



Low Temperature VWARD Calculation for Escco HIU

Primary flow temperature = 60°C, DHW set point = 50°C, Space heating temperatures = 45°C/35°C

Test carried out by RISE in May 2018, Test Reference 8P03903

Manufacturer: Escco Controls Ltd.; Model: HIU E 70/5; Serial number: 033313031145; Year of manufacture: 2017

VWARD calculation prepared by Freddie Valletta of FairHeat Ltd on 26 June 2018

	VWARD (°C)	Volume (m ³)
DHW	20.8	32.35
Keep warm	42.4	39.63
Space heating	35.1	52.35

VWARD with keep warm active		
Period	VWARD (°C)	% Time
No heating	32.7	92%
Heating	34.9	8%
Overall	32.9	

VWARD with keep warm inactive *		
Period	VWARD (°C)	% Time
No heating	20.8	92%
Heating	34.5	8%
Overall	21.9	

* 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	9245	0.197	20.0	0.000	18.6
Medium	15396	0.342	20.8	0.001	20.2
High	20313	0.465	22.0	0.003	21.5

DHW draw volumes per annum		
Energy (kWh)	Time (hours)	Volume (m ³)
729	78.86	15.511
297	19.29	6.605
444	21.86	10.160

Post DHW draw volumes per annum		
Events	Avg duration (seconds)	Volume (m ³)
10000	30	0.028
660	75	0.009
300	145	0.033

Keep warm test results	
Primary flow (m ³ /hr)	Return temp (°C)
0.005	42.4

Keep warm volumes per annum	
Time (hours)	Volume (m ³)
7975	39.628

	Space heating test results		
	Power (W)	Primary flow (m ³ /hr)	Return temp (°C)
1 kW	905	0.033	34.9
2 kW	1901	0.070	35.1
4 kW	3971	0.140	35.2

Space heating volumes per annum		
Energy (kWh)	Time (hours)	Volume (m ³)
98	108.29	3.624
787	414.00	28.775
565	142.28	19.952