



High Temperature VWARD Calculation for Caleffi HIU on behalf of Altecnic

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

Test carried out by RISE in April 2018, Test Reference 8P00147

Manufacturer: Caleffi; Model: SATK32105; Serial number: 182000101; Year of manufacture: 2018

VWARD calculation prepared by Freddie Valletta of FairHeat Ltd on 28 June 2018

	VWARD (°C)	Volume (m ³)
DHW	20.9	25.93
Keep warm	42.4	33.78
Space heating	42.4	47.18

VWARD with keep warm active		
Period	VWARD (°C)	% Time
No heating	33.1	93%
Heating	41.6	7%
Overall	33.7	

VWARD with keep warm inactive *		
Period	VWARD (°C)	% Time
No heating	20.9	93%
Heating	41.6	7%
Overall	22.4	

* 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	10742	0.186	20.5	0.000	17.5
Medium	17808	0.317	20.5	0.000	19.5
High	22684	0.409	21.7	0.000	21.1

DHW draw volumes per annum		
Energy (kWh)	Time (hours)	Volume (m ³)
729	67.87	12.651
297	16.68	5.280
444	19.57	7.998

Post DHW draw volumes per annum		
Events	Avg duration (seconds)	Volume (m ³)
10000	30	0.004
660	75	0.000
300	145	0.000

Keep warm test results	
Primary flow (m ³ /hr)	Return temp (°C)
0.004	42.4

Keep warm volumes per annum	
Time (hours)	Volume (m ³)
8013	33.783

	Space heating test results		
	Power (W)	Primary flow (m ³ /hr)	Return temp (°C)
1 kW	934	0.029	40.8
2 kW	1994	0.065	42.0
4 kW	3931	0.129	43.2

Space heating volumes per annum		
Energy (kWh)	Time (hours)	Volume (m ³)
98	104.94	3.077
787	394.66	25.553
565	143.73	18.545