GMCC PE75H1C Compressor 1/4 HP R134a LBP

Category: Refrigeration
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Focus keyphrase: GMCC PE75H1C Compressor 1/4 HP R134a LBP Technical Specifications Wiring Diagram and Replacement Cross-Reference Guide
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Meta description: Professional technical analysis of the GMCC PE75H1C compressor. High-efficiency 1/4 HP LBP unit for R134a refrigeration. View wiring schemas, performance tables, and compatible replacements.
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Excerpt: The GMCC PE75H1C is a robust hermetic reciprocating compressor engineered for low back pressure applications using R134a refrigerant. Operating at 220-240V 50Hz, this 1/4 HP motor provides a cooling capacity of approximately 185W. This article provides technical datasheets, electrical wiring schemas, and

professional cross-reference guides for global refrigeration maintenance and engineering.

Engineering Excellence: The GMCC PE75H1C Hermetic Compressor for R134a Systems

In the world of thermal management and domestic refrigeration, the GMCC PE75H1C stands as a benchmark for reliability and volumetric efficiency. Manufactured by Anhui Meizhi Compressor Co., Ltd (a Midea Group venture), this unit is a staple in high-performance household refrigerators and chest freezers. As an engineer who has worked extensively on the field, I can attest that the “PE” series represents a balance between compact mechanical design and thermal endurance. This compressor is designed for Low Back Pressure (LBP) cycles, making it ideal for freezing applications where evaporation temperatures drop significantly below zero. Utilizing R134a, it remains a common choice for technicians servicing existing infrastructure where synthetic oils are standard.

Detailed Technical Specifications

Feature	Specification
Model	PE75H1C
Utilisation (mbp/hbp/lbp)	LBP (Low Back Pressure)
Domaine (Freezing/Cooling)	Freezing / Deep Cold
Oil Type and quantity	POE (Ester Oil) – Approx. 180 ml
Horsepower (HP)	1/4 HP
Refrigerant Type	R134a
Power Supply	220-240V ~ 50Hz / 1 Phase
Cooling Capacity BTU	631 BTU/h (approx. 185W)
Motor Type	RSIR (Resistive Start – Inductive Run)
Displacement	7.5 cm^3
Winding Material	High-Grade Copper
Pression Charge	0.8 to 1.3 Bar (Low side)
Capillary	0.031″ or 0.8mm ID
Refrigerator Models	Midea, Toshiba, Samsung, various local brands
Temperature function	-35°C to -10°C
With fan or no	Static Cooling (No fan required)
Commercial or no	Domestic / Light Commercial
Amperage in function	0.9 A to 1.2 A
LRA (Locked Rotor Amps)	11.0 A
Type of relay	PTC Starter
Capacitor or no	No (Standard RSIR)

Electrical Wiring Schema (RSIR Logic)

For field technicians, identifying the terminal pins is critical to prevent accidental motor burnout. The GMCC PE75H1C follows the standard triangular

layout:

1. **C (Common):** The apex pin. Connected to the line voltage through the internal Thermal Overload Protector.
2. **M (Main/Run):** Bottom-right pin. Connected to the Neutral line.
3. **S (Start):** Bottom-left pin. Connected via the PTC (Positive Temperature Coefficient) relay.

Operational Logic: Upon startup, the PTC relay allows current to flow to the Start winding. As the PTC heats up, its resistance increases dramatically, effectively cutting off the Start winding once the motor reaches sufficient RPM, leaving only the Main winding energized.

Performance Comparison: GMCC PE75H1C vs. Industry Standards

When comparing the PE75H1C to other compressors in the same class, we look at the Coefficient of Performance (COP) and displacement efficiency.

Metric	GMCC PE75H1C (R134a)	Equivalent R600a Model
Gas Displacement	7.5 cm^3	11.2 cm^3
Efficiency (W/W)	1.25	1.45
Charge Weight	Standard (120g – 150g)	Low (40g – 60g)
Pressure Delta	Moderate	Low

Professional Replacement Cross-Reference

Choosing the right replacement is vital for maintaining the refrigerator's original thermal balance.

5 Compressor replacements in same value (R134a):

1. **Zem/ACC:** GL90AA
2. **Embraco:** EMT6170Z or FFI 7.5HAK
3. **Secop (Danfoss):** NL7F
4. **Huayi:** AE1380Y
5. **Tecumseh:** THB1375YSS

5 Compressor replacements in same value (R600a Conversion):

Notice: Conversion requires a full system flush and capillary adjustment.

1. **TEE:** NTU170MT
2. **Cubigel:** HMK12AA
3. **Secop:** HTK12AA
4. **Huayi:** HYB12MHU
5. **Jiaxipera:** NT1114Y

Engineering Advice and Best Practices

- **Thermal Protection:** The "Thermally Protected" label indicates an internal bimetallic switch. If the compressor stops and feels extremely hot, do not force a restart. Let it cool for 30 minutes. Check the condenser coils for dust; poor airflow is the primary killer of the PE75H1C.
- **Oil Compatibility:** This unit uses POE (Polyolester) oil. Never mix mineral oil (MO) with this system. If you are retrofitting, ensure the system is flushed

with nitrogen to remove moisture, as POE oil is highly hygroscopic.

- **Vacuum Standards:** For R134a systems, reaching a vacuum of at least 500 microns is non-negotiable. Residual moisture reacts with R134a and POE oil to create acid, which will eventually dissolve the copper windings.
- **Startup Amperage:** If the compressor draws high amperage (above 5A) and trips the protector, first replace the PTC relay. These components degrade over time and are a common point of failure before the motor itself fails.

Benefits of the GMCC PE75H1C

The primary benefit of this model is its durability in tropical climates. The motor is wound with high-quality copper that resists heat better than aluminum alternatives. Its compact footprint also makes it versatile for a wide range of refrigerator brands, simplifying inventory for HVAC professionals.



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