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## Three Gas Companies Jointly Develop GHP XAIR III, Latest Models of Gas-powered Air Conditioning System that Saves Energy and Power

—New type of Gas Engine-driven Heat Pump (GHP) with Further Improved Performance and Functions—

Tokyo Gas Co., Ltd.

Osaka Gas Co., Ltd.

Toho Gas Co., Ltd.

Tokyo Gas Co., Ltd. (President: Takashi Uchida), Osaka Gas Co., Ltd. (President: Takehiro Honjo), and Toho Gas Co., Ltd. (President: Yoshiro Tominari) (the “Three Gas Companies”) have jointly developed GHP XAIR III (the “Product”) with Aisin Seiki Co., Ltd. (President: Kiyotaka Ise, "Aisin"), Panasonic Corporation (President: Kazuhiro Tsuga, "Panasonic"), and Yanmar Energy System Co., Ltd. (CEO: Tetsuya Yamamoto, "Yanmar"). The Product is a series of next-generation models of a super-efficient GHP,<sup>\*1</sup> a gas-powered air conditioning system that saves energy and power. The Product boasts even better performance and functionality, including energy-saving performance, than previous models. The Product will be launched in April 2020.

The Product has been developed in response to continuous social needs for saving energy and power and to climate change. The Product has been designed to further save energy and enhance functionality while retaining low power consumption, up to 1/10 of the power consumption of EHPs (multi-split electric air conditioners for office buildings).

Major features (key points) of the Product are as follows:

- All models of the Product boast an APFp<sup>\*2</sup> of 2.09 or more (an increase of about 10% in energy consumption efficiency).
- Cooling and heating operation continues<sup>\*3</sup> even in severe weather conditions (scorching heat, freezing cold, and snow cover).
- Ease of installation has improved (smaller installation space<sup>\*4</sup> and less weight than conventional models) along with the above-mentioned better performance and functions.

The Three Gas Companies will propose and sell the Product to a wide range of customers, including office buildings, commercial facilities, schools, hospitals, and factories.

At HVAC&R JAPAN 2020, the Product will be introduced and some of its models will be exhibited in the booths of the Japan Gas Association and GHP manufacturers. This exhibition (sponsored by the Japan Refrigeration and Air Conditioning Industry Association) will be held at Makuhari Messe from Tuesday, March 3 to Friday, March 6, 2020.

\*1: Refers to an air conditioning system that uses a gas engine to drive the compressor in the outdoor unit and heats and cools air by operating a heat pump.

\*2: Refers to annual energy efficiency. Larger numbers indicate higher efficiency.

\*3: Depends on installation and operating conditions. Also, some models are excluded.

\*4: Refers to the space required for the Product, including space for maintenance.

[Product logo]



[Product

photos\*5]

Manufactured by Aisin

Manufactured by Panasonic

Manufactured by Yanmar



[Product models]

Types		Standard type • Upgrade type • Combination type			
Capacity		Equivalent to 16 HP (45 kW)	Equivalent to 20 HP (56 kW)	Equivalent to 25 HP (71 kW)	Equivalent to 30 HP (85 kW)
Manufacturer	Aisin	✓	✓	✓	✓
	Panasonic	✓	✓	✓	✓
	Yanmar	✓	✓	✓	✓

[Major Product features\*6]

<b>Energy savings</b>	<ul style="list-style-type: none"> <li>• About a 10% increase in APFp, energy consumption efficiency (from conventional models)</li> <li>• Automatic energy-saving operation function</li> </ul>	<ul style="list-style-type: none"> <li>• All models boast APFp of 2.09 or higher as a result of improved operating efficiency by developing and newly adopting engines, compressors, and heat exchangers. About a 10% increase in energy consumption efficiency from conventional models will contribute to reductions in annual energy consumption and CO<sub>2</sub> emissions.</li> <li>• The Product monitors deviations in indoor and set temperatures and performs optimal operation automatically.</li> </ul>
<b>User comfort</b>	<ul style="list-style-type: none"> <li>• Continued operation for user comfort even in severe weather conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Cooling operation continues even when the outside air temperature reaches 50°C (122°F). Heating operation continues even when the outdoor unit is covered with snow.*7</li> <li>• Heating operation continues without defrosting operation when the outside air temperature is 2°C (36°F) or higher.</li> </ul>

<b>Easy installation</b>	<ul style="list-style-type: none"> <li>• Smaller installation space</li> <li>• Less weight</li> <li>• High static pressure type available</li> </ul>	<ul style="list-style-type: none"> <li>• All models take up smaller installation space than conventional models.</li> <li>• The weight has been reduced as a result of smaller engine capacity and a more efficient heat exchanger.</li> <li>• A high static pressure type has been added as an option. *8</li> </ul>
<b>Power savings</b>	<ul style="list-style-type: none"> <li>• Power-saving effect maintained</li> </ul>	<ul style="list-style-type: none"> <li>• Maintaining the power-saving effect distinctive of GHPs, the Product reduces peak power consumption and contributes to power savings. Power consumption of the Product is 1/10 or less than that of EHPs.</li> </ul>

\*5: Photos of the Product appearance are for reference only. The actual appearance is subject to change.

\*6: The specific technologies that provide these features vary from manufacturer to manufacturer.

\*7: The function of continuing operation when the outdoor unit is covered with snow (automatic operation of the fan in the outdoor unit to blow snow off the fan) is optional for the Products manufactured by Panasonic and Yanmar.

\*8: The high static pressure type is not available for some models of the Product.

## [Reference: Outline of Product manufacturers]

### (1) Aisin Seiki Co., Ltd.

Established	August 31, 1965
Capital	45 billion yen
Representative	Kiyotaka Ise
Business lines	Manufacture and sale of automotive parts and energy- and lifestyle-related products
Head office	2-1 Asahi-machi, Kariya, Aichi Prefecture

### (2) Panasonic Corporation

Established	December 15, 1935
Capital	258.7 billion yen
Representative	Kazuhiro Tsuga
Business lines	A comprehensive electronics manufacturer that covers production, sale, and servicing of a wide range of products, including parts, household electronic equipment, electric appliances, factory automation equipment, information and communication equipment, and housing-related equipment
Head office	1006 Oaza Kadoma, Kadoma, Osaka Prefecture

### (3) Yanmar Energy System Co., Ltd.

Established	March 3, 2003
Capital	90 million yen
Representative	Tetsuya Yamamoto
Business lines	Development, manufacture, sale, installation, maintenance, operation, and support of air conditioning systems, power generation systems, drive systems, photovoltaic power systems, and remote monitoring systems
Head office	1-9 Tsuruno-cho, Kita-ku, Osaka