

Ecodan CAHV-Z450YA-HPB

Ultra-Low GWP R290 Air Source Heat Pump

The Mitsubishi Electric **Ecodan CAHV-Z** delivers powerful, low-carbon heating and hot water using ultra-low R290 GWP refrigerant.

Perfect for a wide range of commercial applications such as schools and hospitals, it can operate as a standalone unit or in scalable multi-unit systems. In a multi-unit setup, units cascade and rotate to meet demand, with a 7-unit system delivering up to 280kW* of efficient, reliable heating and hot water all year round.

ecodan **R290**

* At nominal conditions A7W45

Key Features & Benefits:

- **Ultra-Low GWP R290 Refrigerant** - Reduces embodied carbon, helping future-proof projects and support ambitious CSR and sustainability targets
- **High-Temperature Heating Performance** - Delivers water temperatures up to 75°C, even at -15°C ambient, ensuring reliable comfort in demanding conditions
- **Scalable Cascade Control** - Multiple units can be combined and managed in cascade, providing maximum design freedom for a wide range of applications
- **Wide Water Temperature Range Without Boost Heaters** - Supplies 24°C -75°C flow temperatures without electric boosters, reducing energy consumption, running costs, and system complexity
- **Rapid Defrost Operation** - Minimises system downtime during defrost, helping maintain consistent heating performance in cold conditions
- **Integrated R290 Safety Features** - Built-in leak detection and an explosion-proof relay support safe, compliant operation alongside peace of mind
- **Quiet, Adaptable Operation** - Low Noise Mode that minimises sound levels, and External Static Pressure Control allows flexible system design
- **Anti-Simultaneous Defrost Control** - Prevents full system shutdown during defrost cycles, ensuring continuous heating delivery



R290



MODEL	CAHV-Z450YA-HPB-(BS)	
POWER SOURCE		3-phase 4-wire 380-400-415v, 50/60Hz
CAPACITY(EN14511) ^{*1}	kW	40
Power input	kW	12.62
Current input	A	21.3-20.2-19.5
COP (kW/kW)		3.17
SCOP Low/Medium		4.12 / 3.25
Water Flow Rate	m ³ /h	6.88
CAPACITY ^{*2}	kW	37.5
Power input	kW	18.39
Current input	A	31.1-29.5-28.4
COP (kW/kW)		2.04
MAXIMUM CURRENT INPUT	A	45.6
WATER PRESSURE DROP ^{*3}	kPa (psi)	10.2 (1.47)
TEMPERATURE RANGE ^{*4}	Outlet water temperature Outdoor temperature	24 ~ 75 -25 ~ 43
CIRCULATING WATER VOLUME RANGE ^{*5}	m ³ /h	4.0 ~ 7.0
SOUND PRESSURE LEVEL (Measured 1m below the unit in an anechoic room) ^{*1*6}	dB (A)	65
SOUND PRESSURE LEVEL (Measured 1m below the unit in an anechoic room) ^{*6*7}	dB (A)	72
WATER PIPE DIAMETER AND TYPE	Inlet Outlet	mm (in) mm (in)
EXTERNAL FINISH		Acrylic painted steel sheet <Munsell 5Y 8/1 or similar>
EXTERNAL DIMENSIONS (Width x Depth x Height)	mm	1750 x 740 x 1710
NET WEIGHT	kg	363
DESIGN PRESSURE	R290 Water	MPa MPa
HEAT EXCHANGER	Water-side Air-side	Copper brazed stainless steel sheet Plate fins and copper tubes
COMPRESSOR	Type Manufacturer Starting method	Inverter scroll hermetic compressor Mitsubishi Electric Corporation Inverter
FAN	Motor output Lubricant	kW 10.8 PZ46M
HIC (Heat Inter-Changer) CIRCUIT	Air flow rate External static pressure / External static pressure mode	L/s 10 Pa (1 mm H2O) / 40 Pa (4 mm H2O)
PROTECTION DEVICES	Type and quantity Control and driving mechanism	Propeller fan x 2 Inverter control, direct driven by motor
DEFROSTING METHOD	Motor output	kW 0.92 x 2
REFRIGERANT	Type and factory charge Flow and temperature control	kg R290, 4.8 kg LEV and HIC circuit

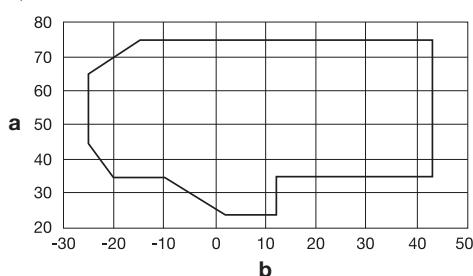
Notes:

^{*1} Under normal heating conditions at the outdoor temperature of 7°CDB/6°CWB, the outlet water temperature of 45°C, and the inlet water temperature of 40°C.

^{*2} Under normal heating conditions at the outdoor temperature of -5°CDB/-6°CWB and the outlet water temperature of 55°C.

^{*3} Under normal heating conditions at the outdoor temperature of 7°CDB/6°CWB through the dry NC-contact.

^{*4}



a: Outlet water temp. (°C)
b: Outdoor temp. (°C)

Keep inlet water temp. of 19°C or higher during the unit operation.

^{*5} The unit can operate at the water volume range of 1.5 - 4.0m³/h if the water volume exceeds 4.0m³/h during defrost cycle. The defrost signal is output from the terminal block of the unit.

^{*6} SPL is the value measured in an anechoic room at 1m away from the unit and 1.5m above the floor.

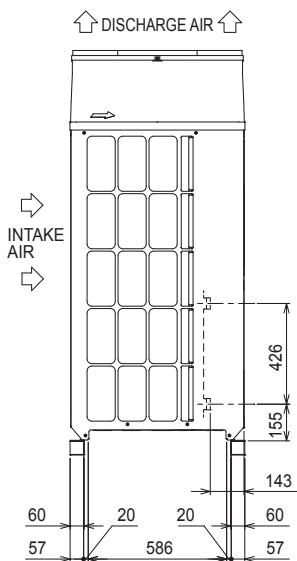
^{*7} Under conditions with maximum compressor frequency and fan rotated speed.

R290

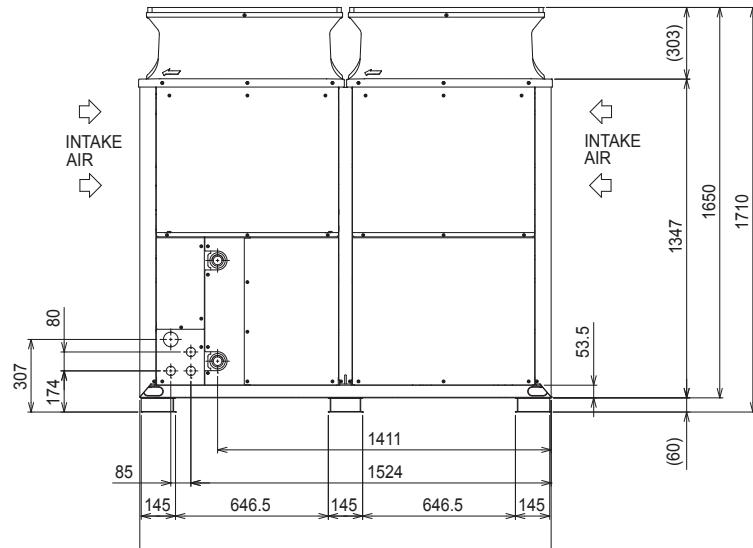


CAHV-Z450YA-HPB(-BS) DIMENSIONS

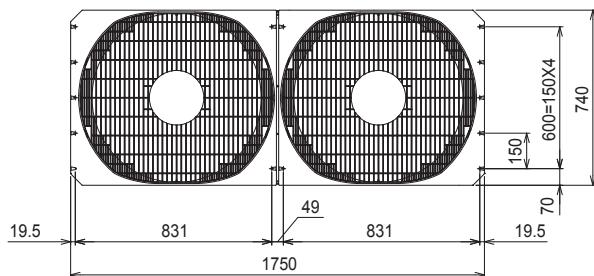
SIDE VIEW



FRONT VIEW



UPPER VIEW



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Note: The fuse rating is for guidance only and please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774), R134a (GWP:1430), R513A (GWP:631), R454B (GWP:466), R515B (GWP:292), R454C (GWP:148), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a hydrocarbon, R290 (GWP:0.02). *These GWP values are based on IPCC 6th edition.

Effective as of January 2026



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