

TEKNALAB ULTRA FREEZER -86C SERIES UF - PL

TL through a careful and complex research and development plan, has manufactured this completely **new series "PREMIUM LINE" ultra-freezers at -85 °C.**

This Vertical Freezers **PL Series** (Premium Line) represents excellence in very-low-temperature freezers for laboratory use.

The **PL** models have at standard the **NEW ICE AGE CONTROL®** a monitoring, recording and control system specially developed by TL. A really **innovative** control system suitable to be used in the cryobiology and very-low-temperature sectors, offering an optimal user-friendly interface and a number of advantages as a unique solution.

The **PREMIUM LINE** has the CE certification and complies with UNI EN 61010 (CEI 66-5) Standard for safety for laboratory equipment.

It has been designed and manufactured according to the procedures of the ISO 9001:2008 quality system.



HC PL 112

Model Series UF TK60-2D

Capacity 505 Lt. 340 Plasma Bags / 250 ml



MAIN TECHNICAL CHARACTERISTICS:

- **CAPACITY:** 505 Lt.
- **EXTERNAL DIMENSIONS:** cm 97 x 97 x 199 (W x D x H);
- **INTERNAL DIMENSIONS:** cm 72 x 65 x 109 (W x D x H);
- **COMPARTMENTS:** 4 ea with 2 external doors
- **COMPARTMENTS INTERNAL DIMENSIONS:** cm 72 x 65 x 24 (W x D x H);
- **WEIGHT:** 350 Kg.;
- **POWER SUPPLY:** 230 / 50 / 1 + G;
- **POWER CONSUMPTION:** Ca. 750 W (average referred at ambient T°C +23°C with a normal operation);
- **TEMPERATURE RANGE:** from -50°C to -85°C;
- **SHELVES:** 4 ea
- **CERTIFICATIONS:** The Equipment is certified in accordance with:
 - CEI 66/5 UNI EN 61010-1/A2;
 - CEI EN 61326-1
 - ISO 9001:2008 certified manufacturer;

MECHANICAL STRUCTURE:

- **INTERNAL CABINET:** AISI 304 stainless steel (AISI 316 on request) with polished external BA finish for best resistance and cleanliness;

- **EXTERNAL CABINET:** zinc-plated and pre-painted steel sheet (AISI 304 stainless steel on request) satin finish;
- **THERMAL INSULATION :** non-CFC, non-HCFC PU foam, min. thickness 140 mm;
- **SEALING GASKET:** Triple silicone rubber (prevention against air leaks);
- **GASKET HEATING:** frost formation prevention by means of the “hot gas” recirculation coils; high reliability and energy saving (it does not use additional power by electric heaters);
- **COMPENSATION VALVE::** for internal/external pressure compensation, to facilitate door open/close;
- **INTERNAL SHELVES:** 4 ea. stainless steel at standard;
- **COUNTER DOORS:** 4 ea. (for each shelves) with 20-mm. PU foam, to minimize cold loss when the external door is open;
- **DOOR:** one wing type, with one-hand minimum force opening system, highly ergonomic to facilitate closing/opening, complete with locking key;
- **COMPENSATION VALVE:** to facilitate the in/out pressure compensation, to ease the opening/closing actions;
- **WHEELS:** 4 bearing wheels
- **REFRIGERATION SYSTEM**
- **COOLING SYSTEM:** fully sealed cooling circuit with hermetic compressors arranged in cascade, complete with MCB protection and pressure gauge to monitor condensation pressure (MR):
- **EVAPORATING SYSTEM:** direct expansion s.steel coils thermally connected to the inner s.steel shelves surfaces, for a high internal temperature uniformity;
- **CONDENSING SYSTEM:** air-type high-surface finned condenser; the blower is controlled by an inverter to change its speed according to the air temperature at the condenser exit;
- **THERMAL PROBES:** 2 ea. Pt100 probes, one used for thermoregulation, the second for alarm (switched to regulation in case of main probe failure);
- **SAFETY THERMOSTAT:** switches off the appliance from power supply in case of a main regulator breakdown, Temperature exceeds the max safety value (adjustable and preset by the user);
- **VOLTAGE STABILIZER:** *the unit can be equipped (optional) with a voltage stabilizer, to protect the equipment from irregular voltage spikes, for a longer operative life and failure prevention.*

CONTROL SYSTEM

- a) **NEW ICE AGE CONTROL®** Electronic Control System with optimal user-friendly interface and a number of advantages for operators and after-sales support features
- **DISPLAY:** Backlit alphanumeric LCD, 2 lines and 16 characters;
 - **KEYBOARD:** membrane keyboard with **I/O** switch, key functions MENU with “+ /-” increase/decrease keys to select parameter values and functions ;
 - **USER’ SECURITY:** Password control against non-authorized access;
 - **2-CHANNELS MONITORING:** it allows adjustments by average values from 2 RTD Pt 100 sensors; failure of one of the sensors automatically switched the regulation to the other. The sensors can be configured by F/W, in different modes, according to user’s needs. Set and alarm threshold can be configured to 0,1 °C accuracy;
 - **SAFETY CONTROL:** in case the Pt 100 (alarm and regulation) probes would break down at same time and/or the equipment sensor is damaged, the temperature of the freezer compartments will not be subjected to significant temperature changes: **the controller will continue to run on a time-based thermo-stabilization**. Compressors will continue to operate in the same mode as before the sensor(s) brake-down;
 - **DISASTER RECOVERY:** in the event the CPU goes OFF, the operation functions are allowed by remote unit, with exception of data visualization: it means **the freezer continues to operate with compressors on/off timing as per the recorded average before the failure event;**
 - **ALARMS MONITORING:** the final user is allow to know, 2 4/7, the conservation status of the machine (and therefore the stored material, avoiding future direct controls.

Alarms:

- **Active buzzer and lights:** activation of alarm relay and remote signaling;
- **High/Low internal temperature:** pre-alarm function that displays abnormal Temperature conditions
- **High pressure condenser;**
- **Net power failure:** with backup battery and battery recharge circuit;
- **Battery alarm** (backup battery with duration of at least 3 years)
- **Critical door open;**
- **Regulation sensor failure;**
- **System sensor failure;**
- **Dirty condenser failure;**
- **Compressor timing failure**

For each temperature alarm, the controller records:

- type of alarm HT (high T) LT (low T), black-out, etc.
- critical temperature alarm;;
- day/month/year/hour/minutes of alarm event;
- alarm duration (for HT and LT);

day/month/year/hour/minutes of black-out