

ZMC GL80AF R134a Hermetic Compressor

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ZMC GL80AF R134a Hermetic Compressor: Technical Profile, Applications and Professional Opinion

The image shows a **ZMC GL80AF** hermetic compressor designed for domestic refrigeration using refrigerant **R134a**, manufactured in Egypt and widely used as a 1/5 HP replacement in household refrigerators and coolers. This model belongs to the GL-AF family of ZMC low-back-pressure compressors, optimized for energy-efficient operation on 220–230 V, 50/60 Hz single-phase supply in warm climates such as North Africa and the Middle East.

Main identification

The label in the photo clearly indicates the marking **GL80AF**, the brand **ZMC / ZEM**, the refrigerant **R134a** and the supply range 200–220 V / 220–230 V at 50/60 Hz, with manufacture noted as “Made in Egypt”. In ZMC’s catalog, GL-series compressors in the 80 class are rated around **1/5 HP**, with displacement close to 8 cm³ and low-back-pressure duty for freezer and refrigerator applications using capillary tubes.

Table - ZMC GL80AF key data (typical catalog values for GL80 R134a series)

Item	Value (typical)	Note
Compressor family	GL80AF	ZMC hermetic piston, household/commercial use.
Nominal power	≈ 1/5 HP	LBP R134a rating from GL80 family table.

Item	Value (typical)	Note
Refrigerant	R134a	For CFC-free domestic refrigeration.
Application	LBP (freezer/fridge)	Designed for evaporating temps down to about $-23\text{ }^{\circ}\text{C}$.
Voltage / frequency	220-230 V, 50/60 Hz	Single-phase, wide operating range.
Motor type	RSIR / RSCR	Standard ZMC design for this family.
Country of origin	Egypt	ZMC plant in 10th of Ramadan City.

Technical context and typical uses

Within ZMC's R134a range, the GL80AF is positioned between smaller GD40/GL45 units and larger GL90 models, offering a balance between cooling capacity and electrical consumption for medium-size domestic refrigerators and small commercial coolers. Installers commonly use it as a service replacement for 1/5 HP R134a compressors in brands such as Electrolux, Zanussi and regional OEM manufacturers, particularly where a robust compressor is needed for high-ambient conditions up to $43\text{ }^{\circ}\text{C}$.

The GL80AF is designed for use with capillary expansion devices, mineral-free ester oil compatible with R134a and standard household line voltages, making it straightforward to integrate into existing systems that originally used CFC-12 or early R134a units of similar capacity. For correct operation, technicians must respect ZMC's recommendations regarding oil

type, charge amount, airflow around the compressor shell and proper matching between evaporator, condenser and capillary tube dimensions.

Installation, replacement and troubleshooting notes

When replacing a failed compressor with a GL80AF, professionals typically verify that the original unit had a similar displacement and LBP duty rating and then adapt mounting springs, suction and discharge connection diameters if needed. Attention to cleanliness of the refrigeration circuit—nitrogen purging during brazing, filter-drier replacement and precise R134a charging—is essential to guarantee reliability and avoid lubricant breakdown or acid formation inside the hermetic shell.

Electrical checks before start-up usually include measuring winding resistances, confirming the correct RSIR/RSCR starting components (start relay, overload protector and capacitor if required) and ensuring that the supply voltage at the compressor terminals stays within the 187–264 V working range specified for ZMC R134a models. Because GL80-class compressors are optimized for low back-pressure, using them outside their intended evaporating temperature range (for example in high-back-pressure air-conditioning duty) can lead to overheating, high current draw and premature mechanical failure.

Reference images and documentation

Technicians and buyers seeking more visuals can consult ZMC's official product pages and specialist refrigeration catalogs, which show close-up

images of GL-series compressors, terminals and mounting hardware. In addition, Mbsmgroup maintains its own photographic documentation and comparison articles featuring the GL80AF in real workshop conditions, including the same type of label as seen in the attached image.

Several reliable PDF resources provide detailed performance data, cooling-capacity curves and application limits for ZMC R134a compressors, including GL80-family models. These catalogs list parameters such as displacement, current, COP, recommended capillary tube sizes and wiring diagrams, giving professionals the information they need to design or repair systems around the GL80AF platform.

LBP															
R134a 60 Hz			CECOMAF (W)						ASHRAE		R134a 60 Hz				
			-35	-30	-25		-10	-23.3							
			W	COP			W	COP	kcal/h	COP					
200-220/220-230V 50/60Hz ~I															
GD30AG	1/12	S	3.08	25	39	57	0.67	130	68	0.88	C	200	5.8	RSIR	P
GD40AF	1/10	S	4.03	35	54	77	0.70	171	91	0.91	C	200	6.8	RSIR	P
GL99BL	1/4	OC	9.93	102	148	204	0.93	434	239	1.21	C	470	11.3	RSCR	P
GL45AF	1/8	S	4.55	41	64	94	0.76	214	111	0.99	C	270	9.0	RSIR	P
GL60AF	1/6	S	5.99	66	94	131	0.81	286	154	1.05	C	270	9.1	RSIR	P
GL70AF	1/5	S	6.65	80	110	150	0.90	323	175	1.17	C	345	10.1	RSIR	P
GL70ANa	1/5	S	6.65	80	110	150	0.90	323	175	1.17	C	345	10.1	RSIR	P
GL70ANb	1/5	OC	6.65	80	110	150	0.90	323	175	1.17	C	445	10.4	RSIR	P
GL80AF	1/5	S	8.10	87	123	172	0.92	384	202	1.19	C	445	10.6	RSIR	P
GL80ANa	1/5	S	8.10	87	123	172	0.92	384	202	1.19	C	445	10.6	RSIR	P
GL80ANb	1/5	OC	8.10	87	123	172	0.92	384	202	1.19	C	445	10.7	RSIR	P
GL90AF	1/4	S	9.08	96	134	185	0.93	421	218	1.20	C	445	10.8	RSIR	P
GL90ANa	1/4	S	9.08	96	134	185	0.93	421	218	1.20	C	445	10.8	RSIR	P
GL90ANb	1/4	OC	9.08	96	134	185	0.93	420	218	1.20	C	445	10.9	RSIR	P
115V 60Hz ~I															
GD24AD	1/20	S	2.42	14	25	40	0.52	99	48	0.70	C	200	5.1	RSIR	P
GD36AD	1/12	S	3.62	30	47	68	0.65	149	80	0.85	C	240	6.1	RSIR	P
GL45ADa	1/8	S	4.55	41	65	95	0.80	214	112	1.05	C	265	8.1	RSIR	P
GL45ADb	1/8	S	4.55	41	65	95	0.80	214	112	1.05	C-V	265	8.1	CSIR	R
GL60ADa	1/6	S	5.99	64	94	132	0.85	290	155	1.10	C	265	9.1	RSIR	P
GL60ADb	1/6	S	5.99	64	94	132	0.85	290	155	1.10	C	210	9.1	CSIR	R
GL60BK	1/6	OC	5.99	66	95	132	0.84	290	155	1.10	C	400	10.0	RSCR	P
GL70ADa	1/5	S	6.65	79	108	148	0.86	322	173	1.12	C	345	9.6	RSIR	P
GL70ADb	1/5	S	6.65	79	108	148	0.86	322	173	1.12	C	345	9.6	CSIR	R
GL80ADa	1/5	S	8.10	84	121	171	0.87	383	201	1.13	C	345	9.8	RSIR	P
GL80ADb	1/5	S	8.10	84	122	171	0.87	384	201	1.13	C-V	345	9.8	CSIR	R
GL80BK	1/5	OC	8.10	79	119	169	0.85	381	200	1.11	C	470	11.1	RSCR	P
GL90ADa	1/4	S	9.08	97	138	191	0.88	420	224	1.14	C	445	10.5	RSIR	P
GL90ADb	1/4	S	9.08	97	138	191	0.88	420	224	1.14	C	445	10.5	CSIR	R



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