High Temperature VWART Calculation for Rhico Heating Solutions

Primary flow temperature = 70°C, DHW set point = 55°C, Space heating temperatures = 40°C/60°C

Test carried out by BSRIA Ltd. in July 2020, Test Reference 101924/1

Manufacturer: Rhico Heating Solutions; Model: TI45 Ultra Lean; Serial number: 428440300; Year of manufacture: 2020

VWART calculation prepared by Colin Judd of BSRIA Ltd. on 08 August 2020

	VWART (°C)	Volume (m^3)
DHW	22	26.7
Keep Warm	43	33.4
Space Heating	44	50.6

	VWART with keep warm active	
Period	VWART (°C)	% Time
No Heating	34	93%
Heating	44	7%
Overall	35	

	DHW draw test results			Post DHW draw (60 Seconds)	
	Power (W)	Primary Flow (m^3/hr)	Return Temp (VWART) (°C)	Primary Flow (m^3/hr)	Return Temp (VWART) (°C)
Low	11283	0.190	19.8	0.003	19.56
Medium	19262	0.359	22.9	0.005	22.90
High	24773	0.471	24.7	0.012	24.61

DHW draw volumes per annum		
Energy (kWh)	Time (Hours)	Volume (m^3)
729	64.61	12.273
297	15.42	5.533
444	17.92	8.442

Post DHW draw volumes per annum		
Events	Avg duration (Seconds)	Volume (m^3)
10000	30	0.270
660	75	0.074
300	145	0.143

Keep warm test results	
Primary Flow (m^3/hr)	Return Temp (VWART) (°C)
0.0042	43.5

Keep Warm volumes per annum	
Time (Hours)	Volume (m^3)
8026	33.437

	Space Heating Test Results		
	Power (W)	Primary Flow (m^3/hr)	Return Temp (VWART) (°C)
1kW	1009	0.036	42.5
2kW	1984	0.068	43.9
4kW	3974	0.140	45.3

Space Heating volumes per annum		
Energy (kWh)	Time (Hours)	Volume (m^3)
98	97.16	3.498
787	396.70	27.134
565	142.17	19.961