HEAT PUMPS FOR HEATING
AIR-TO-WATER

Decades of heating.
Decades of comfort.

NEW OUTDOOR UNIT
Outstanding 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 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.

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.

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.

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**A Heat interchanger (HIC)**

- Cross-section
  - Refrigerant which has passed through LEV C (refrigerant pressure lowered)
  - Refrigerant which hasn’t passed through LEV C

**B Injection Compressor**

- Discharge port
- Suction port
- Injection port
- Injection on
- Injection off

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Silent 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

- Patented structure of the compressor's covering
- Housing with protective covering

**REDUCED VOLUME OF FAN OPERATION**

Optimized airflow outlet through the fan

- 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

- 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.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Height (mm)</th>
<th>Depth (mm)</th>
<th>Width (mm)</th>
<th>Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1020</td>
<td>480</td>
<td>1050</td>
<td>0.51</td>
</tr>
</tbody>
</table>

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
### TECHNICAL SPECIFICATIONS

#### SPLIT TYPE

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Model</th>
<th><strong>PUHZ-SW75VAA</strong></th>
<th><strong>PUHZ-SW100VAA</strong></th>
<th><strong>PUHZ-SWH80VAA</strong></th>
<th><strong>PUHZ-SWHW80YAA</strong></th>
<th><strong>PUHZ-SWHW112YAA</strong></th>
<th><strong>PUHZ-SWHW112VAA</strong></th>
<th><strong>PUHZ-SWHW100YAA</strong></th>
<th><strong>PUHZ-SWHW100VAA</strong></th>
<th><strong>PUHZ-SWHW112YAA</strong></th>
<th><strong>PUHZ-SWHW112VAA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>230V</td>
<td>PUHZ-SHW80YAA (8 kW), PUHZ-SHW112YAA (11.2 kW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400V</td>
<td>PUHZ-SW75VAA (7.5 kW), PUHZ-SW100VAA (10 kW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### OUTDOOR UNITS

- **ZUBADAN**

- **NEW!**

- **MODELS OUTDOOR UNIT**

#### POWER SUPPLY

<table>
<thead>
<tr>
<th>Power supply</th>
<th>(Phase, V, Hz)</th>
<th><strong>1φ, 230V, 50Hz</strong></th>
<th><strong>3φ, 400V, 50Hz</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Current (max.) A</td>
<td>22.0</td>
<td>11.5</td>
<td>13.0</td>
</tr>
<tr>
<td>Fuse A</td>
<td>25.0</td>
<td>16.0</td>
<td>16.0</td>
</tr>
<tr>
<td>Dimensions H×W×D (mm)</td>
<td>1020×1050×480</td>
<td>1020×1050×480</td>
<td>1020×1050×480</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>92</td>
<td>104</td>
<td>126</td>
</tr>
<tr>
<td>Temperature Coefficient ηs</td>
<td>4.43</td>
<td>4.47</td>
<td>4.52</td>
</tr>
<tr>
<td>COP</td>
<td>3.40</td>
<td>3.32</td>
<td>3.35</td>
</tr>
<tr>
<td>EER</td>
<td>4.40</td>
<td>4.46</td>
<td>4.46</td>
</tr>
<tr>
<td>Power (kW)</td>
<td>7.1</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>CO2 equivalent (t)</td>
<td>10.03</td>
<td>12.53</td>
<td>12.53</td>
</tr>
<tr>
<td>Max. length (m)</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Max. Höhenunterschied (m)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

#### REFRIGERANT

- **Liquid / gas (Φmm)** | 9.52 / 15.88 | 9.52 / 15.88 | 9.52 / 15.88 | 9.52 / 15.88 |
- **Max. length (m)** | 40 | 40 | 40 | 40 |
- **Max. Höhenunterschied (m)** | 30 | 30 | 30 | 30 |
- **R410A (GWP2088)** | R410A (GWP2088) | R410A (GWP2088) | R410A (GWP2088) |
- **Chargeless (kg)** | 4.2 | 4.2 | 4.2 | 4.2 |
- **Max. (kg)** | 4.8 | 4.8 | 4.8 | 4.8 |
- **CO₂ equivalent (t)** | 10.03 | 12.53 | 12.53 | 12.53 |
- **Max. length (m)** | 40 | 40 | 40 | 40 |

#### HEATING

- **Medium temperature (°C)** | -15 do +46 | -15 do +46 | -15 do +46 |
- **Cooling (°C)** | -15 do +46 | -15 do +46 | -15 do +46 |
- **Domestic Hot Water (°C)** | -20 do +35 | -20 do +35 | -20 do +35 |
- **Heating (°C)** | -20 do +24 | -20 do +24 | -20 do +24 |
- **Efficiency Class** | A | A | A |
- **Power (kW)** | 7.1 | 7.1 | 7.1 |
- **COP** | 3.40 | 3.40 | 3.40 |
- **EER** | 4.40 | 4.46 | 4.46 |
- **Power supply (Phase, V , Hz) 3φ, 400V, 50Hz** | 10 kW | 10 kW | 10 kW |

#### COOLING

- **Medium temperature (°C)** | -15 do +46 | -15 do +46 | -15 do +46 |
- **Cooling (°C)** | -15 do +46 | -15 do +46 | -15 do +46 |
- **Domestic Hot Water (°C)** | -20 do +35 | -20 do +35 | -20 do +35 |
- **Heating (°C)** | -20 do +24 | -20 do +24 | -20 do +24 |
- **Efficiency Class** | A | A | A |
- **Power (kW)** | 7.1 | 7.1 | 7.1 |
- **COP** | 3.40 | 3.40 | 3.40 |
- **EER** | 4.40 | 4.46 | 4.46 |
- **Power supply (Phase, V , Hz) 3φ, 400V, 50Hz** | 10 kW | 10 kW | 10 kW |

#### DATA ABOUT DISTANCE FOR SOUND POWER LEVEL 35dB(A)

- The level of the water Lot1 (kg/min) | 14.3 | 14.3 | 14.3 |
- Temperature level | 90 | 90 | 90 |
- Power (kW) | 7.5 | 11.2 | 11.2 |
- Energy Efficiency Class | A | A | A |
- Sound power level 35dB(A) on distance from*: | 4,5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
- Sound power level Heating | 58 | 58 | 58 |
- Sound power level Piping | 58 | 58 | 58 |
- Max. length (m) | 75 | 75 | 75 |
- Exp. vessel for heating (L) | 12 | 12 | 12 |
- Dimensions H×W×D (mm) | 900×600×400 | 900×600×400 | 900×600×400 |
- Weight (kg) | 80 | 80 | 80 |
- Dimensions H×W×D (mm) | 750×500×300 | 750×500×300 | 750×500×300 |
- Weight (kg) | 180 | 180 | 180 |
- Dimensions H×W×D (mm) | 1420×600×780 | 1420×600×780 | 1420×600×780 |
- Weight (kg) | 235 | 235 | 235 |
- Dimensions H×W×D (mm) | 1020×1050×480 | 1020×1050×480 | 1020×1050×480 |
- Weight (kg) | 115 | 115 | 115 |
- Dimensions H×W×D (mm) | 900×800×400 | 900×800×400 | 900×800×400 |
- Weight (kg) | 116 | 116 | 116 |
- Dimensions H×W×D (mm) | 1020×1050×480 | 1020×1050×480 | 1020×1050×480 |
- Weight (kg) | 128 | 128 | 128 |

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

#### INDOOR UNIT

**MONO** wall mounting indoor unit

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions of gas connections (⌀mm)</td>
<td>9.52 / 15.88 (3/8&quot;, 5/8&quot;)</td>
</tr>
<tr>
<td>Dimensions of connections for the heating system (⌀mm)</td>
<td>25.4 (1&quot;)</td>
</tr>
<tr>
<td>Built-in circulation pump</td>
<td></td>
</tr>
<tr>
<td>Electric heater (kW)</td>
<td>3x3</td>
</tr>
<tr>
<td>Heat exchanger</td>
<td></td>
</tr>
<tr>
<td>Expansion vessel for heating (L)</td>
<td>12</td>
</tr>
<tr>
<td>Switchover heating – hot water</td>
<td>Integrated</td>
</tr>
<tr>
<td>Power supply (Phase, V, Hz)</td>
<td>3φ, 400V, 50Hz</td>
</tr>
<tr>
<td>Dimensions H × W × D (mm)</td>
<td>900×600×480</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>80</td>
</tr>
</tbody>
</table>

#### INDOOR UNIT

**DUO 200**

with the 200 L tank for domestic hot water

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot water tank volume (L)</td>
<td>200</td>
</tr>
<tr>
<td>Dimensions of gas connections (⌀mm)</td>
<td>9.52 / 15.88 (3/8&quot;, 5/8&quot;)</td>
</tr>
<tr>
<td>Dimensions of connections for the heating system (⌀mm)</td>
<td>25.4 (1&quot;)</td>
</tr>
<tr>
<td>Dimensions of hot water connections (⌀mm)</td>
<td>25.4 / 19.05 circulation (1&quot;, 3/4 circulation)</td>
</tr>
<tr>
<td>Built-in circulation pump</td>
<td></td>
</tr>
<tr>
<td>Switchover heating – hot water</td>
<td>Integrated</td>
</tr>
<tr>
<td>Electric heater (kW)</td>
<td>3x3</td>
</tr>
<tr>
<td>Heat exchanger</td>
<td></td>
</tr>
<tr>
<td>Expansion vessel for heating (L)</td>
<td>12</td>
</tr>
<tr>
<td>Power supply (Phase, V, Hz)</td>
<td>3φ, 400V, 50Hz</td>
</tr>
<tr>
<td>Dimensions H×W×D (mm)</td>
<td>1420×600×780</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>180</td>
</tr>
<tr>
<td>Weight Solar (kg)</td>
<td></td>
</tr>
</tbody>
</table>

#### INDOR UNIT

**DUO 300 / DUO 300 SOLAR**

with the 300 L tank for domestic hot water

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot water tank volume (L)</td>
<td>300</td>
</tr>
<tr>
<td>Dimensions of gas connections (⌀mm)</td>
<td>9.52 / 15.88 (3/8&quot;, 5/8&quot;)</td>
</tr>
<tr>
<td>Dimensions of connections for the heating system (⌀mm)</td>
<td>25.4 (1&quot;)</td>
</tr>
<tr>
<td>Dimensions of hot water connections (⌀mm)</td>
<td>circulation (1&quot;, 3/4 circulation)</td>
</tr>
<tr>
<td>Built-in circulation pump</td>
<td></td>
</tr>
<tr>
<td>Switchover heating – hot water</td>
<td>Integrated</td>
</tr>
<tr>
<td>Electric heater (kW)</td>
<td>3x3</td>
</tr>
<tr>
<td>Heat exchanger</td>
<td></td>
</tr>
<tr>
<td>Expansion vessel for heating (L)</td>
<td>12</td>
</tr>
<tr>
<td>Power supply (Phase, V, Hz)</td>
<td>3φ, 400V, 50Hz</td>
</tr>
<tr>
<td>Dimensions H×W×D (mm)</td>
<td>1820×600×780</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>235</td>
</tr>
<tr>
<td>Weight Solar (kg)</td>
<td>255</td>
</tr>
</tbody>
</table>
Orcas are sociable animals which take great care of their families. They behave so very much like humans that certain tribes believed that human souls were trapped in these beautiful animals. Orcas don’t mind the heat or the cold. They live in the extreme cold of the Arctic Sea as well as in the tropical seas near the equator. Despite the cold or the heat, they hunt, socialize and love.

**FREEDOM**

You and your family wish to be just as free and independent from weather conditions. And financially as well? Because we share your wishes and values we have given our company the name of this powerful and free sea creature.

**QUALITY**

We have top experts from the field of cost-efficient heating working in our development labs, designing the flawless production of heating and cooling systems with advanced technologies and pinpoint precision. To consistently maintain quality, our systems are manufactured in the EU, except for certain components supplied by Mitsubishi Electric and Fujitsu, both high quality manufacturers from Japan. We are aware that purchasing our heating and cooling systems represents a long term investment for you, and that is why we keep the flawless operation of our devices in mind, from the first sketch to the final product.

**ENVIRONMENT**

We use green energy sources for our products, and we are very responsible towards the local and global environment. Together we can make a small step towards fighting climate change, which endangers humanity and the oceans of our symbol – the orca.

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Your seller

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Decades of cooling.
Decades of comfort.
orcaenergy.eu