**Specification document (short) for Adveco Totem mCHP**

# PERFORMANCE OBJECTIVES

The Mechanical contractor shall include for the supply, delivery, installation and commissioning of a Combined Heat and Power (CHP) package. The chosen CHP package shall be independently tested and certified as meeting relevant CHP design standards; all works shall comply with relevant installation standards and meet the following criteria:

## Engine emissions

The engine emissions shall be independently verified and not exceed the following values:

|  |  |
| --- | --- |
| NOx Emissions – 0% O2 | 7.5 mg/kWh Gas Input |
| NOx Emissions – 0% O2 | 8.8 mg/Nm3 |
| NOx Emissions – 5% O2 | 6.7 mg/Nm3 |
| CO Emissions – 0% O2 | 8.6 mg/Nm3 |

## Technical specifications

The operating efficiency and output shall be independently verified and not less than the following values:

|  |  |  |  |
| --- | --- | --- | --- |
| CHP electrical output | 10 kW | 20 kW | 25 kW |
| Minimum net CHP electrical export efficiency (excluding consumption of CHP controls and primary pumps) | 29.6% | 31.2% | 32.5% |
| Minimum net CHP unit overall efficiencies at maximum output (35°C return temperature) | 104.3% | 106.8% | 107.4% |
| Minimum net CHP unit overall efficiencies at minimum output (35°C return temperature) | 101.5% | 105.0% | 105.0% |
| Minimum CHP unit heat output to LTHW at maximum output (35°C return temperature) | 25.0 kW | 48.5 kW | 57.6 kW |
| Minimum CHP unit heat output to LTHW at minimum output (35°C return temperature) | 16.4 kW | 30.9 kW | 30.9 kW |
| Maximum flue gas temperature under normal operating conditions | 77°C | 77°C | 77°C |
| Flue system safety shut-down temperature | 100°C | 100°C | 100°C |

# SYSTEM DESCRIPTION

The CHP Package shall include the following features:

* Euro 6 compliant natural gas fired four-stroke internal combustion engine.
* Automatic engine lubrication purge and replacement system to activate after 500 hours of engine operation.
* Thermostatic engine-temperature protection valve.
* Automotive engine control unit (ECU) including 2 x lambda sensors.
* 12V engine starting system.
* Integral catalytic converter.
* Water cooled asynchronous generator.
* Integral, sealed primary heat recovery system.
* Integral condensing secondary heat recovery system.
* 120°C 5000 Pa rated polypropylene flue system.
* Electronic control, synchronisation and monitoring systems.
* Base frame with two offset sets of resilient mounts.
* Acoustic enclosure.
* Adjustable ‘T-On’ and ‘T-Off’ set points.
* Engine output reduction to 85% when operating within 5 K of setpoint.