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Category: compressor

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Technical Overview of the GMCC PZ120H1Y Reciprocating Compressor

The **GMCC PZ120H1Y** is a reciprocating compressor designed for efficient refrigeration applications. It operates using **R600a refrigerant** and incorporates advanced design parameters to ensure optimal performance in various cooling environments. Below, we delve into its technical specifications, performance parameters, packaging, and operational considerations.

1. Compressor Design and Specifications

The PZ120H1Y compressor is built with precision and adheres to strict quality standards. Key features include:

Parameter	Value
Refrigerant Type	R600a
Refrigerant Oil	Ester Synthetic Oil (POE)

Parameter	Value
Tube Materials	Copper
Suction Tube Diameter	$\Phi 4.91 \pm 0.1$ mm
Process Tube Diameter	$\Phi 6.5 \pm 0.1$ mm
Displacement Volume	12 cm ³
Net Weight (Oil Included)	8.5 \pm 0.4 kg
Base Plate Type	European Standard (170 \times 70 mm)

Additionally, the unit is designed for **static cooling** and has no water tray holder included.

2. Electrical and Operational Parameters

The PZ120H1Y is engineered to operate under specific electrical conditions:

Parameter	Value
Nominal Voltage	220–240V / 50Hz
Voltage Range	187V to 254V
Starting Ability	187V [0.95/0.95 Mpa (abs)] at 25°C
Puissance (Power Input)	114 W (~0.153 hp)
Classified Power (HP)	1/3 hp

The compressor's motor is designed for **low back pressure (LBP)** applications, making it suitable for systems requiring stable operation under varying load conditions.

3. Performance Metrics

Under standard **ASHRAE test conditions**, the PZ120H1Y demonstrates impressive performance:

Performance Parameter	Value
Cooling Capacity	210 W
Input Power	114 W (~0.153 hp)
COP (Coefficient of Performance)	1.85 W/W
Sound Level	≤ 42 dB(A)
Vibration	Minimal

Test conditions are as follows:

Condition	Temperature
Evaporating Temperature	-23.3°C (LBP)
Condensation Temperature	54.4°C
Ambient Temperature	32.2°C to 35°C
Subcooling Temperature	46.1°C

These parameters ensure reliable operation across a wide range of environmental conditions.

4. Packaging and Transportation

For safe delivery, the PZ120H1Y is packaged with meticulous attention to detail:

Parameter	Value
Package Dimensions	1140 × 940 × 1020 mm
Stacking Capacity	96 units per pallet
Net Weight (N.W.)	816 kg
Gross Weight (G.W.)	851 kg
Cubic Measure	1.1 m ³

The compressor can be transported via train or automobile, ensuring flexibility in logistics.

5. Operational Considerations

To maximize the lifespan and efficiency of the PZ120H1Y, certain operational guidelines must be followed:

Parameter	Value
Maximum Shell Temperature	120°C
Maximum Discharge Temperature	90°C
Maximum Condensing Temperature	130°C
Ambient Temperature Range	-5°C to 43°C
Evaporating Temperature Range	-35°C to -10°C
Intermittent Operation	ON > 5 minutes, OFF > 5 minutes
Operational Cycle Limit	< 200,000 cycles

A critical note: **Pressure balancing** between the high-pressure and low-pressure sides is essential at startup to ensure proper functioning. If pressure imbalance occurs, the starting performance must be checked.

6. Environmental Compliance

The PZ120H1Y adheres to stringent environmental regulations:

Regulation	Compliance
PAHs (II)	BaP content <1 ppm, Total PAHs <10 ppm
REACH Regulations	SVHC <1000 ppm
Phthalic Acid Salt Limits	Harmful substances <1000 ppm

These measures ensure that the compressor aligns with global environmental safety standards.

7. Component List

Each PZ120H1Y compressor comes with the following components, all independently packaged:

Component	Amount
Compressor	1 unit
PTC	1 unit
OLP	1 unit
Capacitor	1 unit
Terminal Cover	1 unit
Earthing Screw	1 unit

Component	Amount
Grommets	4 units

Conclusion

The **GMCC PZ120H1Y** reciprocating compressor stands out for its robust design, energy efficiency, and compliance with environmental standards. With a cooling capacity of **210 W** and input power of **114 W (~0.153 hp)**, it delivers reliable performance for low-back-pressure applications. Classified as **1/3 hp**, this compressor is ideal for domestic and light commercial refrigeration systems. Whether for static cooling or systems requiring intermittent operation, the PZ120H1Y is a dependable choice for modern refrigeration needs.

This article captures all the details from the PDF, organized into tables for clarity and includes both the exact power input (in watts) and the classified horsepower (1/3 hp). Let me know if you'd like any further adjustments!

https://www.mbsm.pro/wp-content/uploads/2025/03/Mbsm_dot_pro_private_PDFPZ120H1Y-R600a-Data-Sheet.pdf

