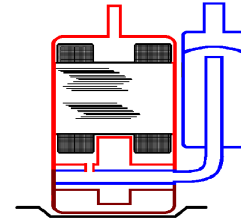


Features and Benefits of the Matsushita Rotary Compressor

Panasonic Industrial Company

Air Conditioning Compressors



The Compressor Division

The Compressor Division of Matsushita Electric Industrial Co., Ltd. is the world's largest manufacturer of rotary compressors for room air conditioners and features state-of-the-art manufacturing and engineering facilities.

From an auspicious beginning in 1976, when 55,000 rotary compressors were produced in our Kusatsu, Japan plant, the Compressor Division (COD) has grown to five factories, on three continents, with total annual production nearing 11 million compressors. In addition to the main factory in Kusatsu, Matsushita has factories in Kofu, Japan; Kuala Lumpur, Malaysia; Charlotte, North Carolina; and our newest facility located near Guang Zhou, China.

High Efficiency by Design

The Matsushita Rotary Compressors are designed by optimizing the three critical elements of high efficiency and high performance.

1. Extremely close tolerances are maintained between moving parts resulting in high compressor volumetric efficiency.
2. Mechanical losses due to vibration and friction are minimized due to the precision machined, ultra-smooth finishes on moving parts surfaces.
3. Gas flow losses and operating sound levels are minimized by designing a gas circulation route that helps assure smooth flow throughout the rotary cycle.

The Matsushita Rotary Compressor also incorporates a high performance, high efficiency motor that, when integrated with the above design features, results in an extremely quiet, high efficiency, low operation cost compressor.

High Quality and High Reliability

All Matsushita Rotary compressors are assembled in specially designed and highly automated "clean room" environments where temperature, humidity, and airborne contaminants are carefully controlled. Automated assembly, employing precision robots, allows critical manufacturing variables to be held to very close tolerances. In addition, computerized statistical quality control is applied at every step of the manufacturing process. The result is a rotary compressor with a remarkably low failure rate and a long service life.

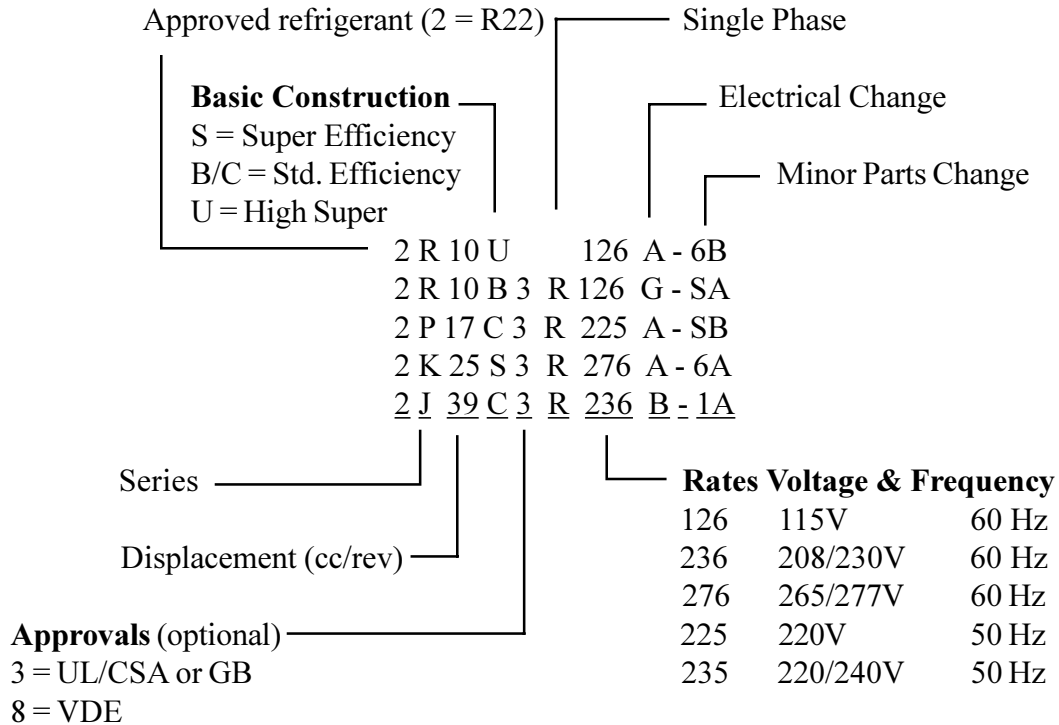
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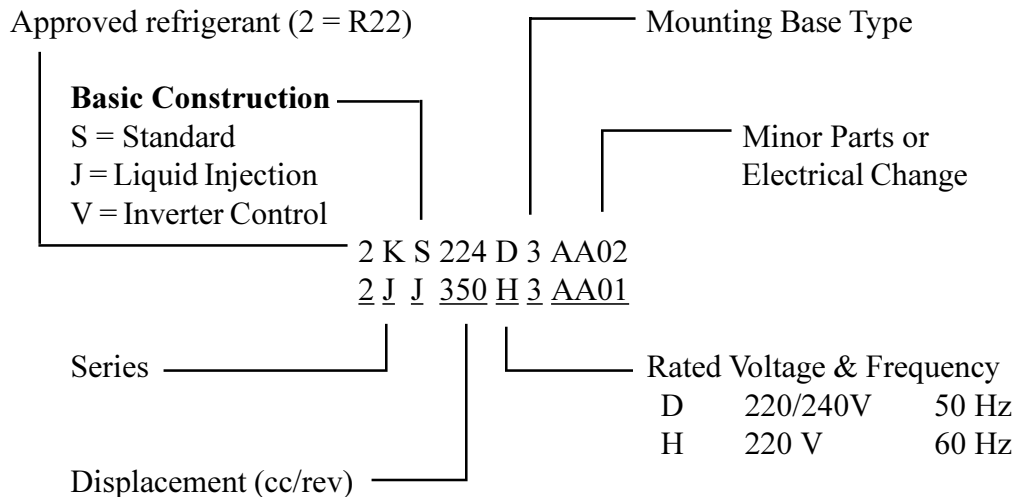
Model Names

The Matsushita hermetic rotary compressor program consists of the R, P, K, and J series models. These compressors are designed for use exclusively with refrigerant R22 at high evaporating temperatures (HBP, e.g. in air conditioners, dehumidifiers, etc.).

A model name is stamped on the top shell of the compressor. The model name provides the following information:



(Alternate model name)



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Approvals and Markings

All UL/CSA approved compressors have a label affixed to the side as shown.

Compressor model — **2K20S3R126A 6C**

Electrical rating information — **THERMALLY PROTECTED R22**
1 PH 60 HZ 115 V LRA 65

Approved refrigerant — **R22**

WARNING/DANGER

FOLLOW RECOGNIZED SAFETY PROCEDURES AND WEAR PROTECTIVE GOGGLES WHEN SERVICING THIS COMPRESSOR.

1 THIS COMPRESSOR MUST BE GROUNDED FOR PROPER WIRING; DO NOT EXCEED 150 PSIG FOR LEAK TEST PRESSURE.

2 DO NOT OPERATE WITHOUT PROTECTIVE TERMINAL COVER FIRMLY IN PLACE; DISCONNECT ALL POWER BEFORE REMOVING PROTECTIVE TERMINAL COVER.

3 COMPRESSOR HOUSING MAY REACH 302 F (150 C.) WITH THERMAL PROTECTOR APPROVED BY MATSUSHITA AND TESTED IN ACCORDANCE WITH U.L. 984

UL/CSA recognized

Locked rotor amps

Manufacturing location

99.06.29 S/09

2K20S3R126A6C10300002

Select compressor models are approved by other agencies. Please contact Panasonic Industrial Company for further information regarding these models.

As recognized by Underwriters Laboratories, the R-series compressors have a shell burst pressure of 2100 psig, the P and K-series compressors have a shell burst pressure of 2300 psig, and the J-series compressors have a shell burst pressure of 2400 psig.

Date Stamp

On the side of the compressor there is also a date stamp which represents the date of manufacture and internal codes as illustrated by the following examples:

date code: **H714S4**

H =	Year	J = '98;	H = '97;	G = '96;	F = '95;
7 =	Month	E = '94;	D = '93;	C = '92;	B = '91; A = '90
14 =	Day	1 - 9 =	Jan -Sept;	X - Z =	Oct - Dec
S =	Factory				
4 =	Internal	S = USA;	M = Malaysia;	Y = Kofu;	Non = Kusatsu

Oil Mark

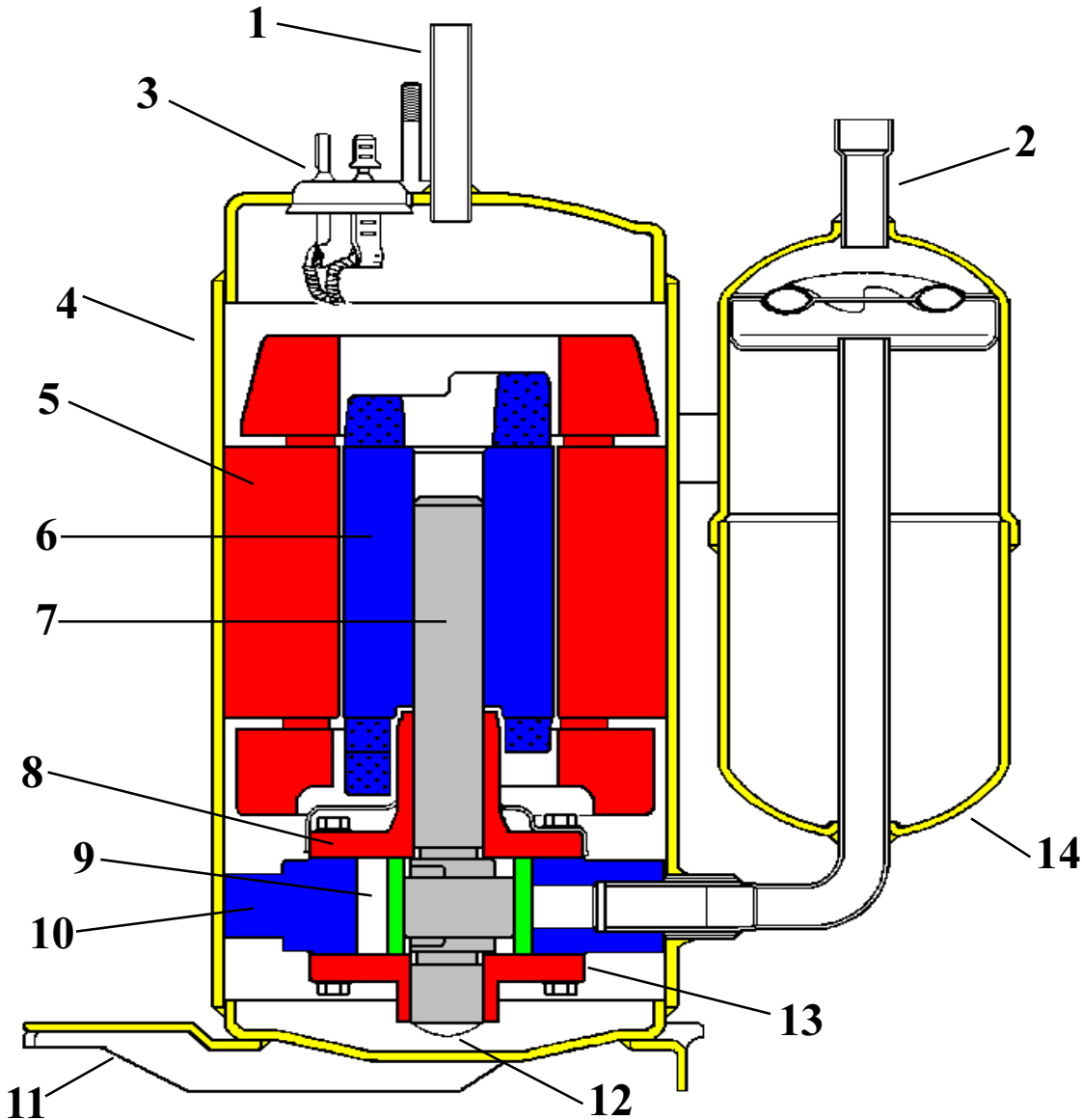
All Matsushita rotary compressors are delivered with oil. Oil charge is indicated by a colored mark on the upper shell of the compressor which corresponds to the following.



Yellow = ATMOS M60 (A)
White = Suniso 4G DID

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1	Discharge Tube	8	Upper Bearing
2	Suction Tube	9	Piston
3	Glass Terminal	10	Cylinder
4	Shell	11	Base
5	Stator	12	Oil Pump
6	Rotor	13	Lower Bearing
7	Shaft	14	Accumulator

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Electrical Design

Matsushita compressors are designed for standard voltages of 115V - 60 Hz, 208/230V-60 Hz, and 265/277V-60 Hz. Some models are available in other voltages and frequencies for markets outside North America. For additional information please contact Panasonic Industrial Company.

For most models the voltage fluctuation should not exceed $\pm 10\%$ of the rated voltage, the exception being 208/230V rated compressors which are approved for $-5\%/+10\%$ fluctuation of rated voltage.

Motors and Starting Equipment

Rotary compressors utilize single-phase permanent split capacitor (PSC) AC motors. Compressors with the PSC motor system are widely used in air conditioning systems with capillary tube restrictors and system pressure equalization prior to each start-up (minimum three minutes).

In some applications additional starting torque is desired. To achieve higher starting torque a PTC relay and start capacitor are used with the PSC motors. A potential (current) relay and start capacitor may also be used to increase starting torque. However, the PTC relay is recommended by Matsushita for HST applications.

Motor Protection

R, P and smaller displacement K-series compressors have an external motor overload protector (OLP) which is located on the upper shell of the compressor. The J-series and larger displacement K-series compressors have a built-in motor protector (internal OLP).

Condition at Delivery and Compressor Storage

Matsushita compressors are securely packed in tri-wall corrugated cartons. Model numbers and carton quantities are clearly marked on the side of each carton. The cartons should be stored in a dry, level location indoors, between 25°F (-4°C) and 115°F (45°C). Do not exceed the stacking limits marked on the pallets.

If the pallets are stored in a moist place, even indoors, the packaging material will absorb moisture and deteriorate in strength. This may damage the packaging.

Prior to delivery, the compressors are oven-dried and charged with nitrogen and dehydrated oil. The protective charge of nitrogen is intended to help maintain a dry, leak-tight product.

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Compressor Packing

The standard pallet may be stacked and is intended for transport by forklift. Shipments generally contain the following quantities of compressors:

Series	Pallet Quantity (pieces)	Trailer Quantity (48' or 53' std)	Container Quantity (20' std)
R	60	2040	1800-2040
P	40	1400	1140
K (20-24)	40	1080	1040
K (25-34)	40	1040	960
J	24	N/A	552

Suction and Discharge Connectors

All Matsushita compressors have copper connector tubes. The connectors consist of a thick-walled copper tube with good corrosion resistance and solderability. The connectors have rubber sealing caps which provide an air-tight seal.

The caps on both the discharge and suction side seal in the nitrogen gas. When removing the seal caps, be sure to remove the seal cap from the discharge side first, and then from the accumulator (suction side). If the accumulator seal is removed first, oil will be transferred to the accumulator due to pressure differences and this oil may coat the copper connectors making accumulator brazing difficult.

The seal caps should not be removed more than 15 minutes before the compressor is to be installed. The caps may be removed by hand or with a special tool. Care should be taken to prevent tube deformation during plug removal.

Terminal Protective Cap

A protective cap is mounted on the glass terminal to limit exposure to dust and foreign materials. Care should be taken not to damage the glass terminal while removing the protective cap. If the protective cap has come off and dust or foreign materials are found on the glass terminal, a dry wash cloth or gauze should be used to clean it off. If the glass terminal is deformed or cracked, do not use the compressor.

Do not strike the protective cap to remove it as this will damage the terminals. The cap should be grasped and a twisting, upward motion used, to remove it.

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Accumulators

Because the rotary compressor employs direct suction into the cylinder, an accumulator is necessary to prevent excessive liquid floodback to the mechanism. The accumulator is placed in the compressor suction line and acts as a surge chamber and reservoir; it contains and controls liquid refrigerant and oil which would otherwise enter the compressor mechanism directly.

Compressor Rating Conditions

Panasonic rotary compressors are designed for use in air conditioning systems operating with R-22 refrigerant and are rated according to the ASHRAE/T conditions shown below. Upon request, compressor ratings at ARI conditions will be provided.

	Ambient Temp.	Evaporating Temp.	Return gas Temp.	Condensing Temp.	Liquid Temp.
ASHRAE/T	95°F (35°C)	45°F (7.2°C)	95°F (35°C)	130°F (54.4°C)	115°F (46.1°C)
ARI	95°F (35°C)	45°F (7.2°C)	65°F (18.3°C)	130°F (54.4°C)	115°F (46.1°C)

Piping Configuration

The construction of rotary compressors is such that the pump and motor are both fixed to the compressor shell. This causes pump and motor vibrations to be transmitted through the suction and discharge pipes to the system and the piping itself. Therefore, strict attention must be paid to the configuration of the suction and discharge piping outside the operating range of the compressor.

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Mounting

The compressor is designed to be mounted using a shoulder bolt (see specifications) and grommet. This mounting system will prevent compression of the rubber grommet to such an extent that the damping characteristics are eliminated. Matsushita rubber grommets are designed for 10 mm diameter bolts.

The following grommets may be purchased from Panasonic:

R-series	7070817
P-series	7070815
K- series	7070815
J-series	7070823
Unitary	7070823

For proper sound insulation and transportability, the clearance between the grommet and washer/nut must be maintained between 0.02 and 0.08 inches (0.5 to 2 mm). Matsushita's grommet is designed for a 0.39 inch (10 mm) mounting stud.

Maximum Operating Conditions

Matsushita has specified the following conditions as the maximum allowable operating conditions for its rotary compressors.

Maximum Operating Conditions		
Suction pressure:	114 psig	(8 kg/cm ² G)
Discharge temperature:	240°F	(115°C)
Discharge pressure:	377 psig	(26.5 kg/cm ² G)
Return gas temperature:	95°F	(35°C)
Motor winding temperature:	265°F	(130°C)

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Final Note

This catalog contains general compressor information. For detailed information on specific compressors, please refer to the individual specification sheet for each model.

The customer remains solely and fully responsible for selection of an appropriate compressor for the customer's application.

Matsushita can not accept responsibility for possible errors in catalogs, brochures, and other printed material. Matsushita reserves the right to alter its products without notice. This also applies to products already on order, provided the alterations can be made without changing specifications already agreed upon.