



Report of Materials and Equipment Acceptance Division

NYC Department of Buildings
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Per the Fire Department letter dated February 14, 2008, the one (1) year expiration date has been removed.

Pursuant to Administrative Code Section 27-131, the following equipment or material has been found acceptable for use subject to the terms and conditions contained herein.

MEA 216-06-E (Correction)

Manufacturer: Elliott Energy Systems, Inc., 2901 SE Monroe Street, Stuart, FL 34997

Trade Name(s): Elliott

Product: Microturbine CHP package

Pertinent Code Section(s): Reference Standard RS 14, RS 15 and RS 16

Prescribed Test(s): UL 2200, UL 1741, API 619 (EN1012-1)

Laboratory: Intertek ETL Semko

Test Report(s): Report No. 3102679TOR-002, issued October 20, 2006

Description:

Model	Performance Rating
TA100-CHP	100 KW (electricity) + 172 KW (thermal)

Microturbine is a natural gas-fueled, recuperated microturbine generating system. It can supply processed heat and electric power. The product has been built to meet the environment operating conditions of either an indoor or outdoor installation. The outdoor package includes a weather protection roof to prevent rain and snow from entering the system. The system is comprised of a gas turbine, power electronics, heat-recovery unit, gas-boost compressor and metal water-proof enclosure. The rated output is 480Vac, 60 Hz, and up to 100 KW (when in an ambient of 15°C). Maximum normal ambient temperature is 40°C.

The unit can be connected by either Grid mode or Standalone (Island) mode. The indoor use product has dimensions of 84cm width by 211cm height by 300cm length with 1814kg. weight. The outdoor use unit is 84cm width by 225cm height by 300cm length with 2040kg. weight.

The unit has been approved with the following software:

Inverter Control Board Software 1.31 version
Engine Control Board Software D018 version
Engine Control Board PLC Software D028 version and
LCD Touch Panel Software D021 version

Any software changes that effect the terms and conditions outlined in this resolution shall be subject to MEA review and approval.

The fuel gas-booster, as manufactured by CompAir (Model #V05G), is integrated with the Elliott microturbine units. This fuel gas-booster is a variable, speed-drive device which serves to boost the inlet supply pressure of low-pressure natural gas to approximately 80-85 psig range, which is the required pressure for fuel injection into the combustor.

Pursuant to "Promulgation of the Rules relating to Material and Equipment Application Procedures" dated November 5, 1992, the Bureau of Fire Prevention has no objections Letter dated February 14, 2008, F.P. Index #0802004.

Terms and Conditions: The above-described microturbine and gas booster system is accepted under the following conditions:

1. The installation shall comply with the applicable requirements of New York City Building Code, especially to high hazard occupancies and RS16 – Gas Piping, RS 17-3, NFPA 37 “Installation and Use of Stationary Combustion Engines and Gas Turbines”, NFPA 54 “Fuel Gas Code: and New York City Electrical Code 2004.
2. The system (microturbine and gas booster) shall be used only with piped natural gas as the fuel.
3. The system shall be installed on a roof of non-combustible construction, in the yard or on a setback subject to distance requirements. The system shall not be installed inside mercantile (occupancy group C), business (occupancy group E), assembly (occupancy group F), educational (occupancy group G), institutional (occupancy group H) and residential (occupancy group J) buildings.

4. When installed inside of a structure located on the roof or setback of a building of non-combustible construction, such structure/room shall be of an approved type and shall comply with one of the following:
 - (a) Light weight, non-combustible and damage limiting structure, and
 - i) no combustion-burning equipment or equipment subject to sparking or heat shall be installed in this structure
 - ii) shall be well ventilated.
 - (b) Non-combustible room meeting high hazard construction requirements of the New York City Building Code. No other combustion-burning equipment or equipment subject to heat/sparking shall be installed in such room and the room provided with:
 - i) an approved automatic fire suppression system
 - ii) emergency microturbine shut-off switch located outside at the entrance to the room
 - iii) louvers for natural ventilation
 - iv) combustible gas-detection alarm system
 - v) electrical equipment suitable for Class I, Division I locations.
5. The system may be installed indoors only in:
 - (a) buildings exclusively used for high hazard processes (occupancy group A)
 - (b) buildings exclusively used for storage (occupancy group B)
 - (c) buildings exclusively used for industrial use (occupancy group D)
6. When installed indoors in Group A, Group B or Group D occupancies, system shall meet shall meet all the requirements of high-hazard occupancies and the requirements of Reference Standard RS 16, P115.8 (n). An independent ventilation system for explosion prevention in accordance with NFPA 69 shall be provided. Combustion-burning equipment or equipment subject to heat/sparking is not to be installed in the same room.
7. All exhaust from the unit shall terminate outside the building and away from any building openings, public areas and places where flammable vapors or exhaust gases may collect.
8. The installation shall be used only for distributed generation/co-generation of power and shall not be used in lieu of emergency power as defined in §27-396.4 Title 27 of the Administrative Code.
9. Only the model #V05G fuel gas booster shall be used with the microturbine. Fuel shall be supplied only at low pressures between 0.18 psi and 5 psi to the fuel gas booster.

10. A manual valve and an automatic shut-off valve that closes if a leak or break is sensed in the riser/pipeline shall be installed at the base of the riser. Such leak or break shall also shut down the complete system simultaneously so that the gas boosters do not cavitate.
11. Any high pressure gas equipment used as an accessory to the microturbine and its related gas booster shall be installed in accordance with the New York City Building Code for high hazard occupancies.
12. A flame arrestor of the gas booster shall be installed downstream to prevent flame propagating to the natural gas fuel lines. Proper allowance in the piping system design shall be made.
13. A diagram shall be posted conspicuously indicating the location of the main fuel shut-off valve.
14. Plans for the complete installation including electrical, shall be approved by the New York City Department of Buildings and the New York City Fire Department.
15. The installation shall not be located within:
 - (a) five (5) feet of any building opening, including any door, openable window or intake or exhaust vent
 - (b) twenty-five (25) feet of any area occupied as a multiple dwelling
 - (c) one hundred (100) feet of any area occupied for educational, health care or religious purposes, area used as a place of assembly or other area of public gathering
 - (d) five (5) feet of any parked motor vehicle
 - (e) five (5) feet of any vent or fill line of any flammable or combustible liquid storage tank
 - (f) ten (10) feet of any combustible material
 - (g) twenty (20) feet of any flammable gas storage
 - (h) twenty (20) feet of any above ground flammable or combustible liquid storage tank.
16. Safety features shall be incorporated, but not limited to the following:
 - (a) For the Gas Booster
 1. Motor over current protection
 2. Inlet check valve to prevent reverse flow
 3. Low pressure switch
 4. High outlet pressure switch
 5. High lube oil temperature switch

(b) For the Microturbine

1. Pressure transducer to monitor fuel activity
 2. Turbine exhaust temperature
 3. Air intake temperature
 4. Temperature sensor for the electronics
 5. Over speed control
 6. High exhaust temperature.
17. All annunciations shall be provided locally and remotely if required, to indicate any abnormal condition in the system. The panel shall be located in a continuously supervised location on the premises.
18. The microturbine and compressors shall be shut down automatically and the fuel supply cut off automatically in case any of the parameters monitored exceeds the safe limit.
19. A remote shut down feature shall be installed on the premises to shut down the system remotely.
20. Doors leading to the roof where the units are located shall be alarmed.
21. The enclosure for the microturbine shall be kept in good condition over the years. Panels shall not be kept open or loose.
22. The installation shall meet all the requirements of the manufacturer's installation, operation and maintenance manual.
23. The installation shall be inspected once every year or earlier as recommended by the manufacturer. Record of such inspection shall be kept on the premises at all times. The equipment shall be replaced as deemed necessary.
24. A certificate of fitness holder shall be required on the premises. The C of F holder shall be trained by the manufacturer or his authorized agent, to shut down the equipment in an emergency.
25. The microturbine installation shall be provided with adequate protection from theft, tampering and unauthorized use. Additionally, when installed in locations where the possibility of vehicle impact exists, the microturbine and compressors shall be adequately protected from such vehicle impact.
26. The manufacturer's installation and maintenance requirements, safety features and specifications & limitations shall be strictly followed and fully complied with.

27. The testing laboratories' requirements and limitations shall be strictly followed and fully complied with.
28. An FDNY permit is required.
29. The installation shall comply with the requirements, including testing of all agencies having jurisdiction.
30. All shipments and deliveries of such equipment shall be provided with a metal tag, suitably placed, certifying that the equipment shipped or delivered is equivalent to that tested and accepted for use, as provided in Section 27-131 of the New York City Building Code.

Final Acceptance February 15, 2008
Examined By Donald [Signature]