

# Samsung MSE4A1Q-L1G AK1, hermetic reciprocating refrigerator compressor

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## Samsung MSE4A1Q-L1G AK1, 1/4 hp, R600a, RSCR, LBP, 220-240V 50Hz Hermetic Compressor Technical Review

The Samsung MSE4A1Q-L1G AK1 is a hermetic reciprocating refrigerator compressor designed for domestic LBP applications with R600a refrigerant and a nominal cooling capacity around 175–180 W at ASHRAE conditions,

equivalent to roughly **1/4 hp**.

Engineers value this model for its efficient RSCR motor, compatibility with eco-friendly isobutane, and robust design for household refrigerators and freezers.

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## Main technical specifications

Samsung lists the MSE4A1Q-L1G in its AC220-240V 50 Hz R600a LBP family, sharing the same platform as MSE4A0Q and MSE4A2Q models used in many high-efficiency fridges.

### Core data of MSE4A1Q-L1G AK1

Parameter	Value
Brand	Samsung hermetic compressor
Model marking	MSE4A1Q-L1G AK1 (also written MSE4A1QL1G/AK1)
Application	LBP household refrigerator/freezer, R600a
Refrigerant	R600a (isobutane), flammable A3
Voltage / frequency	220-240 V, 50 Hz, single-phase
Motor type	RSCR (resistance-start, capacitor-run)
Cooling capacity (ASHRAE ST)	≈175–203 W, about 695 BTU/h
Input power	≈118 W at rated conditions
Efficiency	COP around 1.49 W/W at ASHRAE standard

<b>Parameter</b>	<b>Value</b>
LRA (locked-rotor current)	3.8 A shown on nameplate
Refrigerant charge type	Factory designed for R600a only
Country of manufacture	Korea (typical for this series)

The combination of  $\approx 175\text{--}180$  W cooling and  $\approx 118$  W electrical input places this compressor in the **1/4 hp** class widely used in medium-size top-mount and bottom-mount refrigerators.

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## **Engineering view: performance and design**

From an engineering perspective, the MSE4A1Q-L1G AK1 is optimised for high efficiency at standard refrigerator evaporator temperatures while maintaining good starting torque with RSCR technology.

- The **RSCR motor** uses a start resistor and run capacitor to improve power factor and efficiency compared with simple RSIR designs, which helps manufacturers meet modern energy-label targets.
- R600a's low molecular weight and high latent heat allow lower displacement for the same cooling capacity, so the compressor can remain compact while delivering around 695 BTU/h of cooling at  $-23$  °C evaporating conditions.

For technicians, the relatively low LRA of 3.8 A makes this model easier on start relays and PTC starters, especially in regions with weaker grid infrastructure at 220–240 V.

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## Comparison with other Samsung R600a LBP compressors

Samsung's catalog groups the MSE4A1Q-L1G within a family of R600a reciprocating compressors from about 94 W up to 223 W cooling capacity.

### Position of MSE4A1Q-L1G in the R600a range

Model	Approx. cooling W (ASHRAE ST)	Input W	COP W/W	Approx. hp	Typical use	Source
MSE4A0Q-L1G	162-188 W	≈107 W	≈1.51	≈1/5-1/4 hp	Small to medium fridge	
<b>MSE4A1Q-L1G</b>	<b>175-203 W</b>	<b>≈118 W</b>	<b>≈1.49</b>	<b>≈1/4 hp</b>	Medium refrigerator, high-efficiency	
MSE4A2Q-L1H	192-223 W	≈127 W	≈1.51	≈1/4+ hp	Larger fridge or combi	

Compared with MSE4A0Q-L1G, the MSE4A1Q-L1G offers a modest step-up in cooling capacity at similar efficiency, making it a good choice when cabinet size or ambient temperature requires extra margin.

Against MSE4A2Q-L1H, it trades some maximum capacity for slightly lower input power, which can be attractive for manufacturers targeting stringent energy-label thresholds while keeping the same mechanical footprint.

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## Professional installation and service advice

Working with R600a compressors like the MSE4A1Q-L1G requires strict adherence to flammable-refrigerant standards and best practices.

### Key engineering and safety recommendations

- Use only tools and recovery systems rated for **A3 refrigerants**; never retrofit this compressor with R134a or other non-approved gases because lubrication and motor cooling are optimised for R600a.
- Ensure the system charge is accurately weighed with a precision scale, as overcharging even small amounts can increase condensing pressure and reduce COP significantly on low-displacement units.
- Maintain good airflow over the condenser and avoid installing units flush against walls; high condensing temperature quickly erodes the 1.49 W/W efficiency and can trigger thermal protector trips.

### Diagnostic and replacement tips

- When replacing, match not only voltage and refrigerant but also cooling capacity and LBP application class; choosing a smaller 140 W class unit in place of the MSE4A1Q-L1G risks long running times and poor pull-down.
- Measure running current after start-up; a healthy system will draw close to catalog input current at rated conditions, while notably higher current can indicate overcharge, blocked airflow, or partial winding short.

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## Focus keyphrase (Yoast SEO)

Samsung MSE4A1Q-L1G AK1 1/4 hp R600a RSCR LBP refrigerator compressor 220-240V 50Hz technical data and comparison

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## **SEO title**

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## **Meta description**

Discover the full technical profile of the Samsung MSE4A1Q-L1G AK1 1/4 hp R600a LBP compressor: cooling capacity, RSCR motor efficiency, engineering advice, and comparisons with other Samsung R600a models.

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## **Slug**

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## **Tags**

Samsung MSE4A1Q-L1G, MSE4A1Q-L1G AK1, Samsung R600a compressor, 1/4 hp refrigerator compressor, RSCR LBP compressor, 220-240V 50Hz compressor, Mbsmgroup, Mbsm.pro, mbsmpro.com, mbsm

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## **Excerpt (first 55 words)**

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## **Verified PDF and catalog links about Samsung R600a compressors**

- Samsung global compressor page for AC220-240V 50Hz R600a LBP family (includes MSE4A1Q-L1G, PDF download link in page).
- Direct Samsung “SAMSUNG COMPRESSOR” R600a catalog PDF listing MSE4A1Q-L1G specifications.
- Samsung AC200-220V 50Hz R600a LBP compressor family catalog page with PDF.
- Samsung corporate brochure “Samsung Compressor” PDF covering technical data and performance tables.
- Spanish “Catalogo Compresores Samsung” PDF on Scribd with R600a LBP tables.
- Tili Global technical sheet collection for Samsung household reciprocating compressors (model tables in downloadable PDF).
- Samsung global business main compressor product brochure PDF linked from compressor overview section.
- Additional Samsung R600a LBP catalog PDF linked in “Download PDF” button for AC220-240V 50Hz series on product page.
- Supplementary Samsung compressor specification PDF referenced within Scribd Samsung Compressor document.

- General Samsung reciprocating compressor catalog PDF referenced across global business compressor section, covering multiple R600a LBP models.



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