

<u>LOT 2</u>	
1.	Chemical Fume Hood
2.	Horizontal Laminar flow Cabinet
3.	Vertical Laminar Flow
4.	CO2 incubator
5.	Freezer
6.	Incubator/ Plant growth
<u>Only Brands from Europe, North America, or Japan are acceptable.</u>	
<u>1- Chemical Fume Hood</u>	
Microprocessor Control: Equipped with the CHC VAV Controller	
Filtration System: Utilizes dual carbon filters	
Flow rate: 400 m³/h	
Face Velocity: Maintains a consistent 0.3 m/s airflow	
Dimensions: 885 mm (W) × 1118 mm (H) × 660 mm (D)	
Should Includes a safety sash lock to prevent sudden openings and a raised edge worktop to contain spills.	
Should Incorporates auto sash control with a PIR sensor to reduce energy consumption by adjusting the sash height based on user presence.	
Certifications: UL 1805, ASHRAE-110 (2016), EN12469	
Material: Steel outer plate with epoxy powder coating	
Internal Structure: Optimized using CFD fluid program for safe discharge of contaminants	
<u>2. Horizontal Laminar flow Cabinet</u>	
Airflow velocity: 0.4 m/s (80 fpm)	
HEPA H14 filter (99.995% at 0.3 µm)	
Interior dimensions: 925–1840 mm width, 598 mm depth, 780 mm height	
Epoxy-coated steel frame with tempered glass side windows	
Polished AISI-304 stainless steel working surface	
LED lighting	
Polyester pre-filter	
Microprocessor-based control with LCD display	
Airflow status indicators	
UV lamp with timer (optional)	
Modular design for easy maintenance	
User-friendly control panel	
Low consumption	
High Product protection with air flow quality that creates ISO 14644-1 (Class 4) / GMP Annex 1 (Grade A) working area	
Noise level: <60 dB	
<u>3. Vertical Laminar Flow</u>	
Air velocity :0,36 m/s	
Lighting :1700 lux	

Ext. W×D×H : 1963x798x1220
Energy saving
Filter should be HEPA H14
Compact external size without parts protruding from the main body; easy to clean
LED lighting provides uniform illumination and minimizes eyestrain
Low noise level
User-friendly with intuitive control panel
Easy installation and service: Side glass panels are removable to allow passage through all doorways
HEPA filter is accessible for replacement from the front of the cabinet. Unit can be disassembled in case of complicated installations
Air-speed probe, digital controller/LCD, filter clog alarm, LED lighting, EC fans
Wide working surface made in stainless steel, cuvette type to avoid potential spillage of liquids that could damage the
HEPA: Efficiency 99, 995%, EN 1822 by MPPS method (99,999% D.O.P. test at 0,3m particles). Pre-filter efficient (EN 779): G3
Certifications: Meets the ISO 14644-1 (Class 5), GMP Annex 1 (Grade A) - Former Class 100 according to Federal Standard 209E
<u>4. CO2 incubator</u>
Volumes should be 190 litres
Working temperature should be from 5 °C above ambient temperature up to 60 °C
CO2 concentration should be 0,1 up to 20% CO2 –
Incubator should meet requirements of an absolute stabile and reproducible environment for growth of cells and other cultures.
System should have a temperature management system WITHOUT a fan, what reduces evaporation and contamination risk.
System should be based on direct 6-sided heating system to allow very precise and homogenous conditions and are very easy to install or maintain.
Should be provided with Big LED read out
Contamination risk avoided by using of no fan
Relative humidity up to 95% RH at 37 °C
Microprocessor control
Stainless Steel interior AISI 304 (DIN 1.4571)
System should have Anti-microbiological paint
4 stainless steel trays should be included
Infrared drift-free CO2 sensor alarms and diagnostic values
Operation via 4-buttons
System should have an Internal glass door
System should have HEPA filter on incoming CO2 / N2 tubing
Seamless inner chamber

<u>5- Freezer</u>
Capacity 600L
Temperature range: Set-between $\approx -15^{\circ}\text{C}$ to -42°C ; factory preset to approx -40°C
External structure: hot-dip galvanized steel, anti-corrosion treated, PVC film coated.
Internal structure: Scotch-Brite stainless steel.
Insulation: 100 mm polyurethane foam (CFC-free) for excellent preservation & energy saving
Solid self-closing door, folding magnetic gasket on four sides. Right-hand opening standard, left-hand upon request.
Internal fittings: standard either 6 stainless steel shelves (removable & adjustable) or 6 stainless steel drawers (adjustable height, telescopic ball-bearing slides, plexiglass front) depending on configuration
Hermetic compressor sealed unit, ventilated air condenser (suitable for tropical conditions).
Internal static (or ventilated) evaporator
Standard electrical supply 230 V / 50 Hz
Manual defrost cycle
Digital control panels: LGK-2 (digital) or TP-1 (full-touch) versions.
Display with 0.1°C resolution, real-time monitoring, visual & audible alarms for high/low temp, door open, condenser efficiency drop, damaged probes, power failure; data logger with USB port; password-protected settings; remote dry-contact alarm output
Complies with Low Voltage Directive 2014/35/EU and Electromagnetic Compatibility Directive 2014/30/EU
<u>6. Incubator/ Plant growth</u>
Designed for precise simulation of environmental conditions (temperature + humidity)
Capacity 404L
Temperature range: With humidity control from $+10^{\circ}\text{C}$ up to $+95^{\circ}\text{C}$
Temperature range (with humidity control) 10°C to $\sim 90^{\circ}\text{C}$ standard
Relative Humidity (RH) controllable in the range $\sim 10\%$ to 98% RH
Forced-air vertical/horizontal circulation for uniform temperature/humidity distribution and fast recovery after door opening
Low-temperature option Down to -10°C
Touch-screen (5.7" typical) with fuzzy logic control; program capacity up to ~ 100 programs, each ~ 100 segments
Multi-language interface, USB, SD card slot, RS-232 interface standard
Interior: stainless steel (AISI 304). Exterior: insulated double-wall, painted/coated steel
Max load capacity inside chamber: Up to ~ 100 kg total; max ~ 30 kg per shelf.
Up to about 19 shelf positions (with standard spacing) for 404 L.
Two year warranty

<u>LOT 3</u>	
1.	sample homogenization / blending of food
2.	Moisture Balance
3.	Milk analyzer
4.	Water Activity meter
5.	Fiber analyzer
6.	Fat Extractor
7.	Kjeldahl
8.	Kjeldahl
<u>Only Brands from Europe, North America, or Japan are acceptable.</u>	
1. sample homogenization / blending of food	
Blending capacity: Bags of 80 to 400 mL.	
Adjustable speed (strokes or “paddle/blade motion”):	
Slow: ~500 strokes/minute	
Normal: ~560 strokes/minute	
Fast: ~620 strokes/minute	
Timer should be: Adjustable from 10 seconds up to 3 minutes, or continuous operation.	
Chamber/Operation:	
Sealed blending chamber to avoid leaks	
Removable stainless steel paddles/blades for easy cleaning	
Integrated waste drawer to collect spillages	
Digital control interface (keypad + LCD display) with bar-graph elapsed time display	
Safety: electronic circuit-breaker, no access to chamber during operation, door with integrated start/stop	
Noise level should be very low	
<u>2. Moisture Balance</u>	
Capacity should be around 155 g	
Readability should be 0.001g / 0.01%	
Repeatability should be 0.001g	
Linearity should be 0.002g	
Pan Size: 100mm ø	
System should have 5 years warranty	
Vivid, backlit LCD easily visible in any lighting conditions	
Programmable backlight can be set to "always on," "always off" or "light only when weighing"	
Should have a capacity tracker built into display for easily monitoring possible overloads	
Scratch-resistant aluminum housing protects internal components	
Temperature range should be 50°C to 160°C in one-degree increments	

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Should have a three settings for heating sample include ramp-up, stepped temperatures and single temperature
Four preset drying modes allow test routines for several products
Must feature an audible overload alarm warns when capacity is exceeded
Testing can be set to start automatically when lid closes
Calibration for temperature and weight
Internal memory should store 40 different recipes and up to 99 test results, while additional test results and settings can be stored on a flash drive
Security slot for optional lock and cable to help prevent theft
<u>3. Milk analyzer</u>
Designed for quick analysis of milk and liquid dairy products (cow milk, UHT milk, sheep milk, goat milk, buffalo milk, whey, cream up to ~45 %)
Measuring ranges & accuracies should be:
Fat: 0.01 % to 25 % (option up to 45 %) ± 0.10 %
SNF: 3 % to 15 % ± 0.15 %
Density: 1015 to 1140 kg/m ³ ± 0.3 kg/m ³ (option up to 1160 kg/m ³)
Protein: 2 % to 7 % ± 0.15 %
Lactose: 0.01 % to 6 % ± 0.15 %
Added water: 0 % to 70 % ± 3.0 %
Temperature of milk: 1 °C to 40 °C ± 1 °C
Freezing point: -0.40 °C to -0.70 °C ± 0.001 °C
Salts: 0.4 % to 1.5 % ± 0.05 %
Total solids: 0 % to 50 % ± 0.17 %
(Optional) Conductivity: 3 to 14 mS/cm ± 0.05 mS/cm
Sample volume required should be: ~ 25 mL per one measurement.
Interface & data output: RS-232, USB, ESC/POS printer support. User calibration capability
Dimensions (WxDxH): 175 × 175 × 150 mm
Weight: < 1.5 kg
<u>4. Water Activity meter</u>
Portable laboratory instrument suitable for determining water activity of foods.
Water activity (a _w) measuring range: 0.03 to 0.98 aw
Resolution for a _w : 0.001 aw
Calibration accuracy: For 0.10 to 0.80 aw: ± 0.01 aw (at 25 °C) For 0.00 to 0.10 and 0.80 to 0.98 aw: ± 0.04 aw (at 25 °C)
Temperature range (for the measuring environment): 0 °C to +50 °C, calibration accuracy ± 0.5 °C at 25 °C.
Dew-point range: -55 °C to +60 °C (-67 °F to 140 °F), resolution 0.1 °C

Absolute humidity: 0 to 130 g/m ³ , resolution 0.1 g/m ³
Equilibrium moisture content (wood): 2 % to 30 %, resolution 0.1 %
Equilibrium moisture content (granules): resolution 0.01 %
Data logging: Manual and automatic data logging up to 10,000 values with measuring point report
Dimensions (housing): 145 × 75 × 30 mm
Menu languages: English, German, Italian, French, Spanish, Portuguese, Czech, Polish, Russian, etc
Should have USB data interface module, software for data analysis, calibration ampoules, optional Bluetooth module.
<u>5. Fiber analyzer</u>
Fiber analyzers suitable for raw fiber extraction, conventionally known as an indigestible residue
6 simultaneous positions
Sample size: 0.5 to 3 gr
Reproducibility: ±1 (RSD)
Power consumption: 12W
Epoxy painted stainless steel structure
Hot and cold extractions supported
Digital timer: 0-99 Minutes with acoustic signal end of cycle
Air pump for sample removal: peristaltic pump for reagent discharge.
Dimensions: 760 x 620x 390 mm approx
Application: -Raw fiber (Weende, wijstrom)
Neutral/Acid detergent Fiber (van soest)
cellulose, Hemicellulose fractionation
Lignin,
<u>6. Fat Extractor</u>
Semi-Automatic Solvent Extractors
3 Sample positions
Reproducibility (RSD): ≤ 1%
Solvent recovery rate: 50–75%
Maximum extraction cup volume: 150ml
Number of programs (preset): 29
Working temperature range: 100 °C to 260 °C
Cooling water requirement: 2 L/min
Sample quantity: 0.5 to 15 g (typically 2-3 g)
Solvent volume: 30 to 100 ml
Immersion time & washing time & recovery time: 0 to 999 minutes each, user-settable
Epoxy painted stainless steel structure

Dimensions (W×H×D): 480×620×390 mm
Power: 500 W
<u>7. Kjeldahl</u>
Distillation units designed for nitrogen and protein determinations; programmable NaOH addition
1 sample per cycle
Temperature Control programmable with delay time.
7" LCD display with intuitive menu
Reproducibility $\leq 1\%$
Recovery of N $\geq 99.5\%$ for 1-200ml N
Distillation speed ~ 5 min for 100ml distillate
Cooling water usage $\sim 0.5\text{L/min}$ @15°C ; $\sim 1.0\text{L/min}$ @ 30°C
Safety sensors, splash head, and protective screen
Dimensions (W×H×D) 16.4" × 30.7" × 15.2"
The system should have titanium condenser designed for efficient thermal exchange and low water consumption.
Standards: AOAC, EPA,DIN, Iso conformity
<u>8. Kjeldahl</u>
Capacity 20 tubes with 250 ml test tube
Programmable ramps: up to 4 temperature ramps per program: time range 1-999 minutes.
Power 2300W
Aluminum heating block with microprocessor control
Temperature Range up to Up to 450°C
Digital control with temperature stability $\pm 0.5^\circ\text{C}$
Compact, space-saving design with epoxy-coated housing
Aluminum block protection grid provides enhanced heating performance and protects the heating block from splashes and chemicals.
Dimensions: 330x690x510mm
Acoustic signals inform the operator of the completion of the analysis
Two year warranty