Scope of Supply

Tenders are invited for the supply and delivery of an industrial-grade coffee roasting system with a nominal batch capacity of approximately **45 kgs of green coffee beans**. The system must be supplied as a new, turnkey solution inclusive of all auxiliary equipment required for safe and continuous commercial production. Installation and commissioning of the roaster may also be included (optional) as part of the tender bid, the additional cost for which must be clearly identifiable.

Bidders must provide a comprehensive proposal covering all items detailed in the specifications below. The system must meet or exceed the following minimum criteria:

1. **Core Roasting Unit & Thermal Architecture**
    - **Batch Capacity:** Nominal capacity of **35kg to 60kg** of green coffee per batch, capable of sustaining continuous back-to-back roasting operations.
    - **Hourly Output:** Minimum throughput capability of **120kg to 200kg** of roasted coffee per hour.
    - **Heat Transfer Technology:** The system must utilise high-efficiency thermal transfer. Bidders may propose either:
        1. *Option A:* A traditional double-walled drum assembly utilising cast iron or heavy-gauge steel, paired with modulating burners and independent airflow management.
        2. *Option B:* A closed-loop convection recirculation system that recycles process air through a single furnace architecture to minimise fuel consumption.
    - **Burner Modulation:** Fully modulating gas burner system (suitable for [Natural Gas / LPG / Propane]) featuring step-less electronic control between minimum and maximum output to allow precise profile tracking.
    - **Process Controls:** Fully independent, variable-speed electronic controls (Inverters/VFDs) for:
        - Drum rotation speed (RPM)
        - Process air exhaust fan speed (Airflow)

2. **Materials Handling & Ergonomics**
    - **Green Bean Loading:** Automated green coffee loading system (pneumatic vacuum conveyor or mechanical elevator) capable of transferring a full batch from floor-level hopper to the roaster charging hopper in under 60 seconds.
    - **Cooling Assembly:** High-capacity cooling tray constructed of food-grade stainless steel, equipped with motorised sweep arms and an independent high-volume extraction fan capable of cooling a maximum batch to ambient temperature in under 5 minutes.
    - **Destoning Unit:** An integrated or inline destoner utilising pneumatic fluidisation/gravity separation to remove stones, metal, and foreign dense objects from the roasted coffee path prior to packaging storage.

3. **Automation, Software & Digital Integration**
   - **Control System:** Industrial PLC system paired with a centralised touchscreen Human-Machine Interface (HMI) mounted at the roasting station.
   - **Profile Automation:** Software must support fully automated roasting profiles, including automated burner adjustments based on target Bean Temperature (BT) curves, environmental temperature limits, and automated charge/discharge gates.
   - **Data Integration:** The system architecture must feature open data output connectivity (via Ethernet/Modbus/TCP) to allow simultaneous real-time data bridging to industry-standard third-party logging platforms (e.g. Cropster, Artisan).
   - **Safety Interlocks:** Mandatory hardware-managed safety systems including automated water-quench dousing lines inside the drum and chaff collector, automated high-temperature emergency gas shut-offs, and visual/audible fault alarms.

4. **Environmental & Emissions Compliance**
   - **Emissions Treatment:** The system must include an emissions reduction solution to comply with local environmental and EPA air quality regulations. Tenders must outline either an integrated single-burner recirculating incinerator design or an independent thermal oxidizer (afterburner) designed to eliminate smoke, volatile organic compounds (VOCs), and odor.
   - **Chaff Separation:** High-efficiency cyclone chaff collector with an integrated, easy-access container for safe removal of waste material during continuous operations.

5. **Deliverables, Warranty & Support**
   - **Regulatory Compliance:** The entire system, including all electrical panels and gas trains, must carry a valid **CE / UKCA marking** and fully comply with European machinery, gas appliance, and pressure equipment directives.
   - **Warranty:** A minimum of **12 months** comprehensive warranty on all parts and labor from the date of official commissioning.
   - **Lead Time:** Bidders must clearly state the guaranteed manufacturing, delivery, and (optional) installation lead time from receipt of order.
   - **Documentation:** Provision of complete operation and maintenance manuals, electrical schematics, gas piping diagrams, and software logic documentation in English.