Low Temperature VWART Calculation for Thermal Integration HIU

Primary flow temperature = 60°C, DHW set point = 50°C, Space heating temperatures = 45°C/35°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	14.6	27.56
Keep warm	38.5	40.01
Space heating	35.0	53.69

	VWART with keep warm active	
Period	**VWART (°C)**	**% Time**
No heating	28.7	93%
Heating	34.4	7%
Overall	**29.2**	

	VWART with keep warm inactive *	
Period	**VWART (°C)**	**% Time**
No heating	14.6	93%
Heating	34.2	7%
Overall	**16.0**	

* 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	9444	0.171	13.9	0.005	13.5
Medium	13224	0.244	14.7	0.005	14.3
High	20700	0.384	15.8	0.012	15.6

DHW draw volumes per annum		
Energy (kWh)	Time (hours)	Volume (m^3)
729	77.19	13.185
297	22.46	5.479
444	21.45	8.245

Post DHW draw volumes per annum		
Events	Avg duration (seconds)	Volume (m^3)
10000	30	0.436
660	75	0.065
300	145	0.149

Keep warm test results	
Primary flow (m^3/hr)	Return temp (°C)
0.005	38.5

Keep warm volumes per annum	
Time (hours)	Volume (m^3)
8004	40.006

	Space heating test results		
	Power (W)	Primary flow (m^3/hr)	Return temp (°C)
1 kW	1037	0.039	34.6
2 kW	1999	0.074	34.9
4 kW	3859	0.142	35.1

Space heating volumes per annum		
Energy (kWh)	Time (hours)	Volume (m^3)
98	94.55	3.708
787	393.66	29.208
565	146.42	20.778