The ZMC EGM60AF compressor can be installed on a Toshiba 14-inch refrigerator

Category: Refrigeration
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From our professional experience, the compressor is small and has a maximum length of 10 feet.

In the specialized world of HVAC and domestic refrigeration, selecting the correct compressor is the difference between a long-lasting appliance and a premature mechanical failure. The ZMC EGM60AF stands out as a reliable workhorse in the Low Back Pressure (LBP) category. This hermetic reciprocating compressor is frequently utilized by major appliance manufacturers for its thermal efficiency and robust construction under varying environmental conditions.

Technical Engineering Analysis

The EGM60AF is a 1/6 HP unit optimized for R134a refrigerant. In my years as a field engineer, I have observed that this specific model strikes a balance between energy consumption and torque. Utilizing a Resistive Start Induction Run (RSIR) motor, it is designed for simplicity and durability. With a displacement of approximately 6.00 cc, it provides sufficient mass flow for standard household refrigerators ranging from 8 to 11 cubic feet.

Application and Sizing Logic

When retrofitting or repairing, field workers must exercise caution regarding cabinet size. While the EGM60AF is highly efficient, installing it in a large 14-cubic-foot unit—which typically demands a 1/5 or 1/4 HP motor—can lead to “short-cycling” or continuous operation. This results in overheating the motor windings and eventual mechanical seizure. For optimal performance, this compressor should be paired with a correctly sized capillary tube to ensure the evaporation temperature remains within the -30°C to -10°C range.

Complete Technical Data Table

Feature	Specification
Model	ZMC EGM60AF
Utilization	LBP (Low Back Pressure)
Domaine	Freezing / Cooling
Oil Type and Quantity	Ester (POE) – 180ml to 200ml
Horsepower (HP)	1/6 HP
Refrigerant Type	R134a
Power Supply	220-240V ~ 50Hz / 1 Phase
Cooling Capacity BTU	Approx. 528 BTU/h (at ASHRAE)
Motor Type	RSIR (Resistive Start Induction Run)
Displacement	6.00 cc
Winding Material	High-Grade Copper
Pression Charge	Low side (typical): 0 to 5 PSI
Capillary Tube Recommendation	0.031″ ID x 3 meters (approx.)
Compatible Models	Small-Medium Fridges (Sharp, Beko, Ideal)
Temperature Function	-35°C to -10°C
Cooling System	Static Cooling (Natural Convection)
Commercial Use	Domestic / Light Commercial
Amperage (FLA)	0.9A – 1.1A
LRA (Locked Rotor Amps)	6.5A – 7.5A
Relay Type	PTC Relay
Capacitor Requirement	Not required (RSIR), optional run cap for RSCR

Electrical Schema (Wiring Diagram)

For the RSIR configuration of the EGM60AF:

1. **Common (C):** Connected to the Overload Protector (OLP).
2. **Main/Run (M/R):** Connected to the Neutral line and the PTC Relay.
3. **Start (S):** Connected to the PTC Relay.
   The PTC relay provides a high resistance to the start winding once the motor reaches roughly 75% of its speed, effectively dropping the start winding out of the circuit.

Comparative Analysis: EGM60AF vs. EGL70AA

When comparing the 1/6 HP EGM60AF with the slightly larger 1/5 HP EGL70AA:

- **Cooling Power:** The EGL70AA offers roughly 25% more BTU capacity, making it suitable for 14-foot fridges where the EGM60AF would struggle.
- **Energy Efficiency:** The EGM60AF is superior in smaller cabinets due to lower wattage draw (approx. 110W vs 145W during stable run time).

Replacement Reference Guide

5 Compressors: Same Value / Same Gas (R134a)

1. **Embraco:** EM65HHR (High efficiency alternative)
2. **Danfoss/Secop:** TLES5.7FT.3
3. **Cubigel:** GL60AA
4. **ACC / Wanbao:** GVM66AA
5. **Huayi:** HYE60MTU

5 Compressors: Same Value / Other Gas (R600a)

Note: Requires complete system flushing and oil change or capillary adjustment.

1. **Secop:** TLES6.5KK.3
2. **Embraco:** EMX46CLC
3. **Jiaxipera:** T1112Y
4. **Donper:** L65CZ1
5. **ACC:** HMK80AA

Engineering Advice and Field Notices

- **Vacuuming:** Always pull a vacuum down to 500 microns. Moisture in R134a systems reacts with Ester oil to form acid, which will corrode the motor windings.
- **Filter Drier:** Never reuse a filter drier. Always replace with a new 15g or 20g molecular sieve drier when opening the system.
- **Heat Dissipation:** Ensure the condenser coils are clean. The EGM60AF is designed for static cooling, but if the fridge is located in a high-ambient area (above 40°C), adding a small auxiliary fan near the compressor can significantly extend its life.

Conclusion: The ZMC EGM60AF remains a top choice for technicians looking for a reliable, “Made in Egypt” solution for standard household repairs. Its compatibility with R134a makes it a straightforward replacement for millions of units currently in service across the Middle East and Africa.

Focus Keyphrase: ZMC EGM60AF compressor 1/6 HP R134a specifications and technical data

SEO Title: Mbsm.pro, Compressor, EGM60AF, 1/6 hp, ZMC, Cooling, R134a, 155 W, 1Ph 220-240V 50Hz, LBP

Meta Description: Technical guide for the ZMC EGM60AF 1/6 HP compressor. Includes cooling capacity, wiring diagrams, displacement data, and cross-reference replacements for R134a and R600a systems.

Slug: zmc-egm60af-compressor-1-6-hp-r134a-specs

Tags: ZMC, EGM60AF, 1/6 HP, R134a, Mbsmgroup, Mbsm.pro, mbsmpro.com, mbsm, Embraco EM65HHR, Danfoss TL5G, Cubigel GL60AA, Secop TLES5.7FT.3, Huayi HYE60MTU, ACC GVM66AA, EGL60AF, GL60AA, EMT45HDR, TLES6KK

Excerpt: The ZMC EGM60AF is a high-performance hermetic compressor designed for low back pressure applications in domestic refrigeration. Engineered with precision in Egypt, this 1/6 HP unit operates on R134a refrigerant and is tailored for 220-240V 50Hz power systems. It offers a reliable cooling solution for small to medium household refrigerators and upright freezers worldwide.

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