

What size of tank do you need?

The size of a rainwater holding tank must match the demand for water with its availability as closely as possible. The tank size chosen must be a balance between budget, storage capacity and the need to enable an overflow at least twice a year to flush out floating debris. The Environment Agency publication 'Harvesting rainwater for domestic uses: an information guide' provides an authoritative and independent means of calculating the optimum size of tank for household water use and suggests that 5% of the annual rainwater supply, or of the annual rainwater demand, is used to determine the optimum size of tank, using the lower figure of the two.

What is your annual rainwater supply?

$$\text{Tank size (litres)} = \text{Catchment area (m}^2\text{)} \times \text{Drainage coefficient} \times \text{Filter efficiency} \times \text{Annual rainfall (mm)} \times 5\%$$

Example = $130\text{m}^2 \times 0.8 \times 0.9 \times 1125 \times 5\%$
= 5,265 litres

Catchment area

Is the width and length of your roof in m². Remember you do not have to collect water from the entire roof. This can help to reduce installation costs.

Drainage coefficient

It is difficult to collect every drop of rain that falls on your roof. Light rainfall will only wet your roof and then evaporate and heavy rainfall can overflow gutters. A drainage coefficient is used to adjust the tank size calculation to allow for this.

Roof type	Drainage coefficient
Pitched roof tiles	0.75-0.9
Flat roof smooth tiles	0.5
Flat roof with gravel layer	0.4-0.5

Filter efficiency

During initial rainfall some rainwater will skim over the filter, clearing away any debris. During heavy flow some rainfall will also bypass the filter to overflow ensuring that the filter is not overloaded. 90% of rainfall is caught, therefore the Balmoral filter coefficient is 0.9.

Annual rainfall

This can vary dramatically over a relatively small area, so a reading (in mm) within 10 miles of the property is preferable. The local Environment Agency or the Met Office can supply rainfall data or you can use the regional guide figures we have provided in the table below. In the 'annual rainwater supply example' above we have used the average figure for the UK.

Region	Average rainfall (mm)
UK	1125
S England	781
N England	944
Wales	1433
Scotland	1520
NI	1111
EIRE E	875 (source Irish Met service)
EIRE W	1125

What is your annual rainwater demand?

On average, each person in the UK uses around 150 litres of water every day and 45.8% of this total could be rainwater instead of mains water.

$$\text{Tank size (litres)} = \text{Average usage} \times \text{people in household} \times \text{days/year} \times \% \text{ harvestable} \times 5\%$$

Example = $150 \text{ litres} \times 4 \times 365 \times 45.8\% \times 5\%$
= 5,015 litres

What is the right tank for you?

Balmoral produces four tanks for domestic use so all you need to do is select the tank that best suits your needs. To help you we have calculated the correct size of tank for you based on your annual rainwater supply and your annual rainwater demand. Select the tank size from either table and if they indicate different tank sizes then you should choose the smaller of the two. These tables have been produced using the average annual rainfall for the region and assumes a pitched roof with a conservative drainage coefficient of 0.8. If your roof area is beyond the capacity of our largest tank or if the number of people indicates a smaller tank than your roof area will collect, then this is acceptable as it will mean that the tank will overflow more often, flushing out any floating debris.

Tank size calculator

Calculate the size of tank required using the 'Rainwater supply' and 'Rainwater demand' tables below then select the smaller of the two tank sizes.

Rainwater supply

Region	Roof size m ²																	
	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220
South England	BST27				BST38				BST45				BST60					→
North England	BST27				BST38				BST45				BST60					→
Wales	BST27	BST38		BST45		BST60					→							
Scotland	BST27	BST38		BST45		BST60					→	<div style="border: 1px solid #ccc; padding: 5px; display: inline-block;"> Balmoral tank sizes BST27 BST38 BST45 BST60 </div>						
Northern Ireland	BST27		BST38			BST45				BST60						→		
Eire E	BST27				BST38				BST45				BST60					→
Eire W	BST27	BST38		BST45		BST60					→							

Rainwater demand

	Number of people					
	1	2	3	4	5	6+
Tank	BST27		BST38		BST60	

Tank specifications

Home-Harvest Order code	Pop served	Capacity		Dimensions	
		Litres	Gallons	Dia	Height
BST-27-HH	1	2728	600	1860	2515
BST-38-HH	2	3800	836	2060	2755
BST-45-HH	3	4546	1000	2180	2885
BST-60-HH	4+	6000	1320	2380	3120

Garden-Harvest Order code	Pop served	Capacity		Dimensions	
		Litres	Gallons	Dia	Height
BST-27-GH	1	2728	600	1860	2515
BST-38-GH	2	3800	836	2060	2755
BST-45-GH	3	4546	1000	2180	2885
BST-60-GH	4+	6000	1320	2380	3120

