

Global Model Wall-mounted, High-capacity Room Air Conditioner

Achieving High Efficiency and Low Noise



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With the global movement toward the reduction of environmental burden and the promotion of energy saving, the air conditioning industry in advanced countries has furthered the introduction of equipment with improved efficiency. In both emerging and developing countries, the conversion of refrigerants from HCFC (Hydro Chloro Fluoro Carbon) refrigerants, which are ozone layer depleting substances, to HFC (Hydro Fluoro Carbon) refrigerants, which do not deplete the ozone layer, has been accelerated, together with the improvement of equipment efficiency. Based on an understanding of this situation, we realized the lowest noise level in the industry, while complying with the regulations and standards of various countries.. Furthermore, the refrigerant was changed from HCFC to HFC for equipment using an HCFC refrigerant.

With such improvement, we developed a highly-marketable wall-mounted room air conditioner with a high capacity as a global model, which is introduced below.

1. Features

(1) Noise reduction

Through the optimization of the shapes and layout of the heat exchanger, cross-flow fan, stabilizer, casing, etc., in the indoor unit, the new air conditioner achieved the noise reduction of 5dB(A)^(Note 1) compared with our existing air conditioner. This is the lowest value among inverter models in the room air conditioner industry, which are mainly sold in Europe and Australia, while satisfying requirements for a high capacity model such as a large amount of air flow and a long air reachability (17 m).

Note 1: Noise reduction rate at the same air flow as that of the existing model.

Comparison by SPL (Sound Pressure Level).

(2) Improvement of efficiency

NON-inverter models (with a constant speed compressor), which are mainly sold in the Middle East, have achieved as much as 22% greater energy efficiency, while enduring the severe environmental conditions specific to high-temperature climate regions (**Figure 1**). Furthermore, the Saudi Arabian energy efficiency regulations were revised in January 2015, and are the highest in the Middle East. We brought these products that cleared these regulations to market before anyone else in the industry.

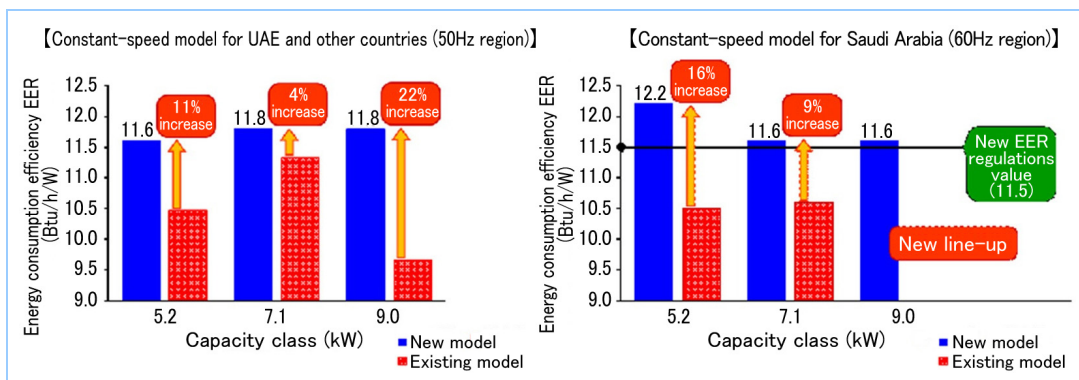


Figure 1 Improvement of the energy efficiency of the constant-speed model for the Middle East

As for the inverter models that are sold mainly in Europe and Australia, we developed high-efficiency air conditioners that achieved as much as 21% higher energy efficiency in cooling and as much as 14% greater energy efficiency in heating compared with our current models (Figure 2). Thus, it is expected that the developed air conditioner will be able to contribute to the reduction of energy consumption in various regions.

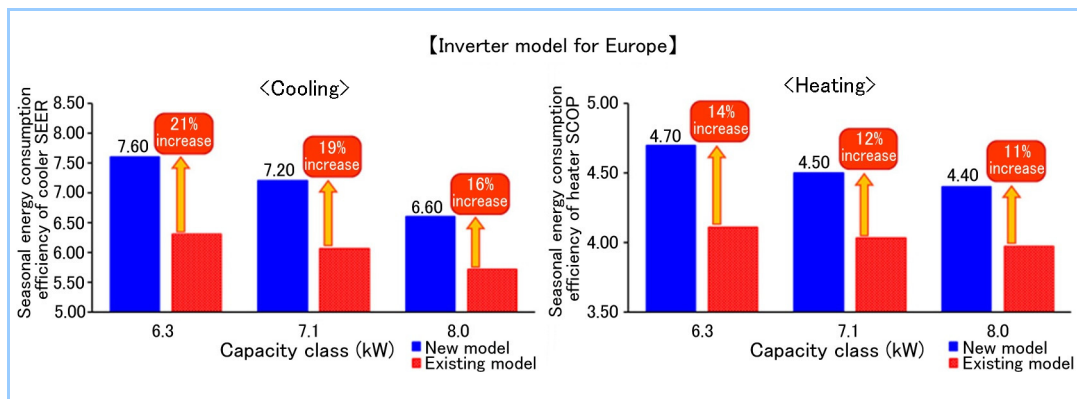


Figure 2 Improvement in the energy efficiency of the inverter model for Europe

(3) Change of refrigerant

In both emerging and developing countries, conversion to refrigerants that do not cause ozone layer depletion is an urgent necessity. In Saudi Arabia and other countries in the Middle East region, the ban on the production, import and sale of air conditioners using R22, which is an HCFC refrigerant, started in January 2015. To adapt to these regulations, the refrigerants of all constant-speed models for the Middle East were completely changed to the HFC refrigerant R410A, which has an ozone depletion potential (ODP)^{Note 2)} of zero.

Note 2: ODP: Ozone Depletion Potential

Coefficient indicating the degree of effect on the ozone layer, which is the relative value when the ozone depleting effect of CFC (Chloro Fluoro Carbon) refrigerant R11, which is an ozone depletion substance, is 1. (ODP of HCFC refrigerant R22=0.055, ODP of HFC refrigerant R410A=0)

(4) Development for product variations

Based on the basic technologies fostered through the development of the inverter models and the non-inverter models for the Middle East, we will introduce new models for specific regions and countries such as Southeast Asia, China, Hong Kong and Taiwan, in sequence, as global models to which minor modifications have been made using the same platform. Furthermore, we are going to adapt this platform to industrial models for the Japanese market.

The capacity range can be expanded from the conventional maximum capacity of 9.2 kW to over 10 kW through the improvement of the efficiency of equipment, and thereby the further expansion of sales can be expected (Table 1).

Table 1 Development of models by region

Type	Destination	Cooler/ heater	Capacity class					
			5.2 (kW)	6.3 (kW)	7.1 (kW)	8.0 (kW)	9.0/9.2 (kW)	10.0 (kW)
Inverter	Europe	Cooler and heater		●	●	●		◎
	Australia	Cooler and heater		●	●	●	●	
		Cooler only			●			
	China	Cooler and heater		◎	◎	◎		
	Hong Kong	Cooler and heater		◎	◎	◎		
	Taiwan	Cooler and heater			◎			
	Southeast Asia	Cooler only				◎		
Constant-speed	Middle East	Cooler only	●		●		●	
		Cooler and heater	◎		◎		◎	
	Southeast Asia	Cooler only		◎	◎	◎		

●: On sale ◎: To-be-released

2. Specifications

Table 2 shows the major specifications.

Table 2 Specifications

Inverter type				SRK-ZR-S Series			
Capacity class				63	71	80	92
Power supply voltage				Single phase 220 to 240V			
Rated capacity	Cooling	kW	6.3	7.1	8.0	9.2	
	Heating		7.1	8.0	9.0	10.0	
Rated power consumption	Cooling	W	1850	2050	2350	2580	
	Heating		1740	2060	2400	2650	
Noise (indoor/outdoor)	Cooling	dB(A)	44/54	44/53	47/56	50/56	
	Heating		44/54	46/51	47/55	48/57	
Outside dimension (Height×Width×Depth)	Indoor unit	mm	339×1197×262				
	Outdoor unit		640×800 ×290	750×880×340		845×970 ×370	

Constant-speed model				SRK-CRBP-S Series for Middle East (60Hz region)			SRK-CRBN-S Series for Middle East (50Hz region)				
Capacity class				52	71	90	52	71	90		
Power supply voltage				Single phase 230V			Single phase 220 to 240V				
Rated capacity	Cooling	ISO-T1 condition	Btu/h	18000	24000	30000	18400	24800	28000		
		ISO-T3 condition		15500	21000	26000	16000	21200	24000		
Rated power consumption	Cooling	ISO-T1 condition	W	1480	2070	2590	1580	2100	2380		
		ISO-T3 condition		1790	2500	3070	1890	2500	2790		
Noise (indoor/outdoor)				Cooling	dB(A)	43/53	46/57	48/57	43/52	46/58	48/58
Outside dimension (Height×Width×Depth)	Indoor unit	mm	339×1197×262								
	Outdoor unit		640×850 ×290	750×880 ×340	845×970 ×370	640×850 ×290	750×880 ×340	845×970 ×370			