

Technical Bulletin

Number	035
Subject	Yutaki Intro and FAQ's
Date	07 September 2009

The main features of YUTAKI modules include:

- High energy efficiency
- Can be combined with existing systems
- Low noise level
- Inverter compressor (wide power range)
- Broad scope of applications (flexible according to the type of system)
- User-friendly

Basic Summary



Essentially this product is positioned in the market as an alternative to other heating products such as condensing boilers. The difference between the Hitachi Yutaki and other Air to Water products from Japanese AC manufacturers is that the refrigeration installation side is not required and there is more onus on Heating Engineers to utilise the product.

In raw terms this can be seen as on off the shelf heating product that offers better efficiencies than a condensing boiler. The purchaser still has the option of using their own products to be installed within the home such as the Hot Water Tank, Header, Pump, Expansion Tank etc: Additionally this can be existing plant which makes Yutaki ideal for retrofit.

In time accessory products will be available from Hitachi but the purchaser will not be forced to buy Hitachi products to work with Yutaki. The controller that comes with the Hitachi product is a heating controller provided and designed for heating as opposed to being a controller based on the Yutaki. This has proved to be one of the major selling points for the product. It is designed specifically to enable the Yutaki to work with third party products.

There will be little support from Hitachi when it comes to radiators, flow, tanks etc: The onus is on the heating contractor to advise what size tank, pump etc should they wish to purchase these Hitachi accessories.

Is Hot Water at 65°C output achievable with the Yutaki Air to Water?

YUTAKI also gives the option of sanitary hot water production, allowing the user to benefit from the heat pump's high efficiency and achieve hot water at 65°C and above. This is made possible by a specific hot water tank, which is heated in the heat pump from below using water pre-heated at 55°C. An electrical resistance, at the top of an optional stainless steel tank, increases the temperature in accordance with the user's needs. The stainless steel tank can be purchased from Hitachi (2010) or can be a third party product.

YUTAKI provides a comfortable atmosphere all year long, even in the coldest climates. The popular setting leaves the entire heating load in the heat pump's control for 90-95% of the year, and uses a back-up electrical resistance so that it is responsible for 5-10% of the load on the coldest days. This option usually results in an ideal balance between installation costs and future energy consumption, as proven by its popularity in colder climates than ours, such as Sweden and Norway.

The YUTAKI unit is a compact unit that requires no indoor unit. This directly reduces installation and subsequent maintenance costs.

Can we heat central heating radiators as a retrofit solution?

The Yutaki has been designed primarily to work as a retrofit solution to existing hot water plant and radiators. For older properties with window sized radiators we do not anticipate any issues. It is expected that most domestic radiators including some modern installations are oversized in the main therefore surface area should not be an issue. We do however expect the installer to make this calculation based on the information available to them when they price the project.

Controls



Room unit



Heat Pump system controller

The Yutaki comes with a separate heat pump controller and an wireless thermostat control. The heat pump controller wires straight into the Yutaki and comes complete with a number of sensors for optimum control. These sensors are as follows:

- Ambient Air Sensor
- Yutaki
- Water Air Inlet
- Water Outlet
- Electric Heater
- Infra Red Receiver

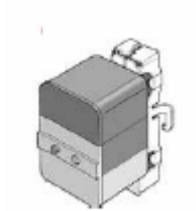
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Pumps



There are two optional pumps which fit the Yutaki. These are Hi-Volume (typically Under Floor) and Lo-Flow pumps (typically Radiators). Alternatively a pump can be field supplied. The onus is on the Heating Engineer to advise Logicool of the pump requirement.

Current Optional Extras



Part Number	Description
CDH2Z1	Header Accessories for Two Temperature Zones
ASMSH1	Safety Aquastat for Underfloor Heating
RMPID1	Water Regulator
BDHM1	Hydraulic Uncoupling Low Loss Header
VID3V1	3-Way Valve
EH61	In-Line Three Stage 6.0kW Electric Heater Battery 1Ø or 3Ø
CCW11	Circulating Pump (for Installation within Yutaki Heat Pump Unit)
CCW21	Circulating Pump (for Installation within Yutaki Heat Pump Unit)

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Capacities

Detailed below are excerpts from the current technical data. This details sub zero ambient conditions only and gives you a very real expectation of the capabilities of the Yutaki. The Yutaki does have COP's of around 4.8 at given conditions and will stand up well against other manufacturers products for efficiencies.

Model	Ambient Temp (°C)	Water Outlet Temp (°C)	Max Heating Capacity (kW)	Water Flow Rate (m ³ /hr)	Pressure loss (kPa)
RHUE3AHVN (5.0 – 8.2 kW)	-7	35	6.1	1.05	17.6
		40	6.2	1.07	18.1
		45	6.2	1.07	18.1
		50	6.1	1.05	17.6
		55	6.0	1.03	17.0
	-5	35	6.4	1.10	19.3
		40	6.5	1.12	19.9
		45	6.5	1.12	19.9
		50	6.4	1.10	19.3
		55	6.2	1.07	18.1
RHUE4AHVN (5.0 – 1.09 kW)	-7	35	8.1	1.39	30.4
		40	8.0	1.38	29.7
		45	7.9	1.36	29
		50	7.7	1.32	27.6
		55	7.6	1.31	26.9
	-5	35	8.6	1.48	34.2
		40	8.4	1.44	32.6
		45	8.2	1.41	31.1
		50	8.0	1.38	29.7
		55	7.9	1.36	29.0
RHUE5AHVN (6.9 – 15.0kW)	-7	35	11.2	1.93	35.1
		40	11.0	1.89	33.9
		45	10.8	1.86	32.7
		50	10.6	1.82	31.6
		55	10.4	1.79	30.4
	-5	35	11.8	2.03	38.9
		40	11.5	1.98	37.0
		45	11.3	1.94	35.7
		50	11.0	1.89	33.9
		55	10.8	1.86	32.7