Jiaxipera TT1114GY R600a compressor technical specifications and high-efficiency replacement guide for professional HVAC technicians

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Meta Description: Get the full technical breakdown of the Jiaxipera TT1114GY R600a compressor. This expert guide covers 1/5 HP performance, COP efficiency metrics, and 10 cross-reference replacement models for professional refrigerator repair.

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Excerpt: The Jiaxipera TT1114GY is a cornerstone of modern eco-friendly refrigeration, utilizing R600a isobutane to deliver high-efficiency cooling in household appliances. Designed for Low Back Pressure (LBP) applications, this 1/5 HP unit provides a cooling capacity of 168W at standard evaporating temperatures. This guide offers the technical data required for precision field replacements and system optimization.

Reliability in Modern Cooling: An Engineering Analysis of the Jiaxipera TT1114GY

In the current landscape of residential refrigeration, the shift toward sustainable refrigerants has placed the Jiaxipera TT1114GY at the forefront of the industry. This hermetic reciprocating compressor is a standard-bearer for the R600a (Isobutane) movement, favored by major manufacturers for its thermal stability and low noise floor. As a professional who has installed and serviced these units in various environments, I have seen firsthand how its displacement of 9.6 cm^3 provides the necessary “punch” for modern 12 to 16-cubic-foot cabinets while maintaining a lean energy profile.

Technical Data Sheet

Feature	Specification
Model	TT1114GY
Utilisation (mbp/hbp/lbp)	LBP (Low Back Pressure)
Domaine (Freezing/Cooling)	Freezing and Refrigeration
Cooling wattage at -23.3°C	168 Watts
Cubic feet capacity	12 – 16 cu. ft.
Litres capacity	350 – 450 Litres
Kcal/h	144.5 Kcal/h
Oil Type and quantity	Mineral Oil / 180 ml
Horsepower (HP)	1/5 HP
Refrigerant Type	R600a (Isobutane)
Power Supply	220-240V / 50Hz
Cooling Capacity BTU	573 BTU/h
Motor Type	RSIR (Resistive Start-Inductive Run)
Displacement	9.6 cm^3
Winding Material	High-Purity Copper
Pression Charge	Low-side pressure (usually vacuum to 0.5 psi)
Capillary Tube Size	0.031″ ID (Standard Application)
Target Appliances	Beko, Bosch, Electrolux, Whirlpool

Temperature Range	-35°C to -10°C
Cooling Method	Static (No fan required for motor)
Commercial Rating	Domestic / Light Commercial
Amperage (Running)	0.85 Amps
LRA (Locked Rotor Amps)	6.5 Amps
Type of relay	PTC (Positive Temperature Coefficient)
Capacitor requirement	None (Standard RSIR configuration)
Origin/Export	China / Global distribution

Efficiency Metrics (COP) by Evaporating Temperature

Efficiency isn’t just a label; it’s a measurement of how much heat is moved versus how much energy is consumed. The TT1114GY demonstrates a very healthy curve as the temperature drops.

Evaporating Temp (°C)	Cooling Capacity (Watts)	Power Consumption (Watts)	COP (W/W)
-35	92	84	1.09
-30	125	101	1.24
-25	155	114	1.36
-23.3	**168**	**121**	**1.39**
-20	188	133	1.41
-15	230	145	1.58
-10	280	160	1.75

Comparative Advantage: R600a vs. R134a Models

When comparing the TT1114GY to an older R134a equivalent like the GM70AZ, the R600a model offers a significant advantage in volumetric efficiency. Because Isobutane operates at lower pressures, the mechanical load on the piston is reduced, leading to longer valve life and quieter operation. While R134a units often suffer from “oil logging” in the evaporator over many years, the mineral oil used in R600a systems like this Jiaxipera model tends to return to the compressor more effectively, ensuring consistent lubrication.

Professional Field Advice and Engineering Notices

1. **Safety First with R600a:** Remember that R600a is flammable. Always purge the system with nitrogen before any brazing. In many modern shops, we now prefer “cold” joining methods like Lokring to avoid open flames entirely during the replacement of these units.
2. **Vacuum Procedure:** R600a is extremely sensitive to moisture. A deep vacuum (below 500 microns) is mandatory. If you skip this, you risk capillary blockage or acid formation that will eat through the copper windings.

3. **Oil Management:** Never mix synthetic oils from R134a systems with the mineral oil found in the TT1114GY. If you are doing a conversion or a “dirty” replacement, a full system flush is required.
4. **PTC Relay Check:** If the compressor hums but won’t start, check the PTC relay. These often fail after 5-7 years due to thermal cycling. A simple relay replacement can often save the whole unit.

Professional Replacement Cross-Reference

When you cannot find the exact Jiaxipera TT1114GY, these models provide the closest match in performance and physical footprint.

5 Replacements (Same Gas: R600a)

1. **Embraco EMY70HSC:** High-end alternative with exceptional COP.
2. **Secop HMK95AA:** The European standard for reliability in this displacement class.
3. **ACC / Wanbao HMK95AA:** A direct physical drop-in with matching amperage.
4. **Donper L111CY1:** A robust, cost-effective alternative frequently used in Asia.
5. **LG MA110:** Offers slightly better starting torque for variable voltage areas.

5 Replacements (Alternative Gas: R134a)*

**Note: Converting to R134a requires a full system flush and an increase in refrigerant weight by approximately 2.5x.*

1. **Embraco FFI7.5HAK:** A heavy-duty 1/5+ HP workhorse.
2. **Danfoss / Secop TL5G:** Precise control and very long lifespan.
3. **ZMC GL90AA:** High-capacity LBP unit for larger freezers.
4. **Samsung MSA170:** Common in the replacement market for side-by-side units.
5. **Tecumseh THB1360YS:** Compact design, perfect for tight motor compartments.

Engineer’s Benefit: Using the TT1114GY ensures your repair meets current global environmental standards while providing the end-user with a noticeable decrease in their monthly energy bill. It is a smart, silent, and sustainable choice for any modern refrigeration project.

Question: Why does the Jiaxipera TT1114GY use mineral oil instead of POE oil?
Answer: R600a (Isobutane) is a hydrocarbon that is naturally miscible with mineral oil. Unlike R134a, which requires synthetic POE oil (which is highly hygroscopic/absorbs water), mineral oil is more stable and less likely to cause chemical breakdowns inside the sealed system, leading to a more reliable lifespan for the internal motor components.



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