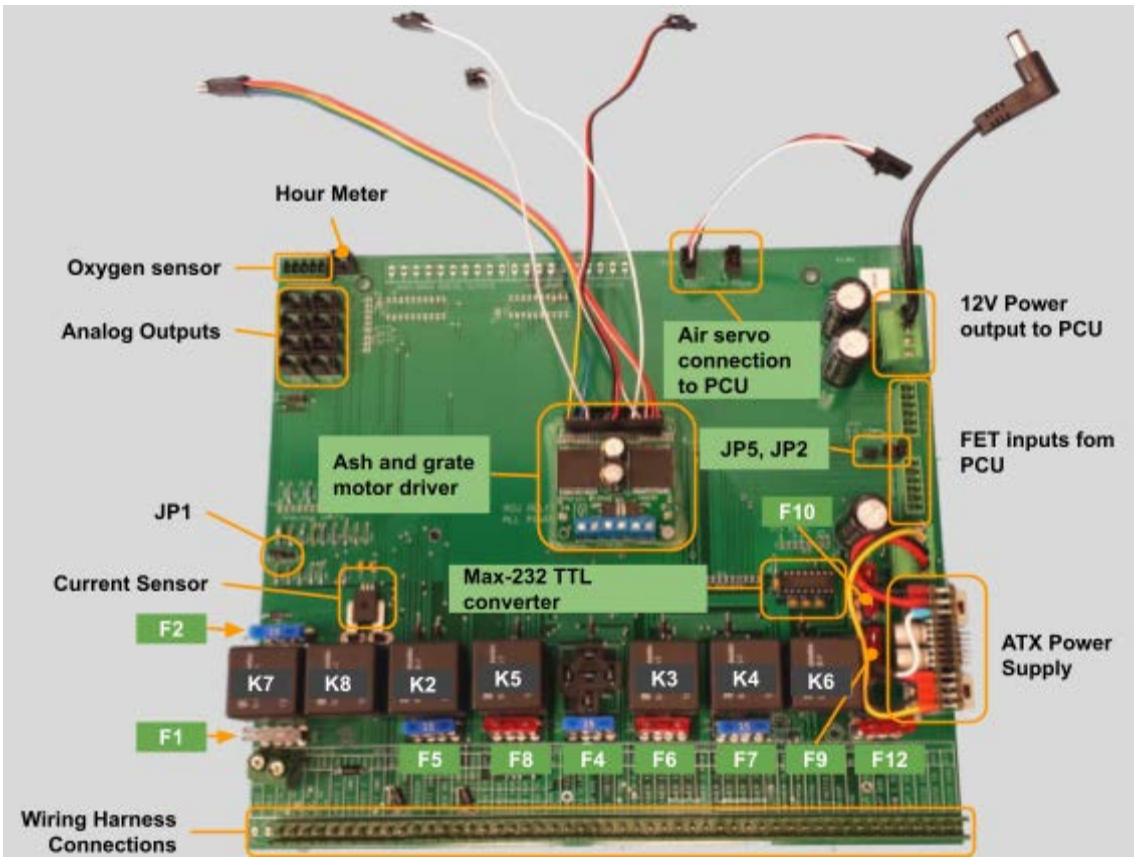


Electrical Systems

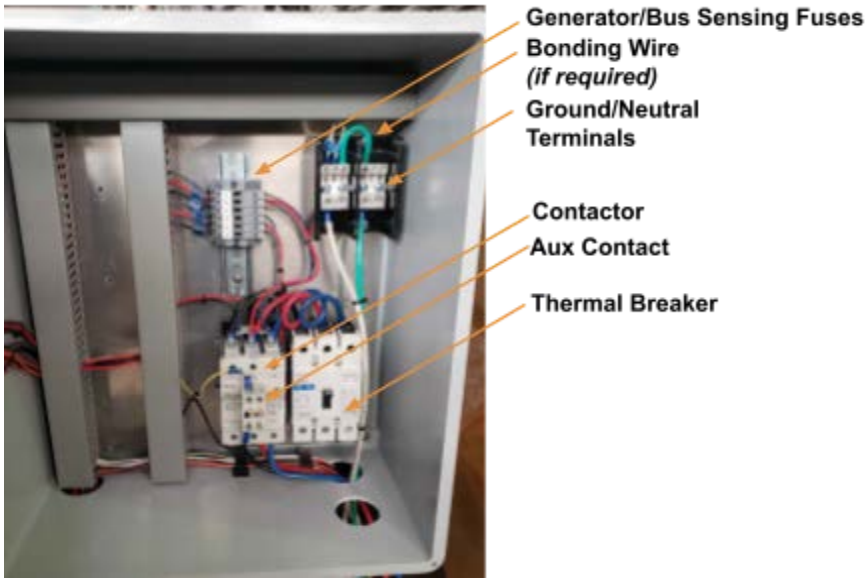
PCU



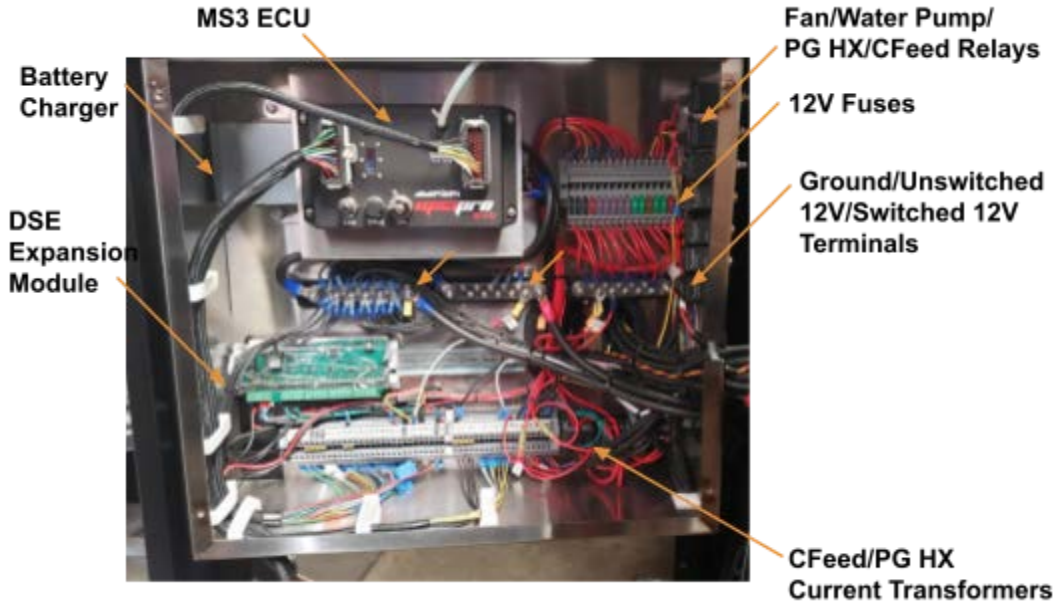
Relay Board



Generator Control Unit

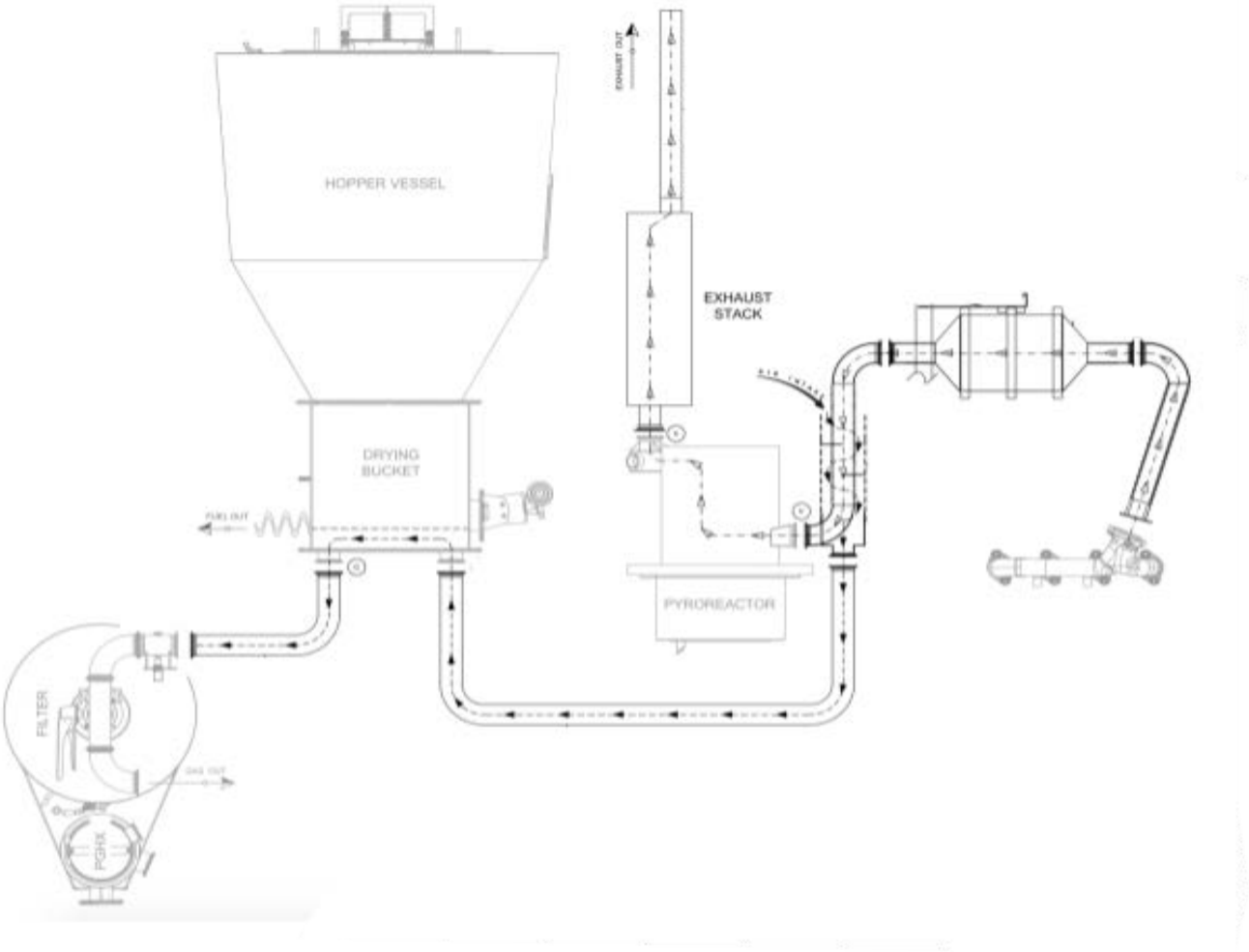


Auxiliary (Aux) Box

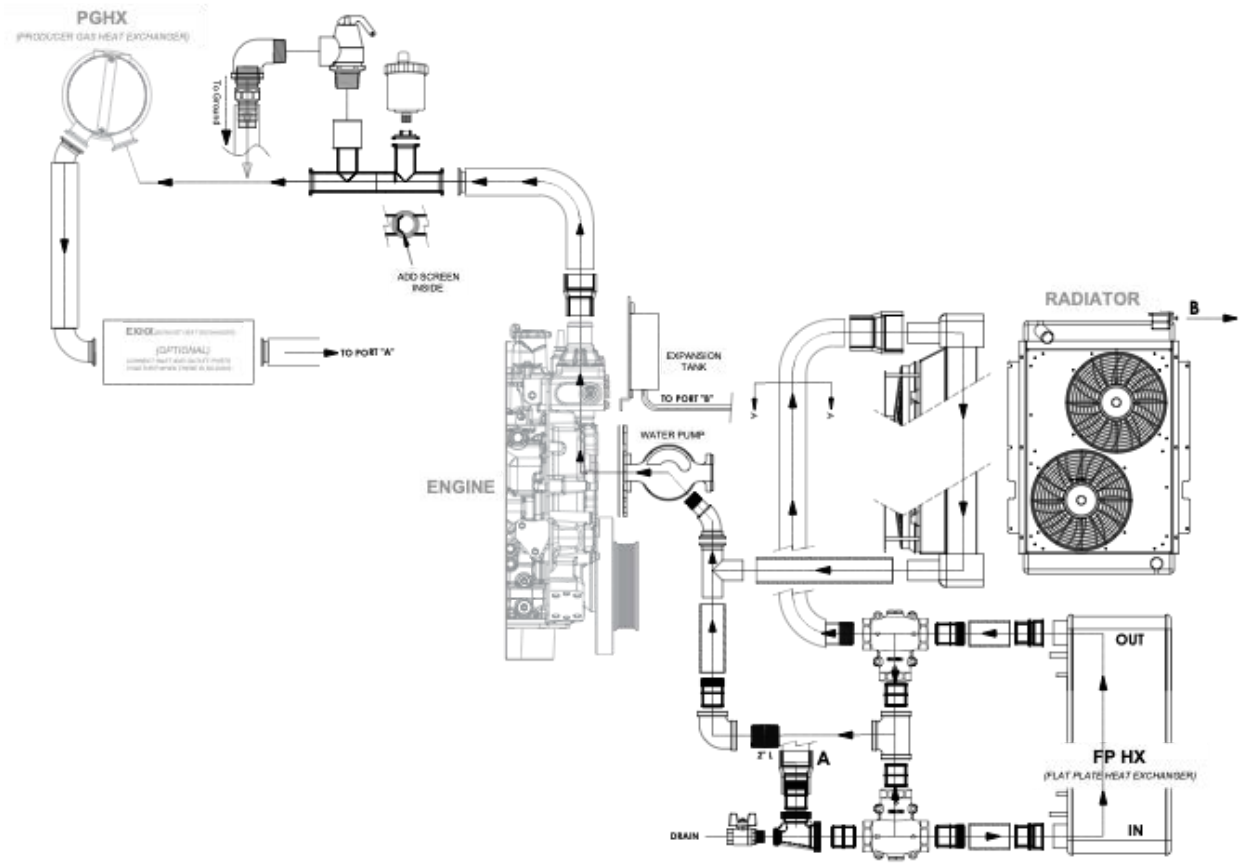


System Diagrams

Exhaust System



Cooling System with Combined Heat & Power (CHP)



Abbreviations

- PP30 - Power Pallet 30
- ACV - “Ash” Collection Vessel
- CCC - Cyclone Collection Can
- PCU - Process Control Unit
- MG - MicroGrid Container

Units

PCU Display:

- Temperatures - degrees celcius
  - Note that low temperatures will read as 25°C
- Pressures - tenths of an inch of water column
  - 10 = 1 inch of water column ~= 250 Pascal
  - 277 = 27.7 inches of water column = 1 PSI.
  - Minus indicates negative pressure (vacuum)
- Analog Inputs
  - Counts - 0-1023 (10-bit)

Oxygen Sensor:

- Readout on Lambda Meter
  - 1.00 Lambda = Stoichiometric mixture
  - >1.00 = Lean Mixture
  - <1.00 Rich Mixture.