

## Micro-Turbine Generator

Miniature or “micro” gas turbine powered electric generation systems typically feature a high-speed electric alternator, mounted directly on the turbine shaft, a high current inverter/rectifier system, and heat recovery system or recuperator. The system produces clean power in the 30 kw to 200 kw range, and heat that can be used for secondary processes or absorption cooling, when coupled to the heat recovery generator.



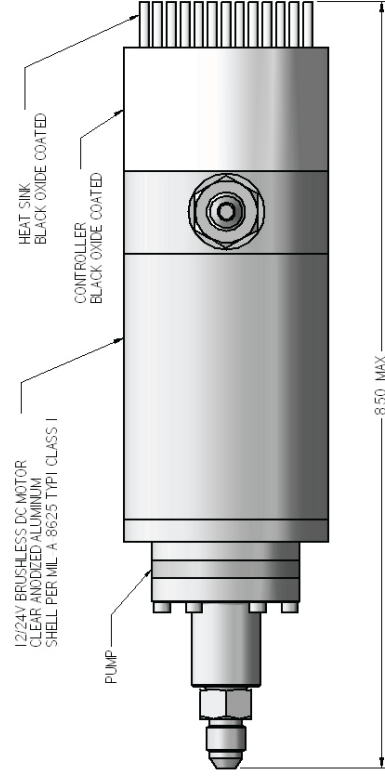
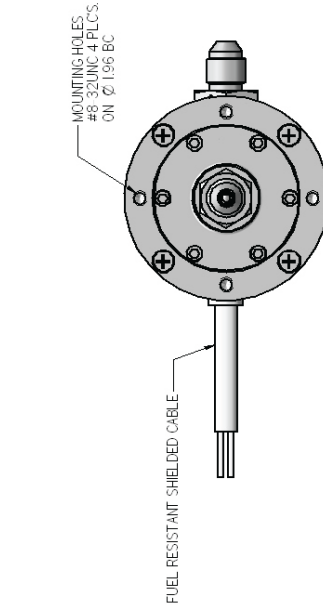
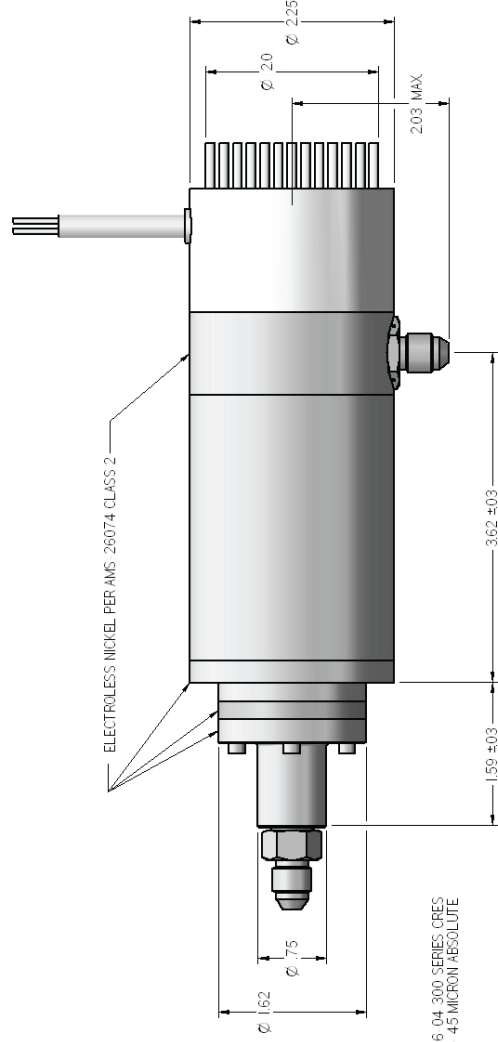
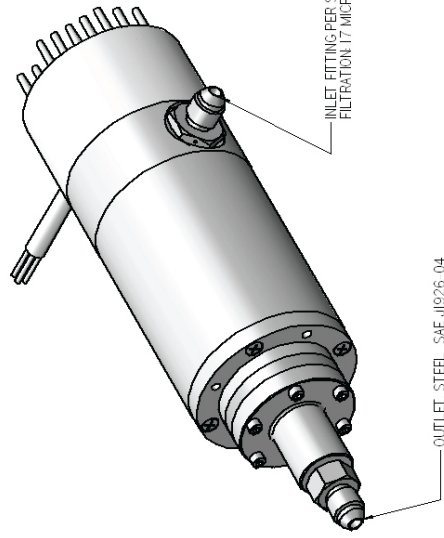
### Pump Description:

The liquid fuel metering pump consists of a rolling contact, positive displacement pump rotor (known as an IGR), with an integral brushless dc drive motor and digital electronic controller. The fuel pump is capable of precisely metering fuel over a turn down ratio of up to 50:1. Output flow is proportionally controlled with a 0-5 VDC input command signal to the digital motor controllers. Accurate speed feedback is provided by a square-wave output signal generated by a Hall Effect switch embedded in the winding of brushless dc motor. The wetted components are hermetically sealed from the motor windings and control electronics, thus eliminating concerns of fluid leaks normally associated with conventional shaft seals. This flow-through design ensures a constant supply of clean fluid to the journal bearings, and also helps to dissipate heat from the statically sealed motor windings and electronic motor controller. The pumping chamber consists of a tool steel rotor assembly housed in a nickel plated cast iron eccentric ring, with nickel plated cast iron top and bottom port plates.

### Selected Performance Data:

Fluids	Jet-A, JP-4, JP-10, K-1, Diesel
Metering Flow Range	20 cc/min – 1000 cc/min
Discharge Pressure	200 psig max
Flow Metering Accuracy	+/- 2 %
Temperature Range	-40 °C to +160 °C
Transient Response	Min to Max in < 80 msec
Operating Voltage	12 – 28 vdc (24 vdc nom)
Relief valve	Integral – bypass to inlet
Inlet Filter	SAE J1926-04, 300 CRES, 17 micron
Construction	Hermetic welded assembly
Design Life	40,000 hours continuous duty





CASE STUDY CS-141 FUEL METERING PUMP