BlueLine

KFDE series
vertical freezers at -20 °C -30 °C
Elite line

Green ICE

KW Antibacteria

APPARECCHI SCIENTIFICI
KW
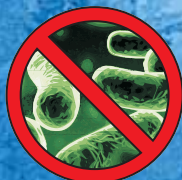
KFDE series
vertical freezers at -20 °C -30 °C Elite line

KFDE 080

KFDE 350

KFDE 520

KFDE series
vertical freezers at -20 °C -30 °C Elite line

KW offers a new featured series of vertical freezers for laboratory and biological tasks, with small and medium volumes. **The structure has removable drawers, for better use of the internal volume and lower power consumption**, in addition to adequate insulation thickness. The fully sealed execution of the refrigerating circuit and the use of airtight compressors make these **freezers a silent and reliable option, even in critical environmental conditions.** The **materials** and the fluids being used are all natural and environmentally friendly, and particular attention is paid to problems dealing with the ozone layer and greenhouse effect.

The refrigeration technology uses **evaporation trays**; they subtract heat from the materials in storage in a fast, direct fashion, and thus there is no need for defrosting. The solution guarantees **maximum stability in the conservation temperature in addition to good (T) uniformity.** There is no need to defrost after a while.

The instruments furnished are typical for high-level professional and scientific refrigerators and freezers, including **SLC** or **NIA** controllers. **Temperature is regulated with digital electronic devices that have digital LED displays, with min./max. T alarm and contacts for remote alarm signalling.**
The door can be closed under lock and key.
A broad range of accessories allow users to customize the freezers to suit their needs.

The external structure is made of a cabinet with rounded profile in white enamelled steel sheets, and reversible door with magnetic gaskets and key lock. The door handle has an internal opening mechanism that allows manoeuvring with minimum effort on the part of the user. The cabinet comes with support feet on the front and small pivoting wheels on the back, in order to facilitate transportation and placement inside the laboratory.
The internal compartment is in white plastic material: non-abrasive ABS with completely rounded edges to facilitate cleaning. Average insulation thickness about 80 mm, with highly environmentally-friendly polyurethane resin foamed on site. This, together with the use of drawers, guarantees optimum capability against thermal dispersion, resulting in really low power consumption. The drawers, in plastic materials, close the space between an evaporation tray and the other, preventing the escape of cold every time the user opens the freezer counter doors and offering the best organization for the storage of biological products.

Evaporation trays subtract heat from the materials in storage in a fast, direct fashion, and without the need for defrosting, guaranteeing maximum stability and uniformity in conservation temperature: thus, they contribute to increase the quality of laboratory activities wherever they are installed.

THE CONTROL PANEL SLC brings together a simple, modern design and great ease of use. Electronic devices keep the set value reliably and accurately; the digital LED display allows fast monitoring of T values inside the compartment. This monitoring also guarantees the total safety of the stored biological material, including sound (buzzer that can be muted) and visual alarms; they rapidly inform users about undesirable T variations, and with the remote alarm kit these signals can be sent to other sites.
It is also possible (optional) to have power failure alarms, with DC power supply through switching or a 12 VDC, 2.3 Ah battery. The control panel is already implemented for the (optional) installation of a T recorder. The same series is available with the **NIA** control system.

KFDE vertical freezers

Model	Capacity in litres	External measurements (WXDXH)	Drawers (n)	Average power consumed in Kw	Weight Kg.
KFDE080	80	56x62x83	2	0,05	35
KFDE150	150	60x63x123	3	0,07	50
KFDE250	250	60x63x180	6	0,08	75
KFDE350	350	60x63x204	8	0,08	90
KFDE520	520	75x72x191	7+7=14	0,10	103

Set T between -18 °C and -30 °C
Power supply: Volt 220/50/1
T is guaranteed with room T up to +32 °C.
Equipment complies with CEI 66-5 – UNI EN 61010-1 standards

KFDE series
## vertical freezers at -20 °C -30 °C Elite line

KW distributes the **KFDE** line with two possible control systems, known by the initials **SLC** (Silver Line Control) and **NIA** (New Ice Age).

The new control **GLC** (Golden Line Control) will take the place of **SLC** (see **GLC** release)

• SLC (Silver Line Control) system

Electronic digital thermoregulator specific for industrial and laboratory refrigeration:
IP65 protection level

ON button, internal lights in version V (glass door)

PRG/mute button

increase/aux button

SET button

decrease/def button

Main switch

Display
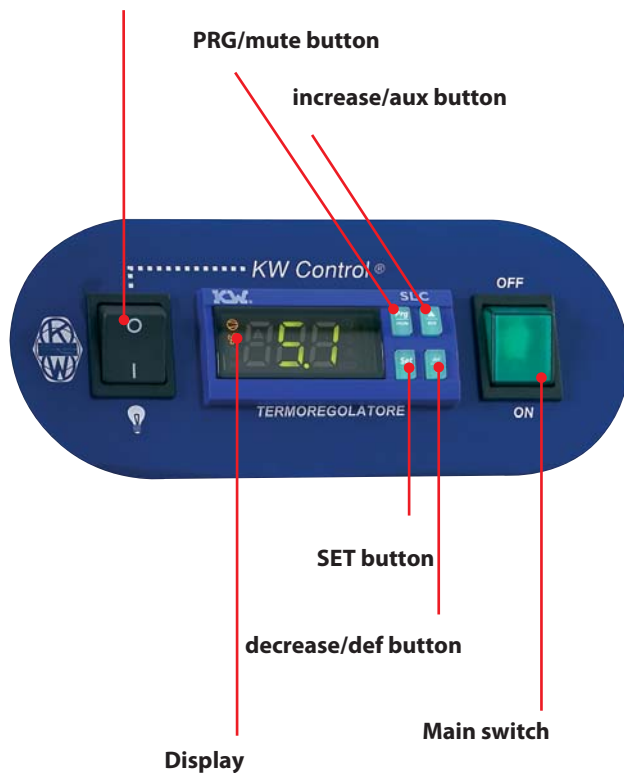
- **PRG button, to configure parameters, mute the buzzer, etc.**
- **SET button, to modify the set point and for configuration**
- **▼ decrease/def button, to modify parameters and manual defrost**
- **▲ increase/aux button, to modify parameters and for auxiliary functions**

Keyboard and display
4–key keyboard with menu structure and LED display, 2+1/2 digits with automatic digital point (between -19.9 °C and +19.9 °C), marked; perfectly visible with natural or artificial light from any angle.

Input
- 2 analog for NTC sensors
(thermostabilization sensor, evaporator sensor for defrost management)
- 2 digital, multi-function
(power failure and door open alarms)

Configuration
- keyboard, remote command, or PC

Options
- serial remote command card

Parameters
Parameters are organized into two levels:
First level: frequent parameters that can be accessed without the need for a PASSWORD (set point).
Second level: configuration parameters that can only be accessed with a PASSWORD allowing modifications to be made.

Refrigeration
The control operates on the REFRIGERATION SYSTEM in order to maintain the set temperature. The user can control its operation by means of the ICONS on the control panel.

KFDE series
vertical freezers at -20 °C -30 °C Elite line

Visual alarms:

SENSOR ALARMS
In case of temperature alarm breakdown or failure.

TEMPERATURE ALARM
If, for any reason, the temperature starts increasing or decreasing until it falls outside the allowed range (configured with respect to the defined set point), the internal timer is activated (configurable alarm delay, 30 minutes by default but the value can be modified upon customer request); after this period the TEMPERATURE ALARM activates both visual and sound (BUZZER) alerts, and at the same time activates the remote alarm contact to send, if connected, a warning to the user regarding the failure.

DOOR OPEN ALARM (optional)
2 minutes (standard time, but configurable upon user request) after the door is opened, the display shows the word "DOOR" and the BUZZER sounds; the internal fan starts, because if the door was "incompletely" closed restarting ventilation allows keeping the internal temperature at acceptable levels: in the meantime, under user supervision, the remote alarm contact is activated to warn the operator if the equipment has a remote connection.

POWER FAILURE ALARM (optional)
When the equipment is furnished with a backup battery, is it possible to visualize the temperature reading, even if there is no power supply to the laboratory, for several hours. The internal buzzer and remote alarm signalling also remain active. The letters "DA" appear on the display, and the BUZZER starts sounding. Please bear in mind that the backup battery, 12V 2.3 Ah, has a life of 2-3 years. KW recommends verifying battery power about every six months.

Standard equipment includes a connector for remote alarm towards the user.

|For all details about the new control **GLC** (Golden Line Control) please see pag. 166|

• NIA (New Ice Age Control) system

This is an evolution in terms of quality regarding the management of refrigerating machines.
REGULATION, SUPERVISION AND RECORDING IN A SINGLE CONTROL

See detailed explanations in the chapter
NEW ICE AGE COMPACT KW CONTROL.

ACCESSORIES:
• **Pivoting/Fixed wheel kit**
• **Door open alarm**
• **Visual/Sound power failure alarm, 12-VDC** power supply with backup battery (estimated duration, 3 years)
• **Disk recorder with weekly cycle and 1.5 VDC battery power supply**
• **Electronic strip chart recorder, with RTD Pt 100** Ω input; other video graphical recorders available upon specific request
• **Additional RTD Pt 100 Ω sensor to c**onnect to an external system for the acquisition and recording of T values, such as KW SPY® or similar.

• KW introduce the new Electronic Controller **TOUCH RECORDER KW** integrated in the KW panel, with battery power supply and Pt 100 probe.

With the option of independent high/low T alarms and Energy Fault alarm, which can be remote managed.

USB data logger with own compatible software and data storage on personal or main computer.

• **Additional RTD Pt 100 sensor** complete with 4-20 mA converter mounted on a DIN bar to connect to an external recording system
• Internal-external through-hole with rubber stopper
• Closure of the command panel in plastic material
• Remote alarm device
• Cryogenic gloves
• Voltage regulator
• Application of the NIA control system

On this equipment series it is possible to carry out activities such as I. Q. (Installation Qualification) and O. Q. (Operational Qualification); please contact KW's Commercial Office for an assessment of the costs entailed by such activities. KW is also available for ISO calibration certification services for the comparison of primary SIT samples.

= min./max temperature alarm

= Internal light

= DATA LOGGER function

= energy failure alarm

= Alarm broken down probe

= Open door alarm

= Lock

= Disaster Ricovery / Safety Control
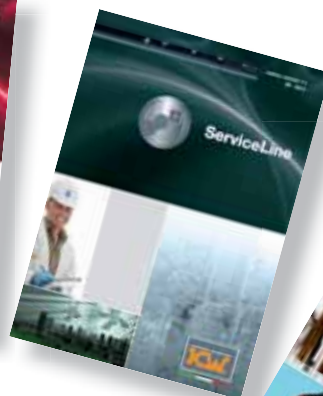
= Temperature recorder

= Wheels

Cold storage equipment

Incubation and microbiological test equipment

Ovens, drying and sterilizing equipment

Maintenance, IQ,OQ,PQ, hardware and software for equipment management

Medical devices for transfusion centres

APPARECCHI SCIENTIFICI KW

ISO 9001:2008   **ISO 13485:2003**   **ISO 14001:2004**   **OHSAS 18001 2007**

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