

Y ZUBADAN LINE

NEW

OUTDOOR UNITS - Heat Pump - PUHY HP Y(S)NW-A



NEW FOUR-SIDED BATTERY

STATIC PRESSURE OF FAN INCREASED UP TO 80 PA.

CITY MULTI

NEW FAN WITH LOW FRICTION PROFILE

COMPRESSOR OPTIMISED WITH "MULTI-PORT" TECHNOLOGY

NEW AUTO-SHIFT MODE

NEW AUTO-SHIFT MODE PREHEAT DEFROST FUNCTION

ADVANCED ETC CONTROL OF EVAPORATION TEMPERATURE.

FLEXIBLE NOISE SETTING

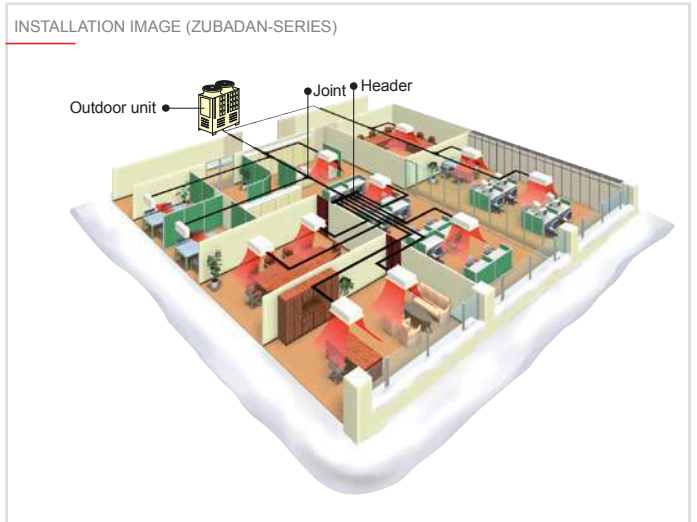
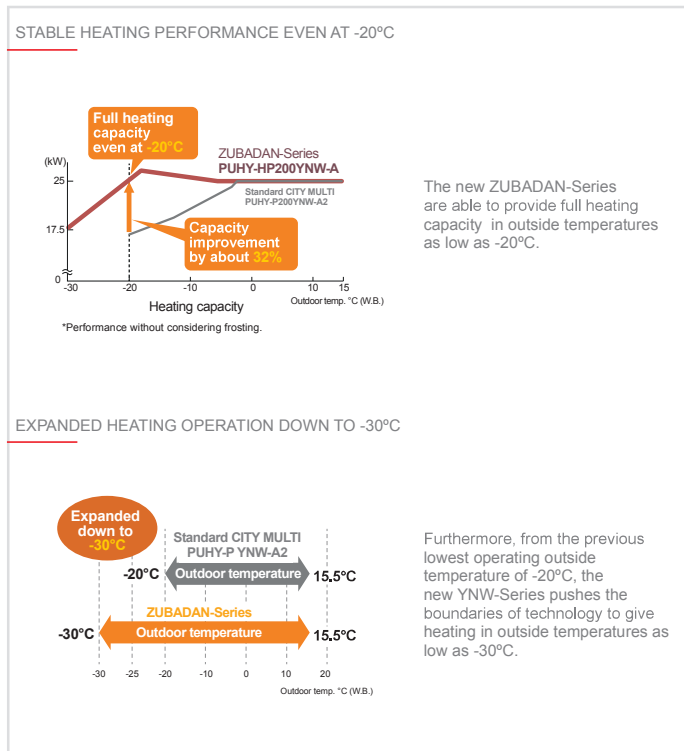


Bringing a year round comfort solutions to extreme climates

CITY MULTI ZUBADAN-Series combines the ultimate in application flexibility and powerful cooling and heating capabilities to deliver precise comfort even in the coldest days of the year down to -30°C. The new ZUBADAN-Series that has new, larger-capacity compressors with an injection function in the suction chamber is capable of running at the rated heating capacity down to -20°C. In addition, the guaranteed outside temperature range of heating operation is expanded down to -30°C.

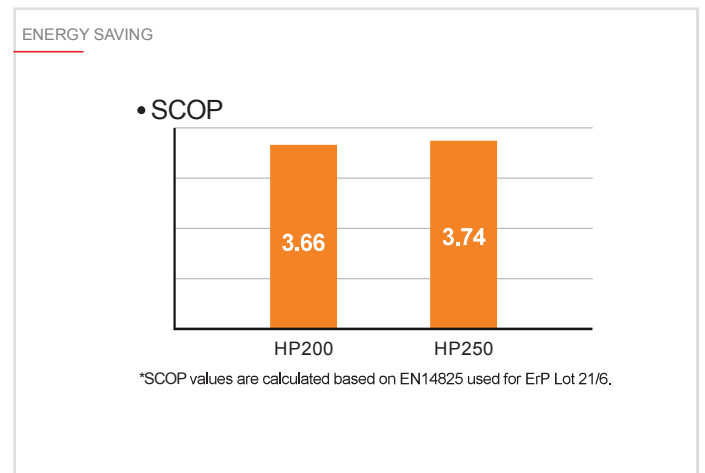
Reliable heating performance

The improved operating performance in low outside temperatures contributes to comfortable heating in cold weather.



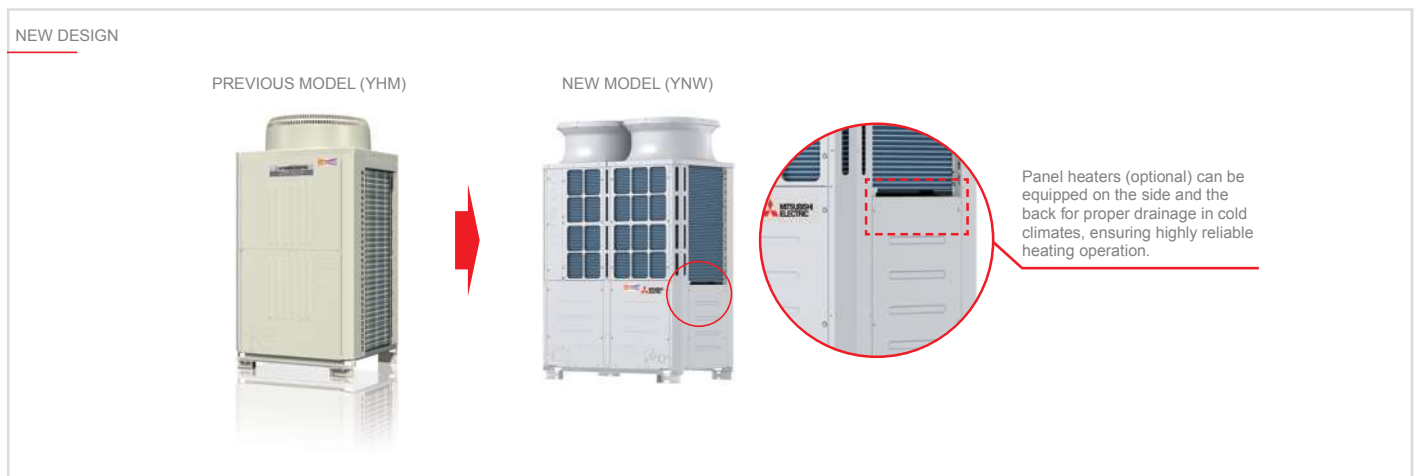
Energy saving

The ZUBADAN-Series delivers high energy-saving performance throughout the year. The improved compressor with the latest technologies realizes both reliable performance and highly efficient operation. The highest SCOP 3.74 is achieved by the HP250 model.



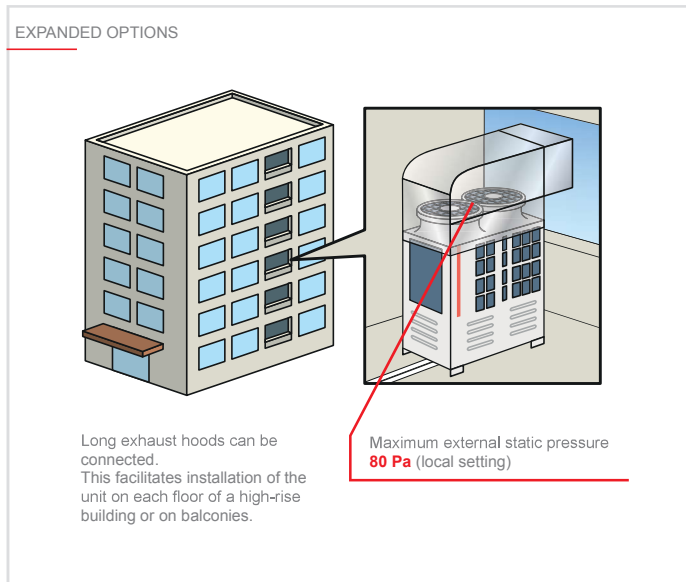
New design

The structure and design have been revised. The appearance is more sophisticated which can enhance the design of building.



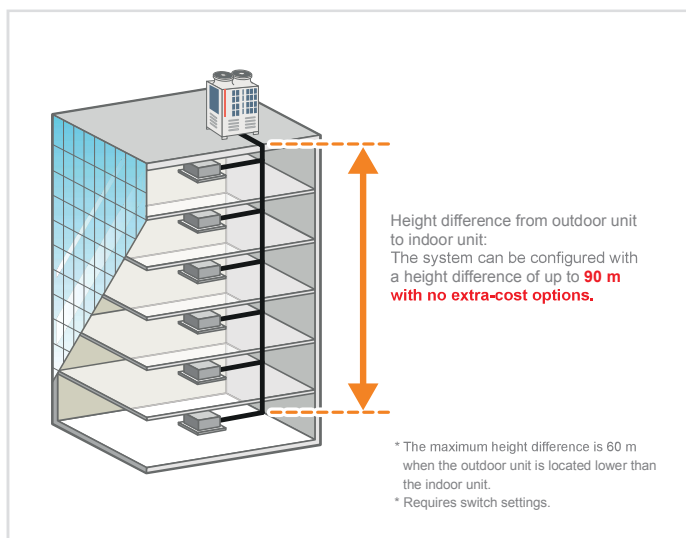
Expanded options for external static pressure settings

The new models (YNW) offer the static pressure options of 0, 30, 60, and 80 Pa, while previous models (YHM) had maximum external static pressure of 60 Pa. This facilitates installation of the unit on each floor of a high-rise building or on balconies.



Usable in an application with a large vertical separation of up to 90 meters

A height difference of up to 90 m from the outdoor unit to the indoor unit can be supported with no extra-cost options. This increases design flexibility and facilitates installation of these units even in high-rise buildings.



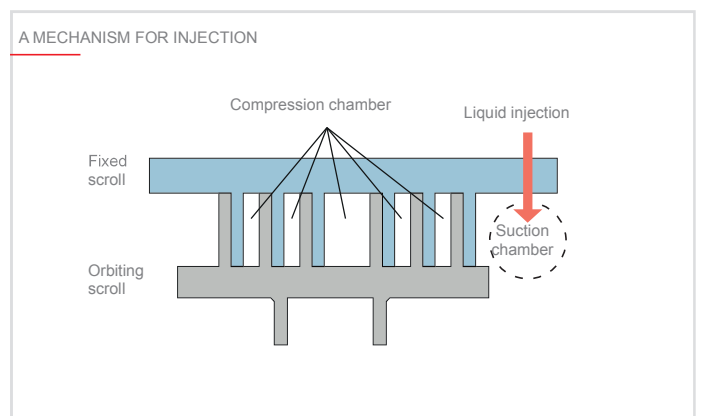
Change refrigerant oil of compressor

The new ZUBADAN-Series uses MEL46EH refrigerant oil instead of the conventional MEL32, for greater resistance to low temperatures and steady circulation even in cold environments.



Suction chamber injection mechanism

The reliable heating operation of ZUBADAN-Series is supported by a suction chamber injection mechanism. This mechanism injects liquid refrigerant into the suction chamber and suppresses the temperature rise of the discharge gas. Owing to this technology, the ZUBADAN-Series can perform heating operation even at an outside temperature as low as -30°C . Furthermore, heating performance at low outside temperatures is improved, because the rated capacity is maintained even at outside temperatures down to -20°C .



Multi-port mechanism

Efficient partial load operation is realized by avoiding overcompression. With the scroll compressor, the distance of the compression process in the scroll is usually fixed, so over-compression occurs during low loads and low rotation. The new compressor is equipped two sub-ports in addition to the conventional discharge port to reduce this over-compression loss

during low loads. In operation conditions having a low compression rate, the distance in the compression process is kept short by that successfully avoiding unnecessary compression, and contributing to efficient partial load operation.

MULTI-PORT MECHANISM

Conventional structure
There was only one discharge port in the center and regardless of the air conditioning loads, the refrigerant was compressed up to the center part of scroll, then discharged with constant pressure. This means that the refrigerant tends to be compressed to higher than necessary pressure during low loads.

There is only one discharge port and refrigerant is discharged with constant pressure regardless of loads.

Image of refrigerant pressure (medium loads)

Conventional unit

New structure
The new compressor is equipped two sub-ports in addition to the discharge port at the center, and it realizes discharge according to air conditioning loads. The suppression of over-compression contributes to improve the operation efficiency of partial load.

Some discharge ports are equipped and refrigerant is discharged by the pressure according to loads without useless.

Image of refrigerant pressure

New structure

The new structure, multi-port compressor which newly equipped two sub-ports which open and close according to loads, discharges refrigerant from sub-port during the partial load operation.

Conventional structure

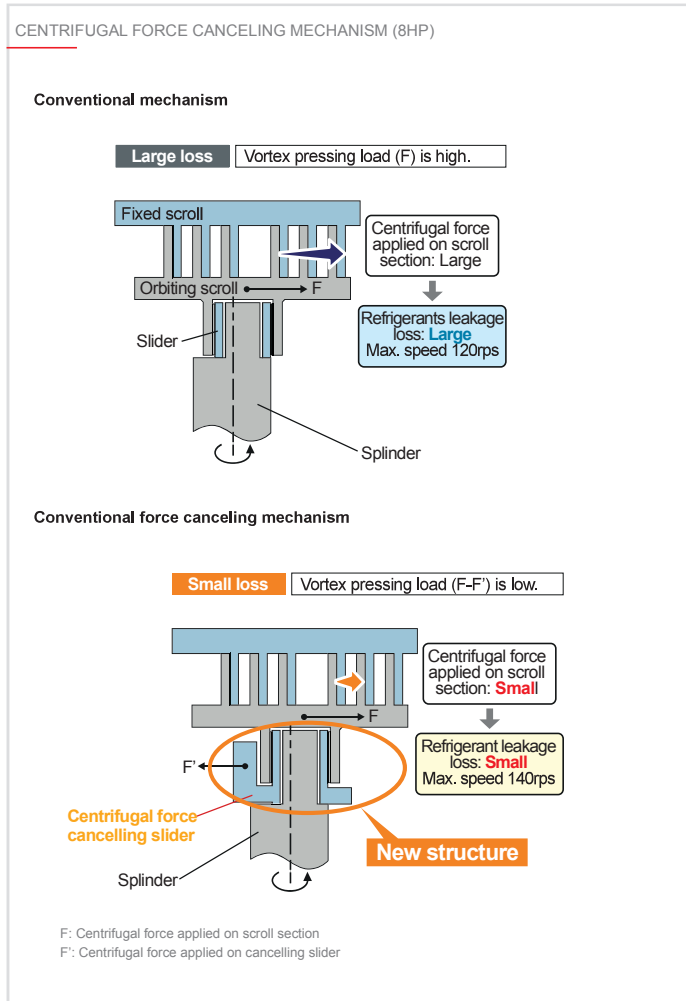
New structure • Multi-port

		Operation pattern	
		Partial load	Rating, high pressure difference
Main port	Valve ①	open	open

		Operation pattern	
		Partial load	Rating, high pressure difference
Main port	Valve ①	open	open
Sub port	Valve ②	open	close
Sub port	Valve ③	open	close

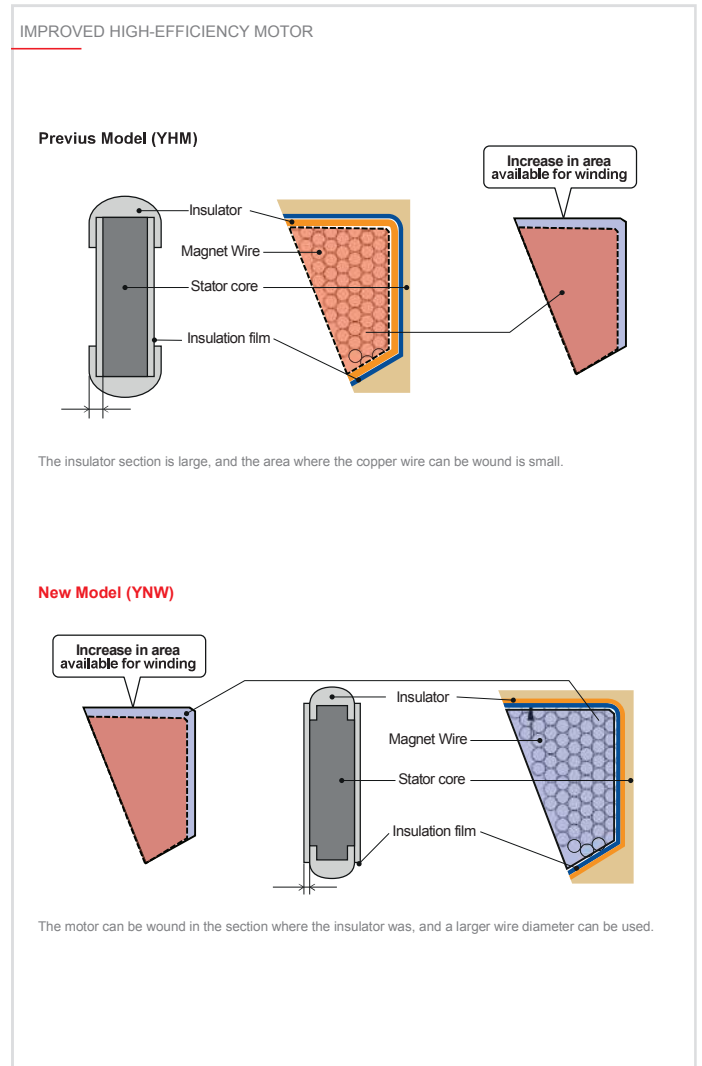
Centrifugal force canceling mechanism (8HP)

The latest structure has been mounted to suppress the centrifugal force. This mechanism successfully suppresses the centrifugal force generated at the scroll section, reduces refrigerant leakage losses, and increases the compressor efficiency. The maximum rotational speed has been increased from the conventional 120rps to 140rps. This mechanism also speeds up the start of operation, and enables operations such as preheat defrost and the smooth auto-shift startup mode.



Improved high-efficiency motor

The insulator section that traditionally created a dead space is eliminated by insulating the motor's stator film. Since winding can be set in that section, the winding area can be increased by approx. 9%. The wire diameter has also been increased by two ranks, so the resistance between terminals is reduced, and the insulation distance is shorter. This improves the motor's operation performance and contributes to high-efficiency operation of the compressor.



Key Technologies

Technical specifications

MODEL			PUHY-HP200YNW-A	PUHY-HP250YNW-A	PUHY-HP400YNW-A	PUHY-HP500YNW-A
HP			8	10	12	14
Modules			PUHY-HP200YNW-A	PUHY-HP250YNW-A	PUHY-HP(200+200)YNW-A	PUHY-HP(250+250)YNW-A
Power supply	V/Hz/n°		3-phase 4-wire 380-400-415 V 50/60 Hz			
Cooling	Capacity (nominal) *1	kW	22,4	28,0	44,8	56,0
	Power input (nominal)	kW	6.45	7.69	13.33	15.86
	SEER		6.52	6.49	6.33	6,7
	Temperature operating field	Indoor WB	°C	15.0~24.0 °C (59~75 °F)	15.0~24.0 °C (59~75 °F)	15.0~24.0 °C (59~75 °F)
Outdoor DB		°C	-5.0~52.0 °C (23~126 °F)	-5.0~52.0 °C (23~126 °F)	-5.0~52.0 °C (23~126 °F)	-5~+52
Heating	Capacity (nominal) *2/ Capacity (max) *3	kW	22,4/25,0	28,0/31,5	44,8/ 50,0	56,0/63,0
	Power input (nominal)/ Power input (max)	kW	5,12/6,11	6,73/8,09	10,59/12,62	13,89/16,71
	SCOP		3.66	3.74	3.55	3.62
	Temperature operating field	Indoor DB	°C	15.0~27.0 °C (59~81 °F)	15.0~27.0 °C (59~81 °F)	15.0~27.0 °C (59~81 °F)
Outdoor WB		°C	-30.0~15.5 °C (-22~60 °F)	-30.0~15.5 °C (-22~60 °F)	-30.0~15.5 °C (-22~60 °F)	-30.0~15.5 °C (-22~60 °F)
Sound level *4	Sound pressure (Sound power) level	dB(A)	53.5 / 54.0 (73 / 73)	56.0 / 57.5 (75/77)	57.0 / 57.5 (77/77)	59.5/61.0 (79/81)
Connectable indoor units	Total Capacity		50~130% of outdoor unit capacity	50~130% of outdoor unit capacity	50~130% of outdoor unit capacity	50~130% of outdoor unit capacity
	Model/Quantity	CITY MULTI	P10~P250, M20~M140/1~20	P10~P250, M20~M140/1~25	P10~P250, M20~M140/1~40	P10~P250, M20~M140/1~50
Ø Ref. piping diameter	Liquid	mm	9,52	9,52	12,7	15,88
	Gas	mm	22,2	22,2	28,58	28,58
Fan	Type x quantity		Propeller fan x 2	Propeller fan x 2	Propeller fan x 4	Propeller fan x 4
	Air flow	m³/min	190	210	190+190	210+210
Compressor	Type		Inverter scroll hermetic			
	Motor output	kW	3.8	4.5	3.8	4.5
External dimensions	H(H*)xWxD	mm	1858(1798)x1240x740	1858(1798)x1240x740	1858(1798)x1240x740 1858(1798)x1240x740	1858(1798)x1240x740 1858(1798)x1240x740
Net weight		kg	274	294	274+274	294+294
Refrigerant	Ref. Charge R410	kg	9,8	10,8	19,6	21,6
	CO ₂ eq.*5	Tons	20,46	22,55	40,92	45,10