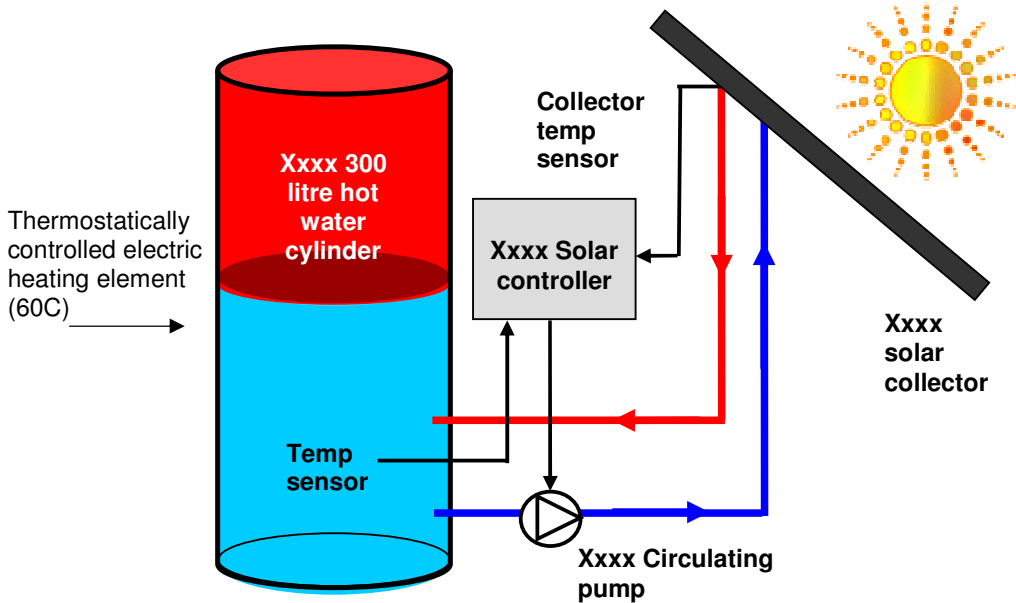


Solar Hot Water Heating Energy Modelling Report

The attached report is produced in fulfilment of AS/NZS 4234: 2008 – Heated water systems – Calculation of energy consumption.

The energy modelling carried out to produce this report uses TRNSYS 16 to model the solar hot water system as described by the model inputs listed in this report. It is the responsibility of the solar hot water system supplier to ensure that this information is correct.

Open loop Solar Electric hot water system



Report Summary. System model number: XXXXXXXX			
Solar Collector			
Storage tank			
Controller			
Circulating pump			
		Climate Zone 5	Climate Zone 6
Peak daily energy use MJ/day			
Reference system energy use kWh/y	Er		
Solar energy from collector kWh/y			
Auxiliary energy to tank kWh/y	Ea		
Electrical energy to pump kWh/y	Ep		
Energy to load kWh/y			
Tank heat loss kWh/y			
Pipe heat loss kWh/y			
Energy savings % $\frac{(Er-Ea-Ep) \times 100}{Er}$			
Legionella control method	G12 or alternative solution		

Model Inputs

Storage tank or Hot water cylinder		
	Value	Units
Tank model		
Tank inner diameter		mm
Tank volume (physical not delivery)		Litres
Tank wall thickness		mm
Thermal conductivity of tank wall material		WmK
Glass lining thickness (if mantle heat exchanger used.)		mm
Tank standing heat loss (AS/NZS 4692.1 conditions with element in the bottom of the tank)		kWh/d for DT = 55C
Test laboratory		
Test report number and date.		

Electric boosting in tank		
Volume of water above electric element No 1. For sickle elements the volume above the level with 50% of the active element above and below.		Litres
Volume of water above thermostat No. 1		Litres
Element heating capacity No.1		kW
Element 1 supply time (Night rate, continuous or timed)		
Thermostat 1 setpoint		C
Thermostat 1 deadband		K
Volume of water above electric element No 2. For sickle elements the volume above the level with 50% of the active element above and below.		Litres
Volume of water above thermostat No. 2		Litres
Element heating capacity No.2		kW
Element 2 supply time (Night rate, continuous or timed)		
Thermostat 2 setpoint		C
Thermostat 2 deadband		K

Solar collector		
Model No.		
Type of collector		
Collector efficiency parameters 'a' or 'b' coefficients		
a ₁		
a ₂		W/(m ² K ²)
a ₃		W/(m ² K ²)
Collector area		
Test laboratory		
Date of test		
Test report number		
Number of collectors		

Circulating Pump		
Supplier and model number		
Flow rate		Litres/hour
Power consumption at nominal power		W

System Controller		
Manufacturer		
Model Number		
Location of hot sensor		
Volume of water above cold sensor in tank		Litres
Maximum temperature in the tank at the location of the cold sensor		C
Hysteresis band for maximum temperature control		C
Is flow rate set for specific site conditions?		
If site specific flow control is used attach description of control methodology and controller logic map		
Variable pump speed modelled.		

Plumbing between storage tank and solar collector		
Volume of water above flow input to tank		Litres
Collector supply and return pipes ID		mm
Pipe length of each run	10	M
Thermal conductivity of pipe insulation		W/mK
Insulation thickness		mm

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Company officer reporting system characteristics	John Walker
Date	
Water heater model number	

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