GMCC PE90HME-4 hermetic compressor

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Date: December 31, 2025 | **Author:** www.mbsmpro.com

URL: https://mbsmpro.com/gmcc-pe90hme-4-hermetic-compressor/

Mbsmpro.com, Compressor, PE90HME-4, 1/3 hp class, GMCC, Cooling, R134a, 265–295 W, 1.55 A, 1Ph 220-240V 50/60Hz, LBP capacity, RSCR motor, −23.3°C to −10°C

The **GMCC PE90HME-4** is a hermetic reciprocating refrigerator compressor optimized for **R134a** and low-back-pressure applications at

220–240 V, 50/60 Hz. With a displacement of about **9.0 cm³** and catalog cooling capacities between **265 and 295 W** around freezer conditions, it sits in the 1/3 hp performance class and targets domestic and light commercial refrigerators.

GMCC PE90HME-4 technical identity

The label identifies the compressor as thermally protected, RoHS-compliant and designed for R134a static-cooling appliances. It belongs to the PE series of GMCC light commercial units produced by Anhui Meizhi Compressor Co., Ltd.

Nameplate and catalog data

Item	Value / description
Brand	GMCC – Anhui Meizhi Compressor Co., Ltd.
Model	**PE90HME-4**
Refrigerant	R134a, low-back-pressure (LBP) range
Voltage / frequency	220–240 V, 50/60 Hz, single-phase (1Ph)
Motor type	RSCR (resistance start, capacitor run)
Displacement	≈ 9.0 cm³
Cooling capacity	265–295 W at LBP conditions (−23.3 °C evap, 32.2 °C amb.)
Input power	≈ 1.52–1.55 A rated current at 220–240 V
Application	Static-cooling domestic and small commercial refrigerators, freezers and coolers

Item	Value / description
Protection	Internal thermal protector, RoHS environmental compliance

The RSCR motor concept means a start capacitor is used only during start while a smaller run capacitor remains in circuit, balancing starting torque, efficiency and cost for fractional-horsepower refrigeration.

Operating envelope and performance

GMCC’s reference data for the PE90H1F-4 and PE90HME-4 show nearly identical working limits, giving a clear view of the envelope in which this compressor is expected to operate. These limits are critical for system designers who must match capillary length, condenser size and evaporating temperature.

Operating limits

Parameter	Typical PE90HME-4 values
Evaporating temperature range	−35 °C to −10 °C (LBP)
Nominal rating point	−23.3 °C evap / 32.2 °C ambient / 55 °C condensing
Voltage range	187–254 V (50 Hz)
Ambient temperature range	0–43 °C
Max condensing temperature	60–70 °C

Parameter	Typical PE90HME-4 values
Max discharge gas temperature	130 °C
Max winding temperature	130 °C (internal)
Max pump-down pressure	≈ 1.82 MPa

At the nominal point the compressor typically delivers around **265 W** at 1.55 A, while higher ambient or less negative evaporating temperatures move capacity closer to **295 W** but also increase power input. GMCC specifies vibration levels below 4.9 m/s² and sound levels compatible with household refrigerator noise expectations.

Comparison with other GMCC R134a PE series models

To position the **PE90HME-4** correctly for selection and replacement, it helps to compare it with nearby models such as **PE65H1H-9** and **PE90H1F-9** from the same GMCC R134a range.

GMCC R134a LBP models – performance comparison

Model	Displacement (cm³)	Cooling capacity at 50 Hz (W)*	HP class	Rated current (A)	Application

PE65H1H-9	6.5	190–195 W	1/4 hp	≈ 1.47–1.55	LBP domestic refrigerators
PE90HME-4	**9.0**	**265–295 W**	**1/3 hp class**	**≈ 1.52–1.55**	LBP refrigerators / freezers
PE90H1F-9	9.0	275–280 W	1/3 hp+	≈ 1.50	LBP with wide-voltage range
PE120HMH★	12.0	320 W	3/8–1/2 hp	≈ 1.45	L/MBP commercial coolers

*Capacity values taken at −23.3 °C evap / 32 °C amb., minor differences by catalog edition.

Compared with the **PE65H1H-9**, the PE90HME-4 delivers roughly **40–50% more capacity** at similar current, making it better suited to 280–400 L refrigerators or small freezers that need stronger pull-down. Against the **PE90H1F-9**, performance is very close; differences are mainly in voltage tolerance (wide-range versions) and detailed application approvals rather than raw capacity.

Practical applications and selection tips

Designers and technicians usually choose the GMCC **PE90HME-4** when they need a robust, mid-size R134a compressor that balances capacity, energy efficiency and cost. It is especially attractive in markets where

220–240 V 50 Hz is standard and where appliances are exposed to high ambient temperatures.

Typical uses

- Static-cooling household refrigerators in the 300–400 L range.
- Upright or chest freezers requiring −23 °C design evaporating temperature.
- Commercial beverage coolers and display cases using R134a and capillary expansion.

Selection and replacement considerations

Checkpoint	Why it matters
Refrigerant	Must be R134a; conversion from R12 or R600a requires full system redesign.
Evaporating temperature	Ensure design conditions fall inside −35 to −10 °C LBP range.
Condenser and capillary sizing	Match to 265–295 W capacity to avoid flood-back or high-head faults.
Voltage stability	Mains should remain within 187–254 V; more unstable grids may justify wide-voltage models like PE90H1F-9.
Start components	RSCR start kit (PTC + capacitor) must match GMCC’s specified values to guarantee torque and reliability.

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