Low Temperature VWART Calculation for I.V.A.R S.p.A HIU

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

Test carried out by BSRIA Ltd. in June 2020, Test Reference 101858/1

Manufacturer: I.V.A.R S.p.A; Model: IVAR-ESAT Dual; Serial number: 500429C; Year of manufacture: 2019

VWART calculation prepared by Colin Judd of BSRIA Ltd. on 01 July 2020

	VWART (°C)	Volume (m^3)
DHW	15	28.9
Keep Warm	41	42.1
Space Heating	36	52.1

	VWART with keep warm active	
Period	VWART (°C)	% Time
No Heating	31	93%
Heating	35	7%
Overall	31	

	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	9750	0.180	14.6	0.006	14.18
Medium	16024	0.312	15.4	0.015	15.28
High	20852	0.409	16.2	0.020	16.32

DHW draw volumes per annum		
Energy (kWh)	Time (hours)	Volume (m^3)
729	74.77	13.453
297	18.53	5.777
444	21.29	8.713

Post DHW draw volumes per annum		
Events	Avg duration (seconds)	Volume (m^3)
10000	30	0.516
660	75	0.206
300	145	0.237

Keep warm test results	
Primary flow (m^3/hr)	Return temp (°C)
0.0053	41.0

Keep warm volumes per annum	
Time (hours)	Volume (m^3)
7990	42.106

	Space heating test results		
	Power (W)	Primary flow (m^3/hr)	Return temp (°C)
1kW	978	0.036	35.3
2kW	1926	0.068	35.6
4kW	3857	0.140	36.1

Space heating volumes per annum		
Energy (kWh)	Time (hours)	Volume (m^3)
98	100.18	3.607
787	408.69	27.954
565	146.49	20.567