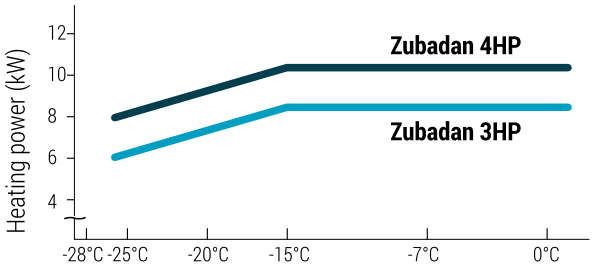
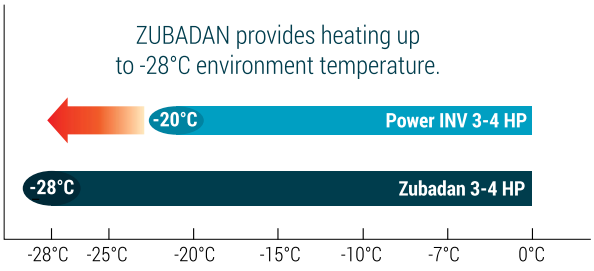
Outstandi efficiency

KEY ADVANTAGES OF THE PAST MODELS OF HEATING SYSTEMS' OUTDOOR UNITS ALSO IN THE NEW MODELS

- **High heating performance**
- **High heating power at very low outdoor temperatures**



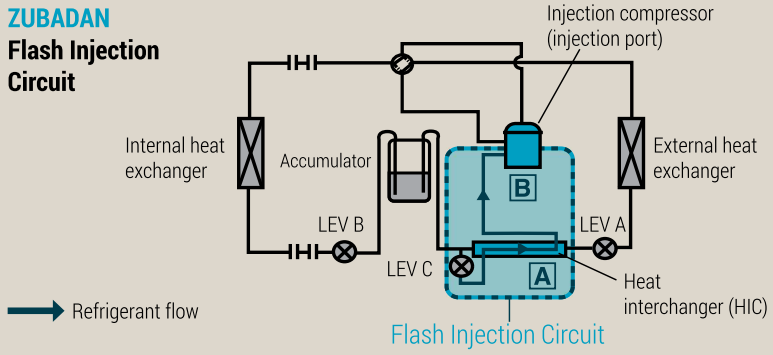


The Zubadan series achieves a high heating power at very low outdoor temperatures

The heating system in combination with the outdoor unit ZUBADAN is suitable for the coldest areas since it provides high heating power even at very low outdoor temperatures:

- **The unique technology »Flash Injection " enables preservation of the nominal heating power even at outside temperatures up to -15 ° C.**
- **Ensured heating at -28 ° C outside temperatures.**

ZUBADAN
Flash Injection Circuit



Excellent heating features of ZUBADAN units reflect the technology of the Flash Injection effective gas circulation, the result of the research by MITSUBISHI ELECTRIC experts.

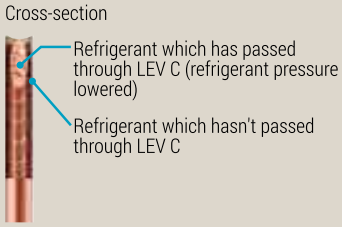
While conventional heating pumps lose their heating power because of the drop in the range of gas circulation through the system, the unique bypass circuit "Flash Injection " improves the circulation volume of gas using two circulatory systems.

This technology provides high efficiency and reliable heating of facilities in the coldest areas.

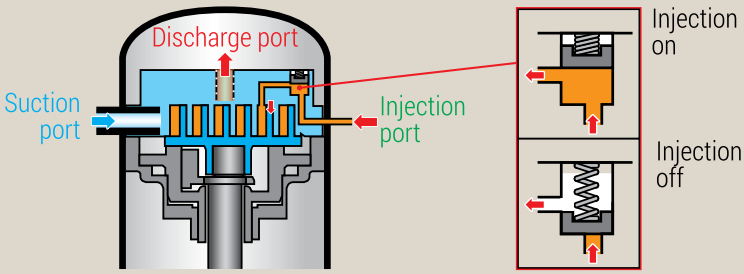
HIGHEST ENERGY CLASSES

The heart of the system, which belongs to the highest A++ energy efficiency class of heating, is a highly efficient compressor for units PUHZ-SW100V / YAA, PUHZ-SHW80V / YAA, PUHZ-SHW112V / YAA.

A Heat interchanger (HIC)



B Injection Compressor



Operation at extremely low outdoor temperatures is the prime feature of the Zubadan outdoor unit series

In the process of heat exchange at point A (heat exchanger), the fluent refrigerant is converted into a two-phase gas-liquid state and is then compressed at point B (injection compressors). This circuit provides sufficient speed of the refrigerant's flow for heating even at extremely low outdoor temperatures.

For the new generation of Zubadan units, the Flash Injection circuit is stronger because the **heat exchanger is improved** and therefore the efficiency of the **heat exchange is enhanced.** Furthermore, a new injection compressor is built in hence the effect of compression increases even more. These two features provide efficient heating at extremely low outdoor temperatures.

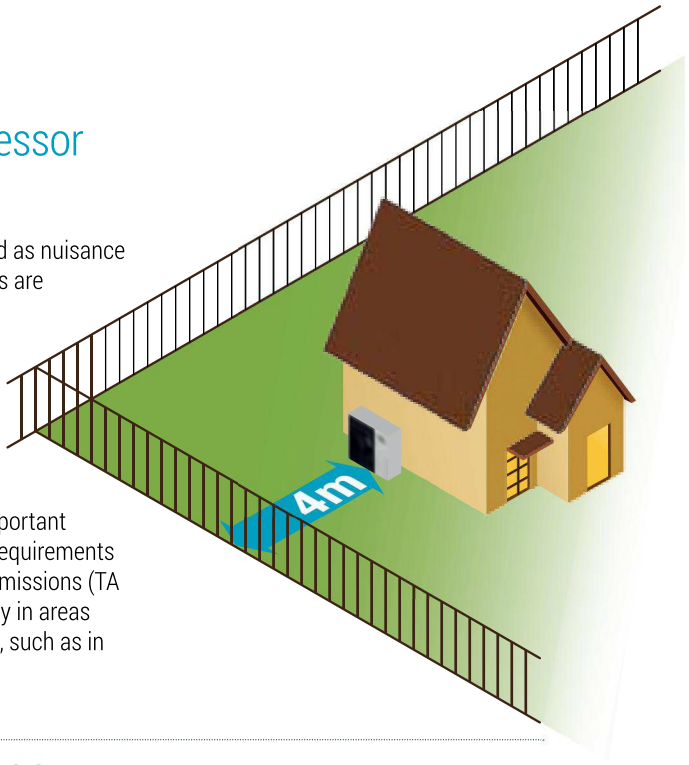
1 Silent operation

New fan and the periphery of the compressor enable a 10 dB(A) quieter operation

Reducing the sound power level is a key advantage of the new model compared to previous models. Quiet operation is not at the expense of loss of heating power since Mitsubishi Electric's outdoor units are the strongest among their competitors.

By far the quietest outdoor unit of its kind
The result is barely audible. In conjunction with an intelligent speed control unit, the high grade, sound-optimized fans significantly contribute to reducing airborne noise in full and partial load operation. Low frequencies that are generally perceived as nuisance in conventional heat pumps are prevented.

35 dB (A) at a distance of only 4 metres
In night mode, the sound power levels of fan and compressor are further reduced. This feature is important in places where statutory requirements must be met on acoustic emissions (TA Lärm: 35 dB(A)), particularly in areas that are densely developed, such as in terraced houses.



THREE KEY IMPROVEMENTS OF THE OUTDOOR UNIT ENABLED THE REDUCTION OF THE OPERATION VOLUME:

REDUCED VOLUME OF COMPRESSOR OPERATION

The technology of the protective covering reduces the sound coming from the compressor
Improvements of volume reduction:
- patented structure of the compressor's covering
- housing with protective covering

REDUCED VOLUME OF FAN OPERATION

Optimized airflow outlet through the fan
Improvements of fan volume reduction:
- optimized position of the fan
- optimized shape of the fan's mouth
- a larger fan diameter

PREVENTION OF VIBRATIONS

Absorption of vibrations and prevention of resonance
Improvements of vibration and resonance prevention:
- a soft piece of rubber in the area of the compressor's pipe connection that absorbs vibration,
- optimized structure of the pipes, which prevents resonance.

2 Compact design

Less space needed for the single unit itself, as well as in front of it.

The economy of space is certainly one of the advantages of the new Mitsubishi outdoor units Zubadan. The units occupy significantly less space than competitive units.

Much smaller space is required for the operation in front of the device itself, and takes up only 350 mm with the new Mitsubishi Electric outdoor units.

Dimensions

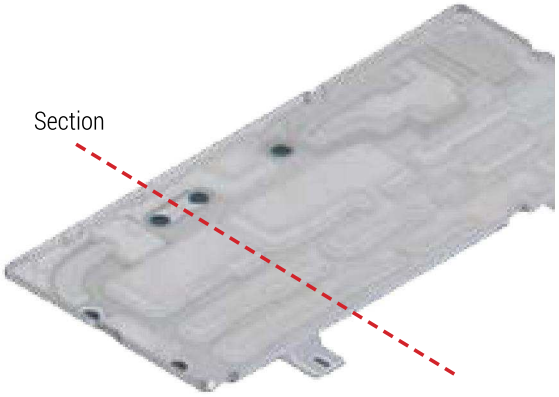
Height (mm)	Depth (mm)	Width (mm)	Volume (m^3)
1020	**480**	**1050**	**0.51**

3 High reliability

Optimized defrosting and prevention of ice accumulation

A new design of the base is more reliable than ever before:
- improved drainage
- optimized defrost control
- optimized heat exchanger that prevents the formation of ice on the outdoor unit.

New base design
- optimized structure of the base improves drainage flow
- inclination of the base enables smooth and faster drainage



Section

OUTDOOR UNITS
MITSUBISHI ELECTRIC

SPLIT TYPE	VOLTAGE	MODEL	
ZUBADAN New Generation	230V	PUHZ-SHW80VAA (**8 kW**), PUHZ-SHW112VAA (**11,2 kW**)	NEW! 
	400V	PUHZ-SHW80YAA (**8 kW**), PUHZ-SHW112YAA (**11,2 kW**)	
POWER INVERTER	230V	PUHZ-SW75VAA (**7,5 kW**), PUHZ-SW100VAA (**10 kW**)	NEW! 
	400V	PUHZ-SW75YAA (**7,5 kW**), PUHZ-SW100YAA (**10 kW**)	

TECHNICAL SPECIFICATIONS

MODEL OUTDOOR UNIT			PUHZ-SW75VAA	PUHZ-SW100VAA	PUHZ-SHW80VAA	PUHZ-SHW112VAA	PUHZ-SW75YAA	PUHZ-SW100YAA	PUHZ-SHW80YAA	PUHZ-SHW112YAA
Power supply		(Phase, V, Hz)	1φ, **230V**, 50Hz				3φ, **400V**, 50Hz			
Operating Current (max.)		A	22.0	28.0	22.0	28.0	11.5	13.0	13.0	13.0
Fuse		A	25.0	32.0	25.0	32.0	16.0	16.0	16.0	16.0
Dimensions H×W×D		mm	1020×1050×480		1020×1050×480		1020×1050×480		1020×1050×480	
Weight		Net (kg)	92	114	116	116	104	126	128	128
		Gross (kg)	107	129	131	131	119	131	143	143
Heating	Medium temperature (W55), Medium climate	Design load (kW)	7.1	10.0	9.0	12.7	7.1	10.0	9.0	12.7
		SCOP	3.31	3.33	3.40	3.46	3.28	3.30	3.36	3.44
		ηs	129	130	133	135	128	129	132	135
		Energy Efficiency Class	A++	A++	A++	A++	A++	A++	A++	A++
	A7/W35	Power (kW)	8.0	11.2	8.0	11.2	8.0	11.2	8.0	11.2
		COP	**4.40**	**4.46**	**4.65**	**4.46**	**4.40**	**4.46**	**4.65**	**4.46**
	A2/W35	**Power (kW)**	**7.5**	**10.0**	**8.0**	**11.2**	**7.5**	**10.0**	**8.0**	**11.2**
		COP	3.40	3.32	3.55	3.22	3.40	3.32	3.55	3.22
Domestic hot water (DHW)		ηwh	104	103	103	103	104	103	103	103
		Energy Efficiency Class	A	A	A	A	A	A	A	A
Cooling	A35/W7	**Power (kW)**	**7.1**	**10.0**	**7.1**	**10.0**	**7.1**	**10.0**	**7.1**	**10.0**
		EER	**2.70**	**2.83**	**3.31**	**2.83**	**2.70**	**2.83**	**3.31**	**2.83**
	A35/W18	Power (kW)	7.1	10.0	7.1	10.0	7.1	10.0	7.1	10.0
		EER	4.43	4.47	4.52	4.74	4.43	4.47	4.52	4.74
EER output water temperature		Heating (°C)	+60	+60	+60	+60	+60	+60	+60	+60
		Heating (kg/min)	22.9	32.1	22.9	32.1	22.9	32.1	22.9	32.1
The level of the water		Lot1 (kg/min)	14.3	20.1	14.3	20.1	14.3	20.1	14.3	20.1
		Cooling (kg/min)	20.4	28.7	20.4	28.7	20.4	28.7	20.4	28.7
Sound power Level 35dB(A) on distance from*:		**m**	**4**	**5**	**4**	**5**	**4,5**	**5**	**4,5**	**5**
Sound power level	Heating	dB(A)	58	60	59	60	58	60	59	60
Piping		liquid / gas (Φmm)	9.52 / 15.88 (3/8", 5/8")		9.52 / 15.88 (3/8", 5/8")		9.52 / 15.88 (3/8", 5/8")		9.52 / 15.88 (3/8", 5/8")	
		Max. length (m)	40	75	75	75	40	75	75	75
		Chargeless (m)	10	10	30	30	10	10	30	30
		Max. Höhenunterschied (m)	30		30		30		30	
Refrigerant			R410A(GWP2088)		R410A(GWP2088)		R410A(GWP2088)		R410A(GWP2088)	
		Chargeless (kg)	3.0	4.2	4.6	4.6	3.0	4.2	4.6	4.6
		CO_2 equivalent (t)	6.27	8.77	9.61	9.61	6.27	8.77	9.61	9.61
		Max. (kg)	4.8	6.0	6.0	6.0	4.8	6.0	6.0	6.0
		CO_2 equivalent (t)	10.03	12.53	12.53	12.53	10.03	12.53	12.53	12.53
Guaranteed area of operation		Heating (°C)	-20 do +24	-20 do +24	-28 do +24	-28 do +24	-20 do +24	-20 do +24	-28 do +24	-28 do +24
		Domestic Hot Water (°C)	-20 do +35	-20 do +35	-28 do +35	-28 do +35	-20 do +35	-20 do +35	-28 do +35	-28 do +35
		Cooling (°C)	-15 do +46	-15 do +46	-15 do +46	-15 do +46	-15 do +46	-15 do +46	-15 do +46	-15 do +46

* Data about distance for Sound power Level 35dB(A) is calculated in Night mode.