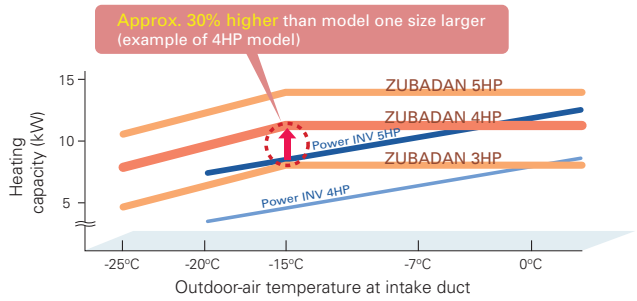
ZUBADAN SERIES

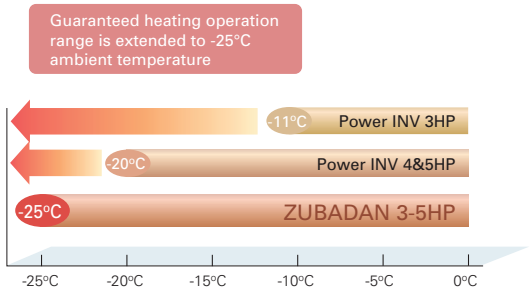
The ZUBADAN Series incorporates an original Flash Injection technology that improves the already high heating capacity of the system. This new member of the series line-up ensures comfortable heat pump-driven heating performance in cold regions.

✻Units in photo are Japanese models.
European model specifications are different.

Improved Heating Performance

Mitsubishi Electric's unique "Flash Injection" circuit achieves remarkably high heating performance. This technology has resulted in an excellent heating capacity rating in outdoor temperatures as low as -15°C, and the guaranteed heating operation range of the heating mode has been extended to -25°C. Accordingly, the heat-pump units of the ZUBADAN Series are perfect for warming homes in the coldest of regions.



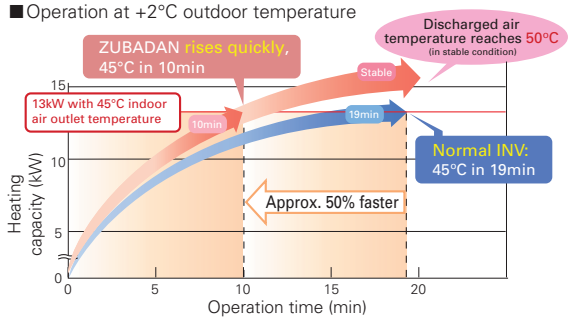


Enhanced Comfort

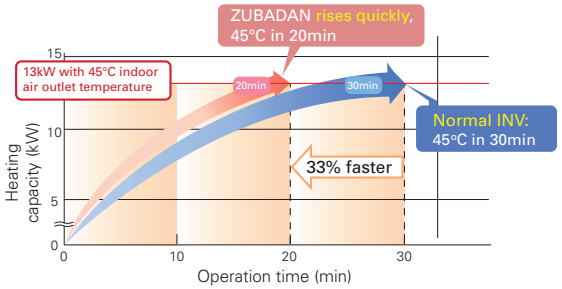
The Flash Injection circuit improves start-up and recover from the defrosting operation. A newly introduced defrost operation control also improves defrost frequency. These features enable the temperature to reach the set temperature more quickly, and contribute to maintaining it at the desired setting.

Quick Start-up

■Operation at +2°C outdoor temperature



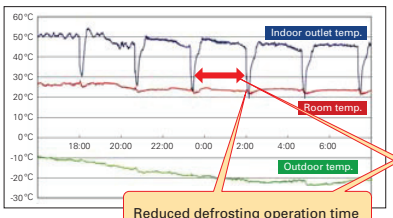
■Operation at -20°C outdoor temperature



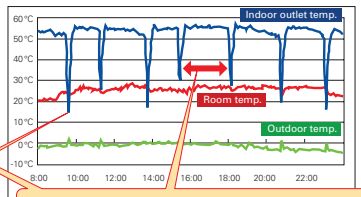
ZUBADAN Defrost Control and Faster Recovery from Defrost Operation

Field Test Results: Office building in Asahikawa, Hokkaido, Japan

■Operation data for 25 Jan. 2005



■Operation data for 2 Dec. 2004



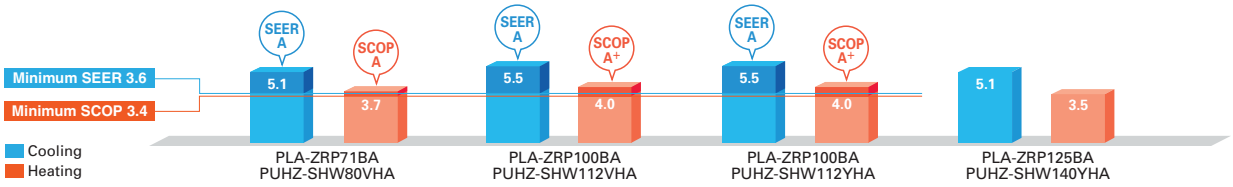
Reduced defrosting operation time from 4 to 3 minutes.

ZUBADAN Defrost Control maintained a maximum interval of 150 minutes between defrosting operations at outdoor temperatures of approximately -20°C and 0°C.

Installation example

ErP Lot 10 Compliant with High Energy-efficiency Achieving SEER/SCOP Rank A and A+

Powerful heating yet annaully high energy efficiency in both cooling and heating, achieving rank A and A+.

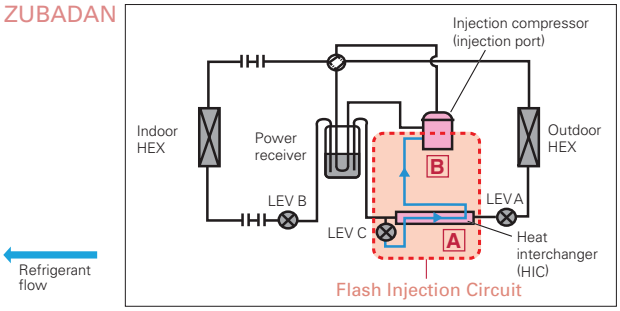


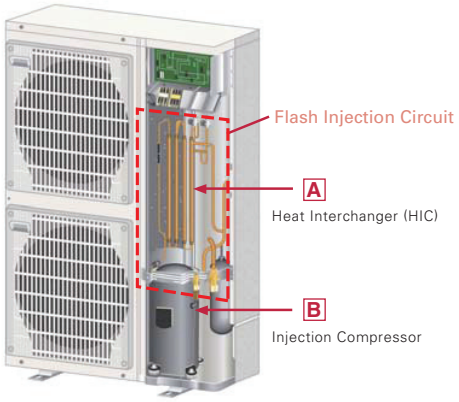
✻ For products with capacity over 10.0kW, SEER/SCOP values are measured based on EN14825. These values are for reference purposes only.

Mitsubishi Electric's Flash Injection Technology The Key to High Heating Performance at Low Outdoor Temperatures

■Flash Injection Circuit

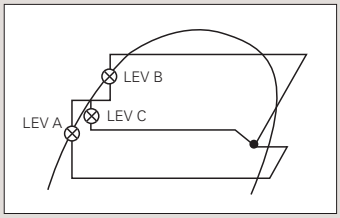
ZUBADAN





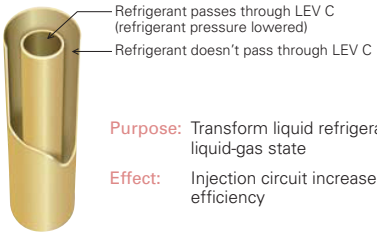
The Mr. Slim model of the ZUBADAN Series is equipped with Mitsubishi Electric's original Flash Injection Circuit, which is comprised of a bypass circuit and heat interchanger (HIC). The HIC transforms rerouted liquid refrigerant into a gas-liquid state to lower compression load. This process ensures excellent heating performance even when the outdoor temperature drops very low.
In traditional units, when the outdoor temperature is low, the volume of refrigerant circulating in the compressor decreases due to the drop in refrigerant pressure and protection from overheating due to high compression, thereby reducing heating capacity. The Flash Injection Circuit injects refrigerant to maintain the refrigerant circulation volume and compressor operation load, thereby maintaining heating capacity.

Mollier Chart Image Representing Flash Injection Circuit Operation



A Heat Interchanger (HIC)

HIC cross-sectional view

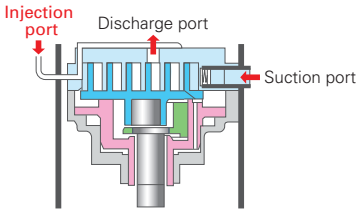


Purpose: Transform liquid refrigerant into liquid-gas state

Effect: Injection circuit increases energy efficiency

The compressor is subjected to a heavy load when compressing liquid refrigerant, and the result is lower operation efficiency. The addition of HIC supports refrigerant heat exchange at two different pressure levels. The heat-exchange process transforms the injected liquid refrigerant into a gas liquid state, thereby decreasing the load on the compressor during the compression process.

B Injection Compressor



Purpose: To increase the volume of refrigerant being circulated

Effect: Improves heating capacity at low outdoor temperatures, and enables higher indoor-air outlet temperature adjustment and higher defrost operation speed

Refrigerant passes from the HIC into the compressor through the injection port. Having two refrigerant inlets makes it possible to raise the volume of refrigerant being circulated when the outdoor temperature is low and at the start of heating operation.

PEDZ-SHW JA SERIES

Indoor Unit

PEAD-RP71/100/125JA(L)Q

Outdoor Unit

PUHZ-SHW80/112VHA
PUHZ-SHW112/140YHA

Remote Controller

*optional

*optional

*optional

Type				Inverter Heat Pump			
Indoor Unit				PEAD-RP71JA(L)Q	PEAD-RP100JA(L)Q		PEAD-RP125JA(L)Q
Outdoor Unit				PUHZ-SHW80VHA	PUHZ-SHW112VHA	PUHZ-SHW112YHA	PUHZ-SHW140YHA
Refrigerant				R410A*1			
Power Supply	Source			Outdoor power supply			
	Outdoor (V/Phase/Hz)			VHA:230 / Single / 50, YHA:400 / Three / 50			
Cooling	Capacity	Rated	kW	7.1	10.0	10.0	12.5
		Min - Max	kW	4.9 - 8.1	4.9 - 11.4	4.9 - 11.4	5.5 - 14.0
	Total Input	Rated	kW	1.899 (1.879)	2.924 (2.904)	2.924 (2.904)	3.895 (3.875)
	EER			–	–	–	3.21 (3.22)
		EEL Rank		–	–	–	–
	Design Load		kW	7.1	10.0	10.0	12.5
	Annual Electricity Consumption*2		kWh/a	540 (529)	729 (714)	729 (714)	906 (892)
	SEER			4.6 (4.7)	4.8 (4.9)	4.8 (4.9)	4.8 (4.9)*4
		Energy Efficiency Class		B	B	B	–
Heating (Average Season)	Capacity	Rated	kW	8.0	11.2	11.2	14.0
		Min - Max	kW	4.5 - 10.2	4.5 - 14.0	4.5 - 14.0	5.0 - 16.0
	Total Input	Rated	kW	2.217	3.103	3.103	3.879
	COP			–	–	–	3.61
		EEL Rank		–	–	–	–
	Design Load		kW	9.1	12.7	12.7	15.8
	Declared Capacity	at reference design temperature	kW	8.0 (–10°C)	11.2 (–10°C)	11.2 (–10°C)	14.0 (–10°C)
		at bivalent temperature	kW	8.0 (–7°C)	11.2 (–7°C)	11.2 (–7°C)	14.0 (–7°C)
		at operation limit temperature	kW	7.7 (–25°C)	9.4 (–25°C)	9.4 (–25°C)	9.5 (–25°C)
	Back Up Heating Capacity		kW	1.1	1.5	1.5	1.8
	Annual Electricity Consumption*2		kWh/a	3421	4664	4664	6072
	SCOP			3.7	3.8	3.8	3.6*4
		Energy Efficiency Class		A	A	A	–
Operating Current (max)			A	31.5	37.7	15.7	15.8
Indoor Unit	Input [Cooling / Heating]	Rated	kW	0.17 (0.15) / 0.15	0.25 (0.23) / 0.23	0.25 (0.23) / 0.23	0.36 (0.34) / 0.34
	Operating Current (max)		A	1.97	2.65	2.65	2.76
	Dimensions	H × W × D	mm	250 - 1100 - 732	250 - 1400 - 732		
	Weight		kg	33 (32)	41 (40)	41 (40)	43
	Air Volume [Lo-Mid-Hi]		m^3/min	17.5 - 21.0 - 25.0	24.0 - 29.0 - 34.0	24.0 - 29.0 - 34.0	29.5 - 35.5 - 42.0
	External Static Pressure		Pa	35 / 50 / 70 / 100 / 150	35 / 50 / 70 / 100 / 150	35 / 50 / 70 / 100 / 150	35 / 50 / 70 / 100 / 150
	Sound Level (SPL) [Lo-Mid-Hi]		dB(A)	26 - 30 - 34	29 - 34 - 38	29 - 34 - 38	33 - 36 - 40
	Sound Level (PWL)		dB(A)	57	61	61	63
Outdoor Unit	Dimensions	H × W × D	mm	1350 - 950 - 330 (+30)			
	Weight		kg	120	120	134	134
	Air Volume	Cooling	m^3/min	100.0	100.0	100.0	100.0
		Heating	m^3/min	100.0	100.0	100.0	100.0
	Sound Level (SPL)	Cooling	dB(A)	50	51	51	51
		Heating	dB(A)	51	52	52	52
	Sound Level (PWL)	Cooling	dB(A)	68	69	69	69
	Operating Current (max)		A	29.5	35.0	13.0	13.0
	Breaker Size		A	32	40	16	16
Ext. Piping	Diameter	Liquid / Gas	mm	9.52 / 15.88	9.52 / 15.88	9.52 / 15.88	9.52 / 15.88
	Max. Length	Out-In	m	75	75	75	75
	Max. Height	Out-In	m	30	30	30	30
Guaranteed Operating Range [Outdoor]		Cooling*3	℃	–15 ~ +46	–15 ~ +46	–15 ~ +46	–15 ~ +46
		Heating	℃	–25 ~ +21	–25 ~ +21	–25 ~ +21	–25 ~ +21

*1 Refrigerant leakage contributes to climate change. Refrigerant with lower global warming potential (GWP) would contribute less to global warming than a refrigerant with higher GWP, if leaked to the atmosphere. This appliance contains a refrigerant fluid with a GWP equal to 1975. This means that if 1 kg of this refrigerant fluid would be leaked to the atmosphere, the impact on global warming would be 1975 times higher than 1 kg of CO_2, over a period of 100 years. Never try to interfere with the refrigerant circuit yourself or disassemble the product yourself and always ask a professional.
*2 Energy consumption based on standard test results. Actual energy consumption will depend on how the appliance is used and where it is located.
*3 Optional air protection guide is required where ambient temperature is lower than –5°C.
*4 SEER/SCOP values are measured based on EN14825. These values are reference purpose only.