Heating

Product Information

Renewable heating for larger homes, listed buildings and light commercial applications

Making a World of Difference

ecodan

The Ecodan Cascade System

Homes and buildings with a high heat load require a proven, reliable system that is capable of delivering renewable heating and hot water all year round.

The Ecodan cascade system is available in single or three phase power supply, operates down to -25°C and delivers outstanding performance with low maintenance and quiet operation.

Capacities ranging from 5kW to 84kW, including monobloc

MITSUBISHI ELECTRIC

Cooling | Heating | Ventilation | Controls

ecodan®

Renewable Heating Technology

The Ecodan Cascade System

MCS CERTIFIED

Application Examples

- Larger homes and listed buildings
- Difficult to insulate, such as solid walls
- Off-gas areas
- Public sector premises
- Commercial buildings

Benefits

- Reduces both running costs and CO_2 emissions
- Full internet-based control through the MELCloud App
- Suitable for a wide range of buildings - links up to 6 Ecodan heat pumps together in a single cascade heating system

Ideal for off-gas

The Ecodan cascade system is ideal for buildings and larger homes in off-gas areas and can be used to replace any existing heating technology to offer a viable, renewable alternative to oil, LPG or direct electric.

Not only can Ecodan heat pumps reduce both installation and running costs compared to more carbon intensive traditional heating systems, with a professionally maintained Ecodan you'll also save on annual maintenance costs too.

Ideal for higher heat loads

Ecodan air source heat pumps are the ideal solution to providing renewable heating and hot water all year round for buildings with higher heat loads.

Like any heating system, Ecodan works most effectively in buildings with higher levels of thermal efficiency. So wherever possible, basic thermal improvements should be undertaken to improve the thermal efficiency of the building. Improvement measures include cavity wall insulation, loft insulation, double glazing and draught proofing.

In buildings where these thermal improvements are too costly, such as historic buildings with solid stone walls, or in listed buildings (where improvements and changes are limited or restricted), an Ecodan cascade system can still provide high efficiency and comfortable heating all year round. By using Ecodan heat pumps, it is possible to reduce both CO_2 emissions and running costs.

Case Study

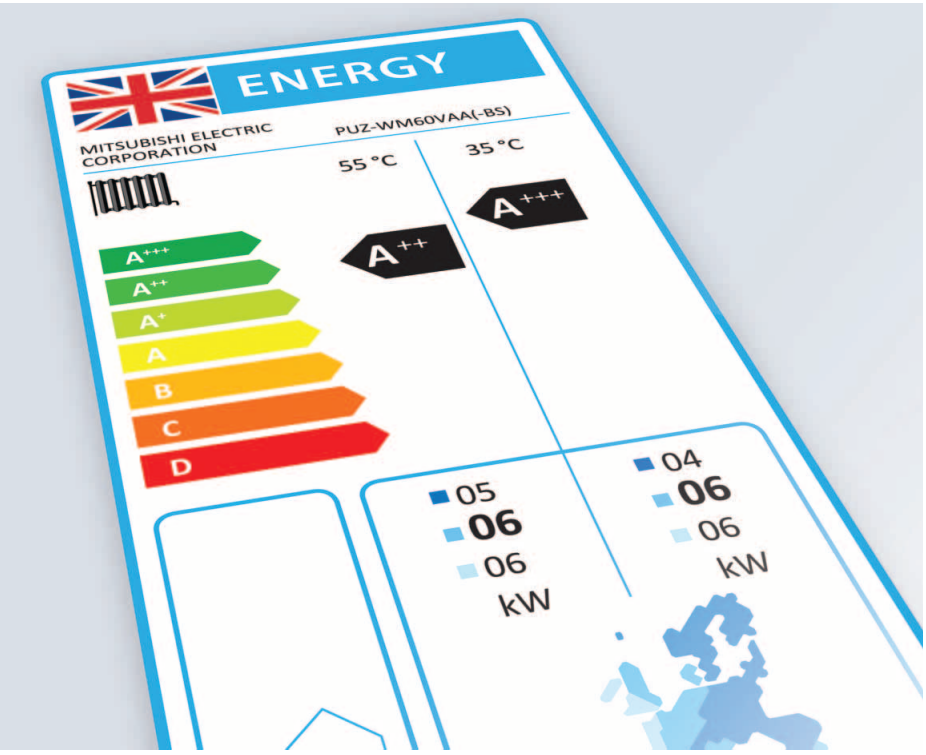
Cascade heat pumps help meet high heating demand

Homeowners in South Devon are enjoying the energy efficient benefits of renewable heating following the installation of two Ecodan heat pumps in a cascade system at their newly renovated farmhouse and barn conversion.

For buildings with a high heat load or with solid stone walls, the Ecodan cascade system offers an ideal solution because it allows the heat pumps to work individually or together to respond accurately to the higher heating requirements of the property. Located on the southern slopes of Dartmoor, the renovation incorporated the existing farmhouse and the conversion of a number of barns to form one dwelling with a floor area of 450m². The renovation uses underfloor heating throughout the majority of the home which incorporated a number of different floor constructions and levels. In the remaining rooms, the homeowners wanted antique radiators which would be sympathetic to the rustic nature of the original property.

The original farmhouse was in an off-gas area and, as is typical of this type of property, had no heating system apart from open fires. The only real alternative would have been oil which would have incurred significant installation and higher running costs.

Further details on the complete range of Ecodan systems can be found by visiting the dedicated website: **www.ecodan.co.uk.**

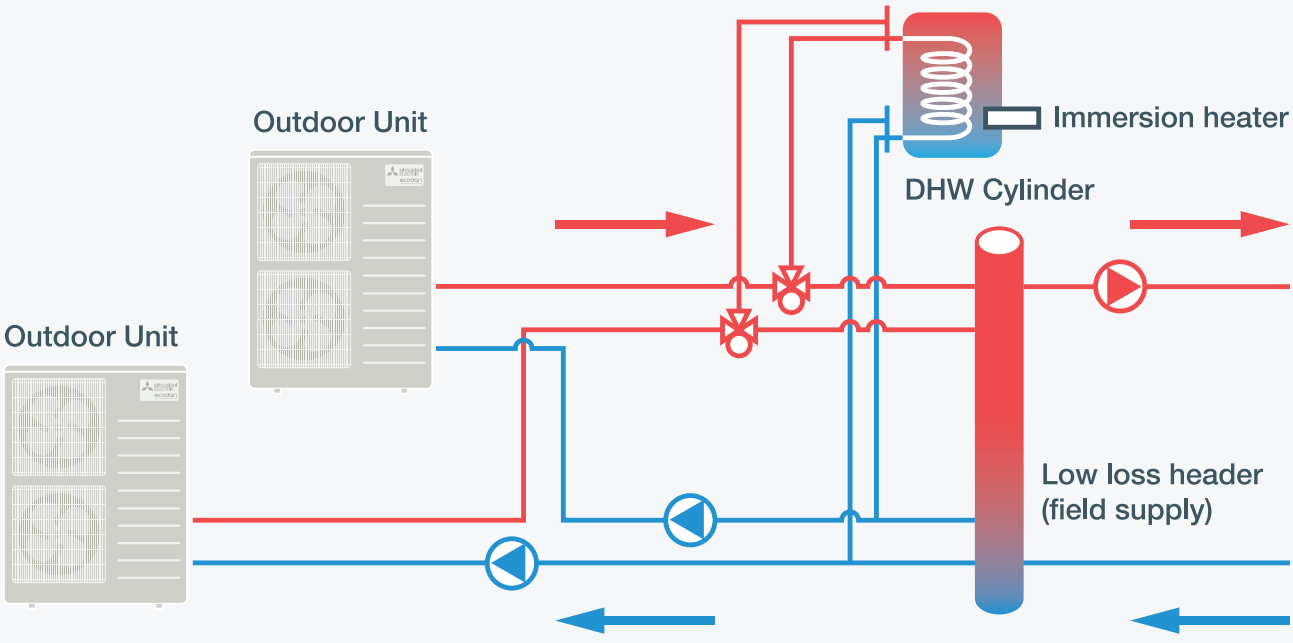


The Energy Related Products Directive

The Ecodan heat pump range used in cascade systems all have an energy label of A+++.

ErP A+++

Typical installation of an Ecodan Monobloc Cascade System



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OUTDOOR UNIT		PUZ-WM50VHA(-BS)	PUZ-WM60VAA(-BS)	PUZ-WM85VAA(-BS)	PUZ-WM85YAA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++	A++	A++	A++
	η_s	129%	142%	139%	139%
	SCOP	3.33	3.30	3.50	3.47
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++	A+++	A+++	A+++
	η_s	183%	190%	193%	193%
	SCOP	4.58	4.62	4.57	4.79
HEAT PUMP COMBINATION HEATER - Large Profile*1	ErP Rating	A+	A+	A+	A+
	η_{wh}	135%	145%	145%	145%
HEATING*2 (A-7/W35)	Capacity (kW)	5.0	6.0	8.5	8.5
	Power Input (kW)	1.67	1.88	3.27	3.27
	COP	3.00	3.20	2.60	2.60
OPERATING AMBIENT TEMPERATURE (°C DB)		-20 ~ +35	-20 ~ +35	-20 ~ +35	-25 ~ +35
SOUND DATA*3	Pressure Level at 1m (dBA)	47	45	45	45
	Power Level (dBA)*4	61	58	58	58
WATER DATA	Pipework Size (mm)	22	22	28	28
	Flow Rate (l/min)	14	17	24	24
	Water Pressure Drop (kPa)	12.0	8.0	15.0	15.0
DIMENSIONS (mm)	Width	950	1050	1050	1050
	Depth	330+30*7	480	480	480
	Height	923	1020	1020	1020
WEIGHT (kg)		71	98	98	111
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz	220-240v, 50Hz	220-240v, 50Hz	400v, 50Hz
	Phase	Single	Single	Single	Three
	Nominal Running Current [MAX] (A)*5	4.64 [13]	5.68 [13]	9.1 [22]	2.9 [11.5]
	Fuse Rating - MCB Sizes (A)*6	16	16	25	16
REFRIGERANT CHARGE (kg) / CO_2 EQUIVALENT (t)	R32 (GWP 675)	2.0 / 1.35	2.2 / 1.49	2.2 / 1.49	2.2 / 1.49

OUTDOOR UNIT		PUZ-WM112VAA(-BS)	PUZ-WM112YAA(-BS)	PUZ-HWM140VHA(-BS)	PUZ-HWM140YHA(-BS)
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++	A++	A++	A++
	η_s	134%	134%	3.35	131
	SCOP	3.45	3.434	3.34	3.35
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+++	A+++	A+++	A+++
	η_s	191%	191%	176	176
	SCOP	4.58	4.78	4.48	4.45
HEAT PUMP COMBINATION HEATER - Large Profile*1	ErP Rating	A+	A+	A+	A+
	η_{wh}	148%	148%	130	130
HEATING*2 (A-7/W35)	Capacity (kW)	11.2	11.2	14.0	14.0
	Power Input (kW)	3.73	3.73	5.72	5.72
	COP	3.00	3.00	2.45	2.45
OPERATING AMBIENT TEMPERATURE (°C DB)		-25 ~ +35	-25 ~ +35	-28 ~ +35	-28 ~ +35
SOUND DATA*3	Pressure Level at 1m (dBA)	45	45	53	53
	Power Level (dBA)*4	60	60	67	67
WATER DATA	Pipework Size (mm)	28	28	28	28
	Flow Rate (l/min)	32	32	40	40
	Water Pressure Drop (kPa)	24.0	24.0	20	20
DIMENSIONS (mm)	Width	1050	1050	1020	1020
	Depth	480	480	330+30*7	330+30*7
	Height	1020	1020	1350	1350
WEIGHT (kg)		119	119	132	143
ELECTRICAL DATA	Electrical Supply	220-240v, 50Hz	400v, 50Hz	220-240v, 50Hz	380-415v, 50Hz
	Phase	Single	Three	Single	3
	Nominal Running Current [MAX] (A)*5	10.9 [28]	3.6 [13]	xx [35]	xx [13]
	Fuse Rating - MCB Sizes (A)*6	32	16	40	16
REFRIGERANT CHARGE (kg) / CO_2 EQUIVALENT (t)	R32 (GWP 675)	3.0 / 2.03	3.0 / 2.03	3.3 / 2.23	3.3 / 2.23

η_s is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

*1 Combination with E*PT20X Cylinder *2 Under normal heating conditions at outdoor temp: -7°CDB / -8°CWB, outlet water temp 35°C, inlet water temp 30°C. *3 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 55°C, inlet water temp 47°C as tested to BS EN14511. *4 Sound power level tested to BS EN12102. *5 Under nominal heating conditions at outdoor temp: 7°C, outlet water temp: 35°C. *6 MCB Sizes BS EN60898-2 & BS EN60947-2. *7 Grille.

MITSUBISHI ELECTRIC
Changes for the Better

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Note: Refer to 'Installation Manual' and 'Instruction Book' for further 'Technical Information'. 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), R1234ze (GWP:7) or R1234yf (GWP:4). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of July 2023

Green Gateway greengateway.mitsubishielectric.co.uk