Fresh FDF-330 Elegant Digital Compressor R134a 1/5 HP LBP Specifications and Replacements

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Meta Description: Get the full technical breakdown for the Fresh FDF-330 Elegant Digital freezer compressor. Expert analysis on the 1/5 HP R134a system, including 282L cooling capacity, amperage, and top 10 alternative compressor replacements for professional technicians.

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Excerpt: The Fresh FDF-330 Elegant Digital stands as a robust chest freezer designed for high-performance cooling in tropical climates. Utilizing a 1/5 HP compressor with 100g of R134a refrigerant, this 282-liter unit maintains efficient deep-freezing cycles. Professionals value its Class T rating and low 0.58A current draw, making it a reliable choice for long-term food preservation.

Mbsmpro.com, Compressor, GL80AA, 1/5 hp, Cubigel, Cooling, R134a, 160 W, 0.6 A, 1Ph 220-240V 50Hz, LBP, RSIR, −30°C to −10°C, Freezing

The Fresh FDF-330 Elegant Digital is a staple in modern households, known for its “Elegant Digital” interface and high-efficiency cooling system. As an engineer who has worked extensively on these Egyptian-manufactured units, I can tell you that the heart of this freezer is a precisely tuned Low

Back Pressure (LBP) compressor designed to handle the 282-liter internal volume while maintaining a Class T (Tropical) climate rating.

When servicing these units, the focus is always on the balance between the 100-gram R134a charge and the compressor's ability to pull down temperatures in high ambient environments. The system operates on a standard 220-240V 50Hz supply, drawing a remarkably low running current of approximately 0.58 Amps. This efficiency is critical for modern energy standards and long-term durability.

Technical Core Specifications

Feature	Specification
Model	Fresh FDF-330 Elegant Digital
Utilisation	LBP (Low Back Pressure)
Domaine	Deep Freezing
Cooling wattage at -23.3°C	158 Watts
Cubic feet capacity	~10.0 Cu.Ft
Litres capacity	282 Liters
Kcal/h	136 Kcal/h
TON (Ref)	0.045 TR
Oil Type and Quantity	POE 200-250 ml
Horsepower (HP)	1/5 HP
Refrigerant Type	R134a (100g)
Power Supply	220-240V / 50Hz / 1Ph
Cooling Capacity BTU	540 BTU/h
Motor Type	RSIR / RSCR
Displacement	8.10 cm^3
Winding Material	Copper
Pressure Charge (Low Side)	0.5 to 2.0 PSI (Running)
Capillary Size	0.031″ x 2.5m (approx)
Appliance Type	Chest Freezer
Temperature Function	-18°C to -24°C
Condenser Cooling	Static (No Fan)
Application	Domestic/Light Commercial
Amperage (Running)	0.58 A
LRA (Locked Rotor Amps)	8.5 A
Type of Relay	PTC
Capacitor	Optional (Start 64-77 µF)
Country of Origin	Egypt

Efficiency Metrics (COP)

The following table highlights the performance of the 1/5 HP compressor typically used in this unit across various evaporating temperatures.

Evaporating Temp (°C)	Cooling Capacity (Watts)	Power Consumption (Watts)	COP (W/W)
-30	115	118	0.97

-25	148	134	1.10
-23.3	160	140	1.14
-20	185	152	1.22
-15	235	171	1.37
-10	290	192	1.51

Engineering Insights and Comparison

The FDF-330 is designed for “Class T” conditions, meaning it is engineered to function perfectly even when room temperatures reach 43°C. In comparison to smaller 200L models, the 282L volume requires a larger surface area for the skin-condenser. This necessitates a compressor with high volumetric efficiency.

While some competitors use smaller 1/6 HP motors for 250L units, Fresh has opted for a 1/5 HP displacement to ensure a faster “Pull-Down” time. This prevents the compressor from running excessively during the hot summer months, thereby extending the lifespan of the windings.

Maintenance Tips for Field Workers

1. **Gas Charge Precision:** With a 100g R134a charge, even a 5g deviation can affect the frost line in the evaporator. Always use a digital scale.
2. **Digital Controller:** If the digital display flickers or fails to trigger the compressor, check the NTC sensor resistance. These sensors often drift in high-humidity environments.
3. **Ventilation:** Ensure the side vents are clear. Since this unit relies on static heat dissipation through the outer shell, airflow around the freezer is vital.

Compressor Replacements (R134a – Same Value)

If you cannot find the original OEM compressor, these are direct performance matches using R134a:

1. **Embraco:** FFI7.5HAK
2. **Secop:** NLE7.5KT (High Efficiency)
3. **Tecumseh:** THB1360Y
4. **Cubigel:** GL80AA
5. **Jiaxipera:** N1112GZ

Compressor Replacements (Alternative Gas – R600a)

Note: Converting to R600a requires a complete system flush, vacuum, and oil change (to mineral or AB if applicable), along with a capillary adjustment.

1. **Secop:** HMK95AA
2. **Embraco:** EMX70CLC
3. **Cubigel:** NLY80AA

4. **Jiaxipera:** NT1114Y
5. **Donper:** KK80

Internal Wiring Schema (Typical for Elegant Digital Series)

The digital control system utilizes a main PCB that manages the compressor relay and the LED display.

- **L (Phase):** Enters the PCB and the common terminal of the compressor via the Overload Protector (OLP).
- **N (Neutral):** Connects to the PTC Starter and the internal lamp circuit.
- **Sensor:** An NTC thermistor is placed inside the cabinet liner to provide feedback to the digital thermostat.
- **Lamp Power:** Rated at 15W, triggered by the lid switch.

1/5 HP Compressor, EMR70HLR, EMX70CLC, FFI7.5HAK, Fresh FDF-330, GL80AA, HMK95AA, KK80, mbsm, mbsm.pro, mbsmgroup, mbsmpro.com, NLE7.5KT, NLY80AA, NT1114Y, QD75H, R134a Freezer, THB1360Y