High Temperature VWART Calculation for Thermal Integration HIU

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

Test carried out by RISE in July 2017, Test Reference 7P03972

Manufacturer: Thermal Integration Ltd.; Model: DATA 01 (EcoAdvance Dual Plate); Serial number: Art. no. 52060, ID nr. 05102015024; Year of manufacture: 2017

VWART calculation prepared by Freddie Valletta of FairHeat Ltd on 26 July 2017

	VWART (°C)	Volume (m^3)
DHW	13.9	23.24
Keep warm	38.1	27.90
Space heating	40.4	45.97

	VWART with keep warm active	
Period	**VWART (°C)**	**% Time**
No heating	27.1	93%
Heating	39.4	7%
Overall	**28.0**	

	VWART with keep warm inactive *	
Period	**VWART (°C)**	**% Time**
No heating	13.9	93%
Heating	39.4	7%
Overall	**15.8**	

* HIU has ability to deactivate keep warm function

	DHW draw test results			Post DHW draw (60 seconds)	
	Power (W)	Primary flow (m^3/hr)	Return temp (°C)	Primary flow (m^3/hr)	Return temp (°C)
Low	10786	0.162	13.3	0.007	13.0
Medium	14853	0.227	13.8	0.010	13.5
High	23145	0.359	15.0	0.010	14.7

DHW draw volumes per annum		
Energy (kWh)	Time (hours)	Volume (m^3)
729	67.59	10.974
297	20.00	4.529
444	19.18	6.893

Post DHW draw volumes per annum		
Events	Avg duration (seconds)	Volume (m^3)
10000	30	0.588
660	75	0.131
300	145	0.120

Keep warm test results	
Primary flow (m^3/hr)	Return temp (°C)
0.003	38.1

Keep warm volumes per annum	
Time (hours)	Volume (m^3)
7997	27.897

	Space heating test results		
	Power (W)	Primary flow (m^3/hr)	Return temp (°C)
1 kW	973	0.031	39.9
2 kW	1908	0.061	40.4
4 kW	3944	0.124	40.4

Space heating volumes per annum		
Energy (kWh)	Time (hours)	Volume (m^3)
98	100.75	3.141
787	412.49	25.050
565	143.25	17.780