Water Neutrality Statement

Construction of two 2-Bed Dwellings

85 Timber Mill, Southwater, RH13 9SP

1. Horsham DC Guidance

Horsham DC released their new guidance (Water Neutrality and Planning Applications) on 28th January 2022. This was subsequently updated on 13th April 2022.

The below Water Neutrality Statement fully accords with Horsham DC's updated guidance/methodology.

2. Background

The proposed development involves the construction of two additional 2-bed dwellings adjacent to 85 Timber Mill (which is an existing 3-bed end-terrace dwelling).

Two similar applications have been submitted:

- Option 1 (two 2-bed end-terrace dwellings)
- Option 2 (two 2-bed semi-detached dwellings)

3. Occupancy

The Horsham DC guidance requires all water neutrality calculations to be based upon average occupancy rates. Extrapolated 2011 census data for Horsham District is listed below:

- 2-bed dwellings - 1.88 occupants
- 3-bed dwellings - 2.47 occupants

4. Baseline Water Consumption (333 litres/day)

For consistency of decision making, the Horsham DC guidance requires baseline calculations to multiply average occupancy with an average water consumption rate of 135 l/p/d. This is deemed to be the fairest and most robust method of calculating baseline water usage (even when actual water bills show higher water consumption).

The baseline water consumption from the existing end-terrace (prior to offsetting) is 333 l/d (2.47 existing occupancy x 135 l/p/d = 333 l/d).

5. Screening / Proposal Demand (508 litres/day)

For screening purposes only, additional unmitigated water demand from the two 2-bed new-builds is 508 l/d based on Horsham DC's 135 l/p/d consumption rate (two new-builds x 1.88 occupancy x 135 l/p/d = 508 l/d).

6. Water Reduction Measures (53.5 l/p/d)

The Building Regulations Part G calculator on page 3 shows that water consumption in the 2 x 2-bed new-builds, and the existing 3-bed end-terrace can be reduced to 53.5 l/p/d. This represents worst-case water usage (assuming both a bath & shower in all properties).

All figures used in the Part G calculator are achievable, and have been based upon standard flow rates/capacities published by Breeam International.

Detailed rainwater harvesting calculations are provided on pages 4-7.
Examples of compliant fixtures/appliances are included on pages 8-15.

7. Offsetting Measures (53.5 l/p/d)

The existing 3-bed end-terrace has dated/water-inefficient fixtures and fittings. The proposed two new-builds would provide a good opportunity to simultaneously modernise the existing end-terrace (providing all new water-efficient fittings).

The Part G calculator on page 3 shows that water consumption in the existing 3-bed end-terrace could be reduced to 53.5 l/p/d. This associated water offsetting should be secured by planning condition (as the existing property is fully contained within the application red/blue line).

8. Water Neutrality Calculations/Budget

The below calculations and water mitigation strategy demonstrate that the proposed two new-builds will achieve water neutrality (in full compliance with Horsham DC's guidance published on 28th January 2022, and updated on 13th April 2022):

Baseline water usage	333 litres/day	Existing 3-bed = 2.47 x 135 l/p/d
New-builds water minimisation	201 litres/day	Two new 2-beds = 2 x 1.88 x 53.5 l/p/d
Existing end-terrace after offsetting measures	132 litres/day	Existing 3-bed = 2.47 x 53.5 l/p/d
Resultant water usage	**0 litres/day**	**Water neutral**

The applicant would be happy to accept a suitably worded planning condition to ensure that all of the above water reduction measures are implemented prior to first occupation of the two new-builds.

N.b. The water offsetting measures should be secured by planning condition (as the existing end-terrace is included within the application red/blue line).

Building Regulations Part G Calculator - Includes rainwater harvesting for all WCs, washing machines & all external water

53.49 l/p/d for existing 3-bed water offsetting, and 53.49 l/p/d for proposed (2 x 2-bed) new-builds

Water Calculator | WC | Taps (Other) | Taps (Kitchen/Utility) | Baths | Dishwashers | Washing Machines | Showers | H2O softeners | Greywater | Rainwater

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)		1.46	0.00	0
	Part flush Volume (litres)		2.96	0.00	0
WC (multiple fittings)	Average effective flushing Volume (litres)	4.00	4.42	0.00	17.68 **(All RWH)**
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	4.00	1.58	1.58	7.90
Bath (where shower also present)	Capacity to overflow(litres)	160.00	0.11	0.00	17.60
Shower (where bath also present)	Flow Rate(litres / minute)	4.00	4.37	0.00	17.48
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	5.00	0.44	10.36	12.56
Washing Machine	(Litres/kg dry load)	6.00	2.1	0.00	12.60 **(All RWH)**
Dishwasher	(Litres/place setting)	0.90	3.6	0.00	3.24
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			89.06
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			30.28 **(RWH)**
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			53.49
	(10)	External water use			5.0 **- 5.0 RWH = 0**
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			**53.49**

Click here to fill in details before printing:

Baseline 3-bed water consumption = 2.47 occupants x average 135 l/p/d = **333.45 l/d**

3-bed offsetting + (2 x 2-bed) new-builds = 2.47 + (2 x 1.88) = 6.23 occupants x above 53.49 l/p/d = **333.24 l/d**

(No bath i.e. shower-only would reduce water consumption from 53.49 l/p/d to 41.95 l/p/d, however the higher figure has been used as a worst-case)

(See next page for detailed RWH calcs)

Rainwater Harvesting Demand

The Horsham DC guidance confirms that rainwater harvesting has the potential to save significant amounts of water e.g. for flushing the toilet and externally in the garden.

The Waterwise link (recommended by Horsham DC) confirms that harvested rainwater can be used within a building (for toilets and washing machines) or for irrigation of gardens.

The Part G Calculator on the previous page itemises demand for rainwater harvesting as follows:

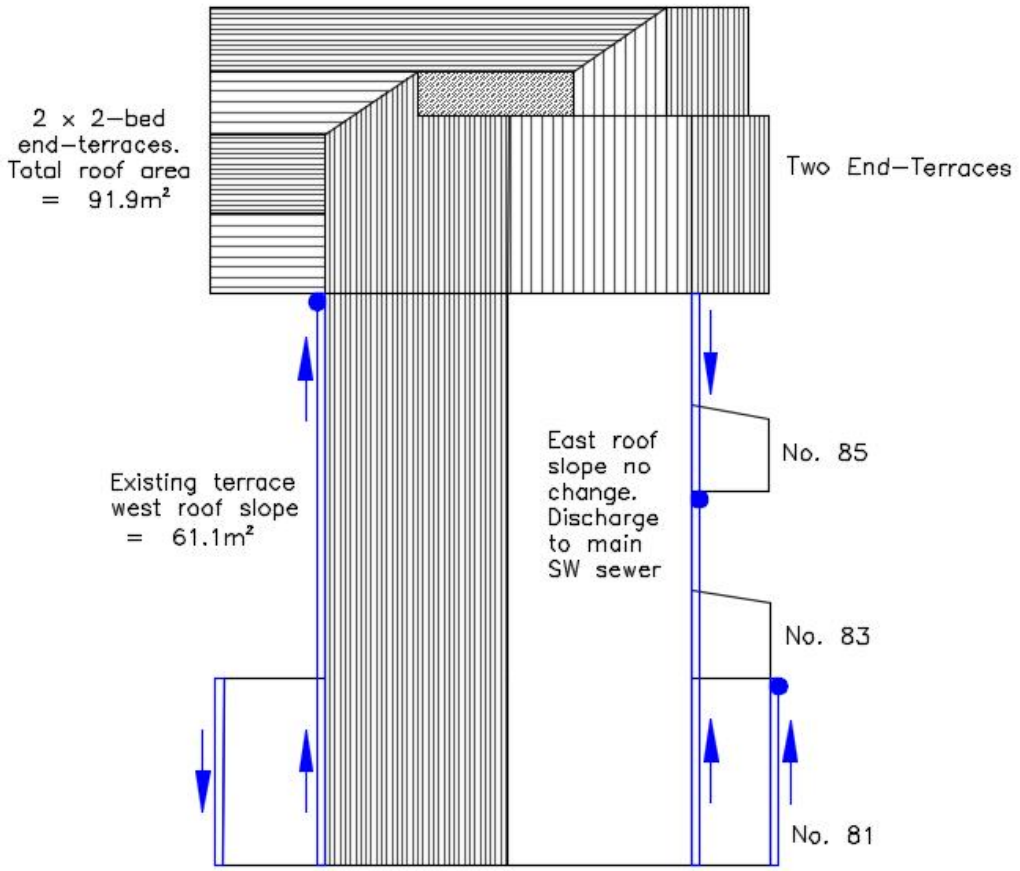
- 17.68 l/p/d for all WCs
- 12.60 l/p/d for washing machines
- 5.0 l/p/d for external water use (gardens, car washing etc)
- 35.28 l/p/d total demand

The Part G Calculator focuses on internal water use (Wat 1). However the fixed allowance of 5 l/p/d is added for external use (Wat 2).

Waterwise, DCLG and BRE have all confirmed that rainwater harvesting can qualify for external water use (Wat 2) as long as there is a 5 l/p/d surplus of rainfall collection/storage (over and above the demand for rainwater from internal fittings).

Roof Collection Area

Both new-build options (2 x 2-bed end-terraces, or 2 x 2-bed semis) have similar roof areas. The below plan shows that 153m² of roof area can be used for rainwater harvesting with no modifications to existing downpipes:



Yield/Runoff Coefficient and Filter Efficiency

Waterwise recommends that the following percentages are applied to reflect rainwater losses:

- Yield/runoff coefficient = 90% (only applicable to pitched roofs with tiles)
- Filter efficiency = 90%

By multiplying both of the above percentages, harvestable rainwater (after losses) is 81%.

Average Rainfall

The Met Office website confirms that the nearest climate station to Southwater is North Heath. The below table illustrates average annual rainfall at this location is 858.7mm:

North Heath

Location: 50.99321, -0.47659 **Altitude:** 21 m above mean sea level **Station type:** Observing Site

Average tables | Average graphs | Location comparison | Average maps

Climate period: 1991-2020

Station: North Heath

Month	Maximum temperature (°C)	Minimum temperature (°C)	Days of air frost (days)	Sunshine (hours)	Rainfall (mm)	Days of rainfall ≥1 mm (days)	Monthly mean wind speed at 10 m (knots)
Annual	15.50	6.39	–	1621.25	858.70	–	–

Occupancy Figures

Rainwater harvesting will supply the two 2-bed new-builds (2 x 1.88 occupancy) and the existing 3-bed end-terrace (2.47 occupancy). This gives a total occupancy of 6.23.

Rainwater Collection Calculation

Inputting all of the above figures into table A5.1 from Building Regs Part G gives the following results:

Collection area (m²)	Yield coefficient & filter efficiency	Rainfall average (mm/year)	Daily rainwater collection (litres)	Number of occupants	**Daily rainwater per person (litres)**
153	0.81	858.7	291.56	6.23	**46.80**

Rainwater collection (46.80 l/p/d) would easily be able to satisfy the internal and external demand (35.28 l/p/d). Therefore rainwater harvesting (and the Part G calculator on page 3) are credible and deliverable.

Rainwater Storage and Drought

Waterwise confirm as a general rule that storage tanks should be sized to hold 18 days (5%) of annual rainwater demand. Some tank manufacturers recommend using 21 days, but Natural England have requested 35 days (for extremely robust drought protection).

The below calculations use the robust 35 day allowance:
Tank size = 35 days x 35.28 l/p/d demand x 6.23 occupancy = **7,693 litres**

The below 7,500 litre system would be suitable, in conjunction with 2 x 100 litre water butts (to assist with irrigation of the two new-build gardens). This will provide a total of **7,700 litres** delivering an extremely generous 35 days of drought protection.

F-LINE 7500 LITRE GRAVITY FEED SYSTEM

Home / Rainwater Systems / Below Ground Systems / Gravity Feed / F-Line 7500 Litre Gravity Feed Syst



PRODUCT DESCRIPTION

[redacted]

Ex VAT

F-Line Flat Tank 7500 litre rainwater harvesting system with Rain Director® DUK4. The unique F-Line flat tank, supplied complete as a kit for use as a home and garden rainwater harvesting system. Collect, filter, store and pump for your valuable garden plants and to flush toilets. **Mainland UK delivery included**

.

Trade and Self Build discounts available. Call 01733 405111 Option 1

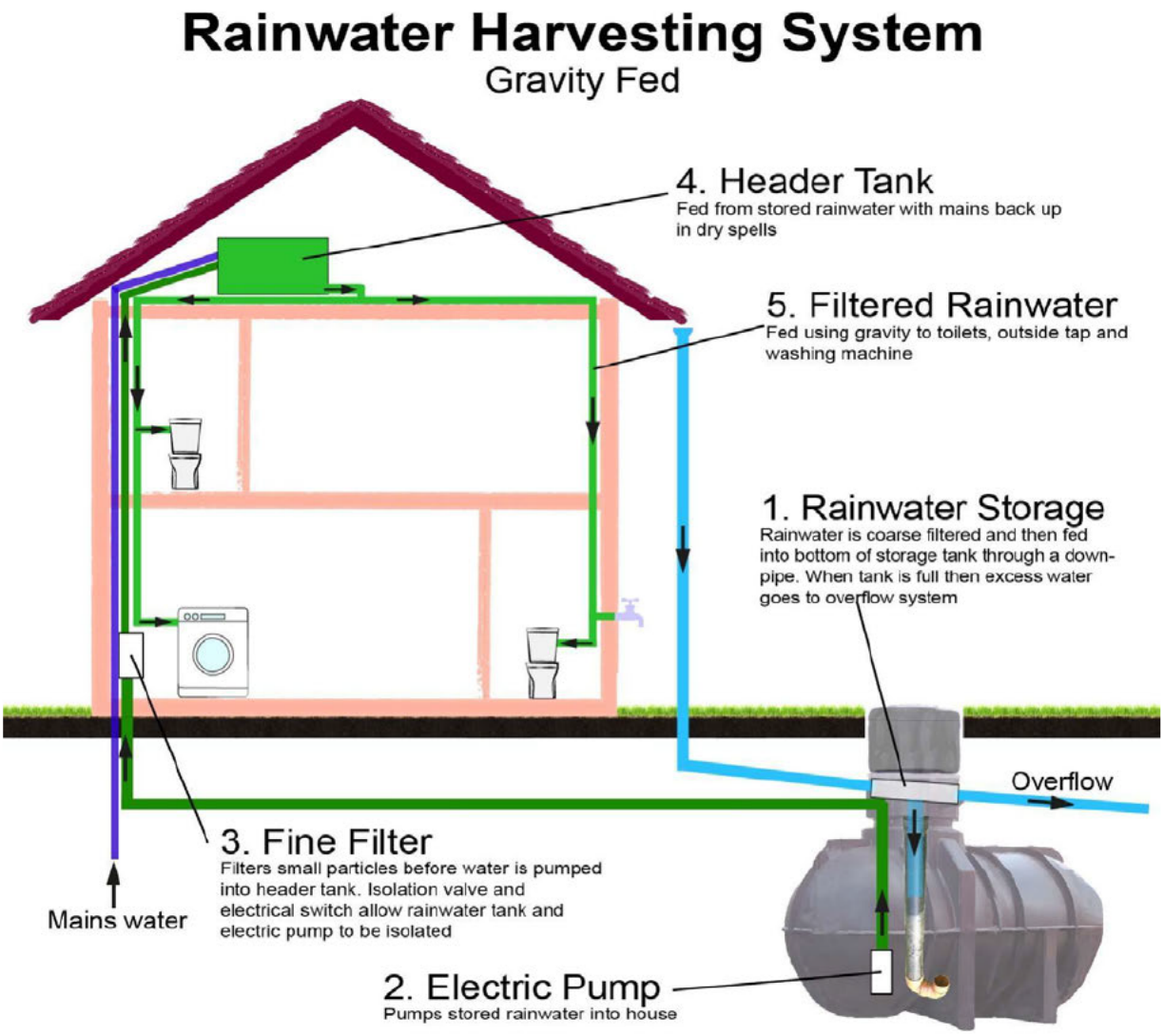
The above 7,500 litre system is a complete package including tank filter, submersible pump, loft header tank, and control panel. Other advantages of the Waterwise approved system include the high strength storage tank (with no requirement for a concrete surround), a 25 year manufacturer guarantee, and a shallow excavation depth of 1.5m (overall dimensions 3.3m x 2.3m x 1.4m deep).

Example Rainwater Harvesting System

The diagram on the next page shows an example rainwater harvesting system in operation. This includes storage tank, pump, filter and header tank. There are two differences between the diagram and the proposed system at 85 Timber Mill:

1. The diagram shows a traditional cylindrical storage tank (not a shallow flat tank system).

2. The F-Line 7,500 system has a fine-filter inside the storage tank which can be easily removed for cleaning / maintenance. This negates the need for the additional fine-filter shown within the building in the below diagram:



Example 100 Litre Water Butt (two to be provided, one for each new-build)



100Ltr Water Butt Kit

[redacted]

No reviews

In Stock

As seen in the Beautiful Gardens Magazine

includes tap, stand and diverter

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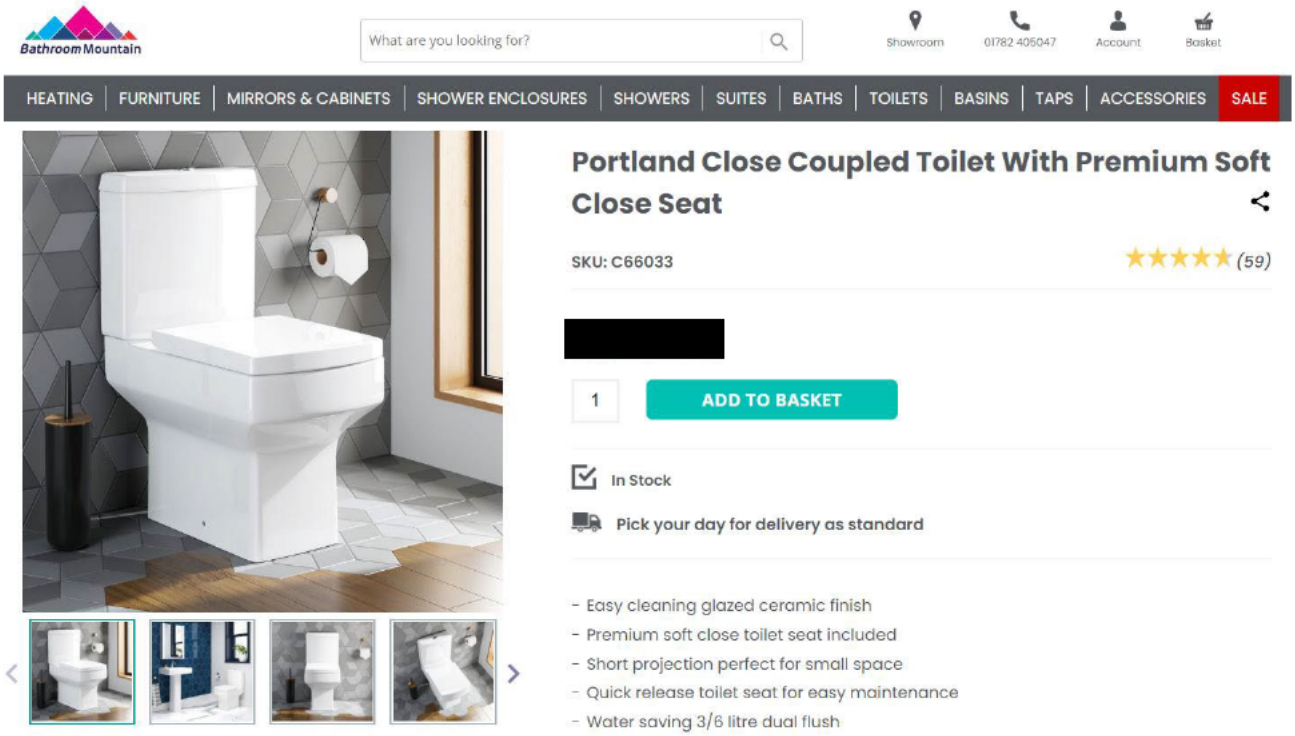
Next Working Day Delivery - Order Before 2pm Mon-Fri* (*t&c's apply) - Excluding Garden Furniture

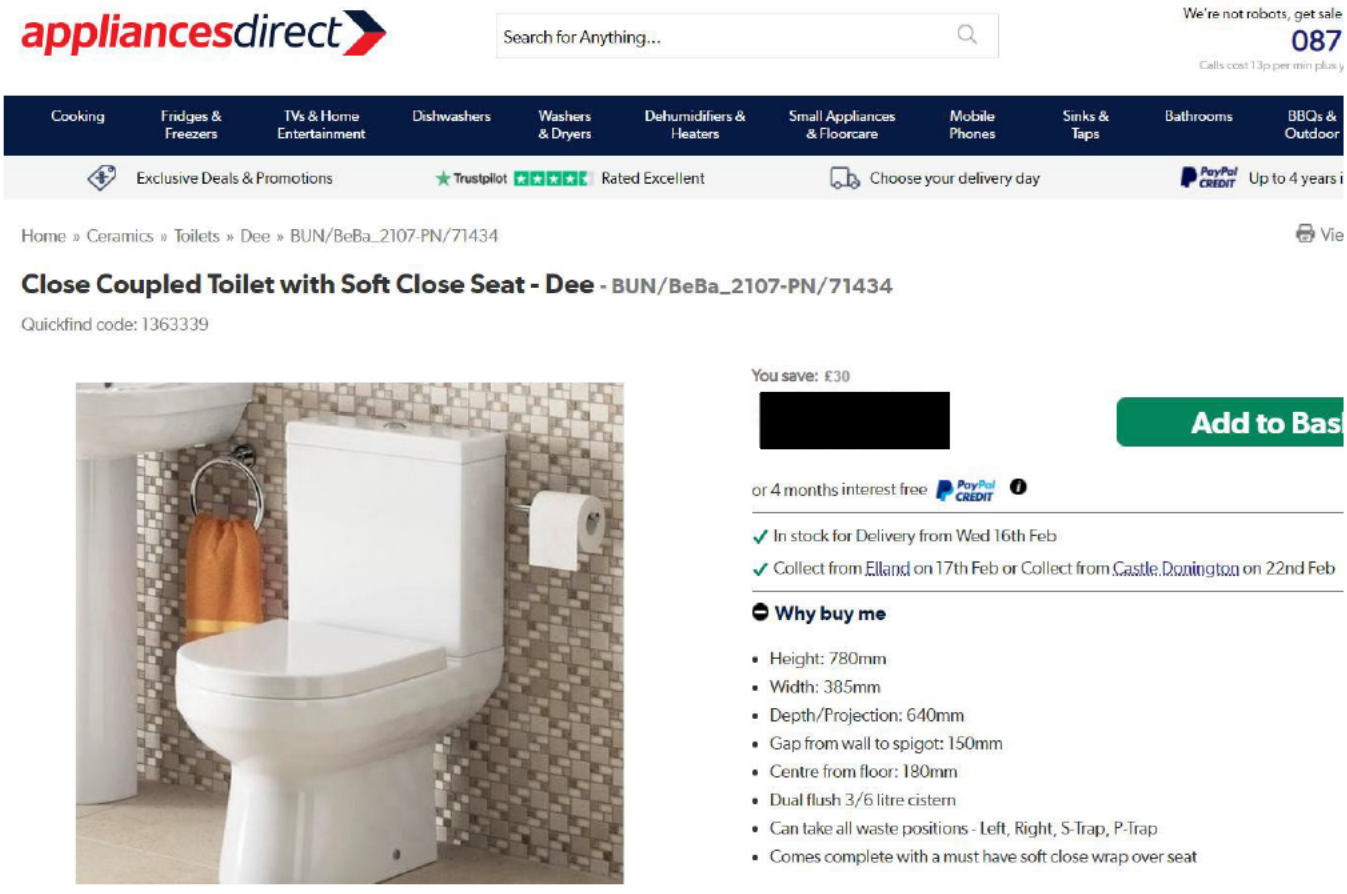
Examples of fixtures/appliances that comply with the Part G calculator on page 3

Note that actual fittings to be used will depend on prices/availability during the construction phase.

WC (4 litre average flush)

Breeam guidance confirms that effective flush volume for a dual flush toilet is the average of 1 full flush plus 2 reduced flushes. A 6/3 dual flush toilet would deliver a 4 litre average flush volume. Suitable examples are shown below:





Alternatively, given Breeam confirms a baseline flush volume of 6 litres, a cheaper option (only suitable for retrofitting an existing toilet) would be the below 2 litre water saving cistern bag:

lowenergysupermarket
'We make it easy for you to go green, save energy and save money'

Trustpilot

My Account Checkout Search for...

Home Lighting Water Saving Heating Draught Proofing & Insulation Energy Saving + EV Renewable Energy Help & Advice Blog

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Home » Water Saving » Bathroom Water Saving » Toilet Cistern Tank Water Saving Bag



Toilet Cistern Tank Water Saving Bag

[redacted]

The toilet cistern water saver is a simple, proven and low cost water saving device to help conserve water in toilet cisterns.

4191 in stock

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NO PAYPAL ACCOUNT NEEDED!

Bathroom / WC taps (4 litres/min)

Most sink and basin taps can easily be restricted to 4 litres/minute by fitting the below readily available flow limiters:

Call Us Mon - Fri 9:00 am - 5:00 pm 0843 658 0062 or 01342 321121

tapstore.com

ACCOUNT CART

Search entire store here...

HOME BATHROOM TAPS KITCHEN TAPS KITCHEN SINKS SHOWERS PUMPS WASTES & TRAPS ACCESSORIES HEATING

HOME / BASIN/PILLAR TAP FLOW LIMITERS 4 LITRES PER MINUTE (PAIR)



BASIN/PILLAR TAP FLOW LIMITERS 4 LITRES PER MINUTE (PAIR)

Product Code : TAP4L

Delivery: 2-3 Working Days [redacted]

4 litre per minute flow limiter. Can be fitted to most Sink and Basin taps. A 15mm compression fitting will be required for each limiter when fitting to Basin Mixers and Kitchen Mixers.

Qty: 1 ADD TO CART

Add to Wishlist | Add to Compare

RELATED PRODUCTS

Check items to add to the cart or select all

Bath (160 litres)

160 litre capacity baths are readily available. See below examples:

Free Delivery on Selected Items

0

snh

Home / Bathrooms / Baths / 1700 x 700 Pura Wave Single Ended Bath SuperSpec



1700 x 700 Pura Wave Single Ended Bath SuperSpec

Delivery
1-2 working days

pura BATHROOMS

[redacted]

In stock

0

Description | **Additional Information** | **Reviews (0)** | **Pallet Delivery**

Pura Bath Specification:

- Height – 380 mm
- Width – 700 mm
- Length – 1700 mm
- Includes Leg Pack
- Upto 30mm on the base of the bath
- Finish – White Acrylic
- Made in the UK
- 7 Added Reinforced Fibre glass layers of resin bonding.
- Reinforced Timber Framed trims
- Fully Encapsulated
- 160 Litre Capacity
- Warranty – 25 Years

CLASSIC BATHS

iflo single ended baths are suitable for use with any iflo suite thanks to their classic appeal.



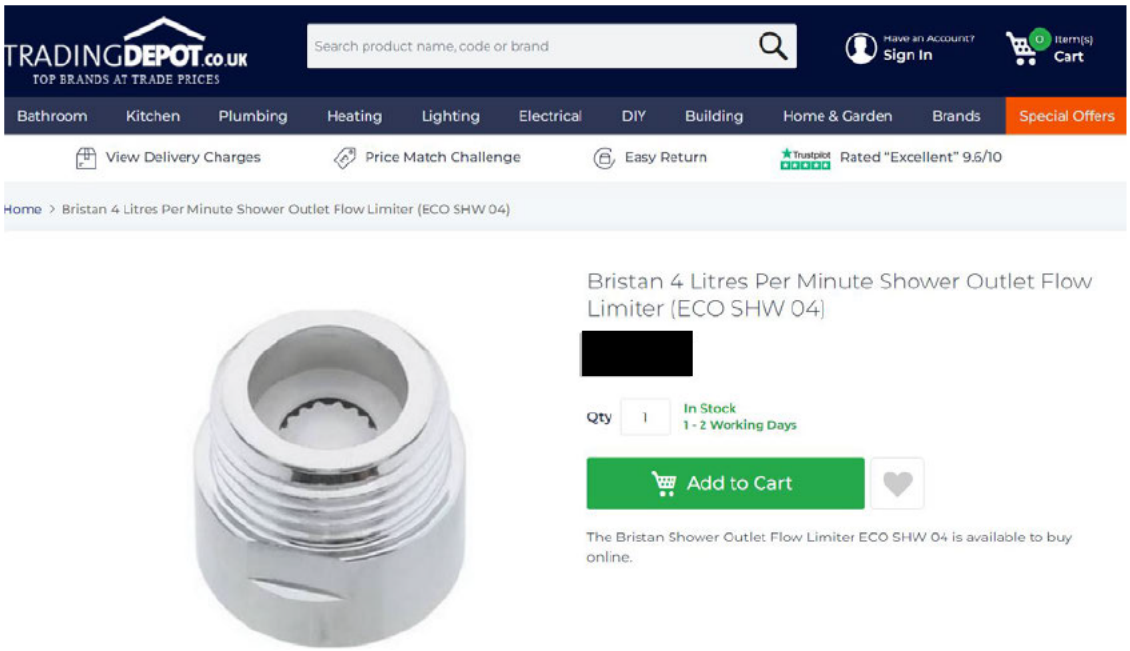
iflo Breton Bath

- Made from 5mm acrylic with timber rim reinforcement
- Fully encapsulated base board for additional rigidity

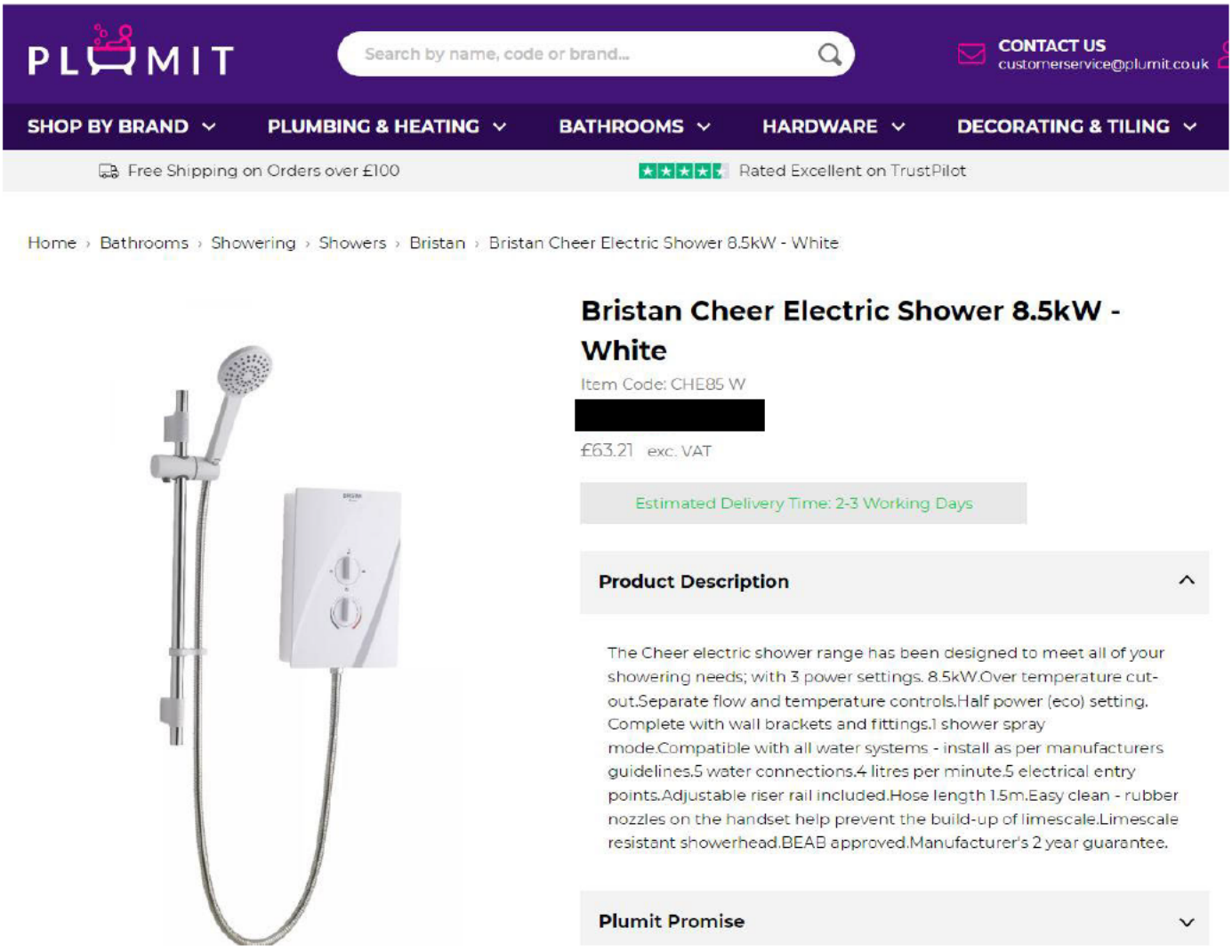
Code	Description	Capacity	Price	
888919	1500 x 700mm - 0TH	150L	[redacted]	✓
888918	1600 x 700mm - 0TH	160L		✓
888912	1700 x 700mm - 0TH	175L		✓
888916	1700 x 750mm - 0TH	185L		✓
359414	Front Panel 1500 x 510mm			✓
359416	Front Panel 1600 x 510mm			✓
359418	Front Panel 1700 x 510mm			✓
359415	End Panel 700 x 510mm			✓
888933	End Panel 750 x 510mm			✓

Shower (4 litres/min)

Many showers can easily be restricted to 4 litres/minute by fitting the below readily available flow limiter:

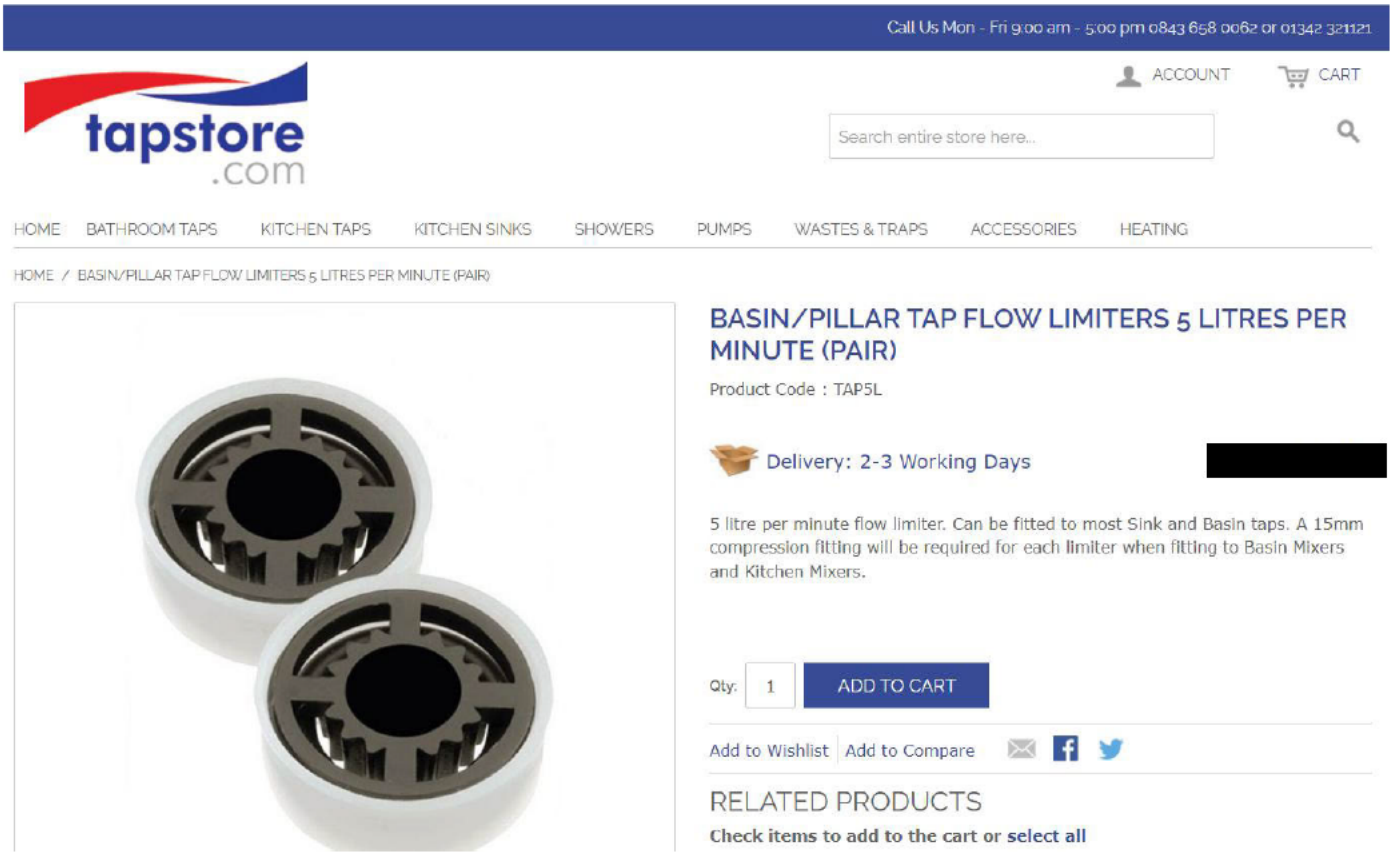


There are numerous showers on the market that operate at 4 litres/minute or less. See below cheap example:



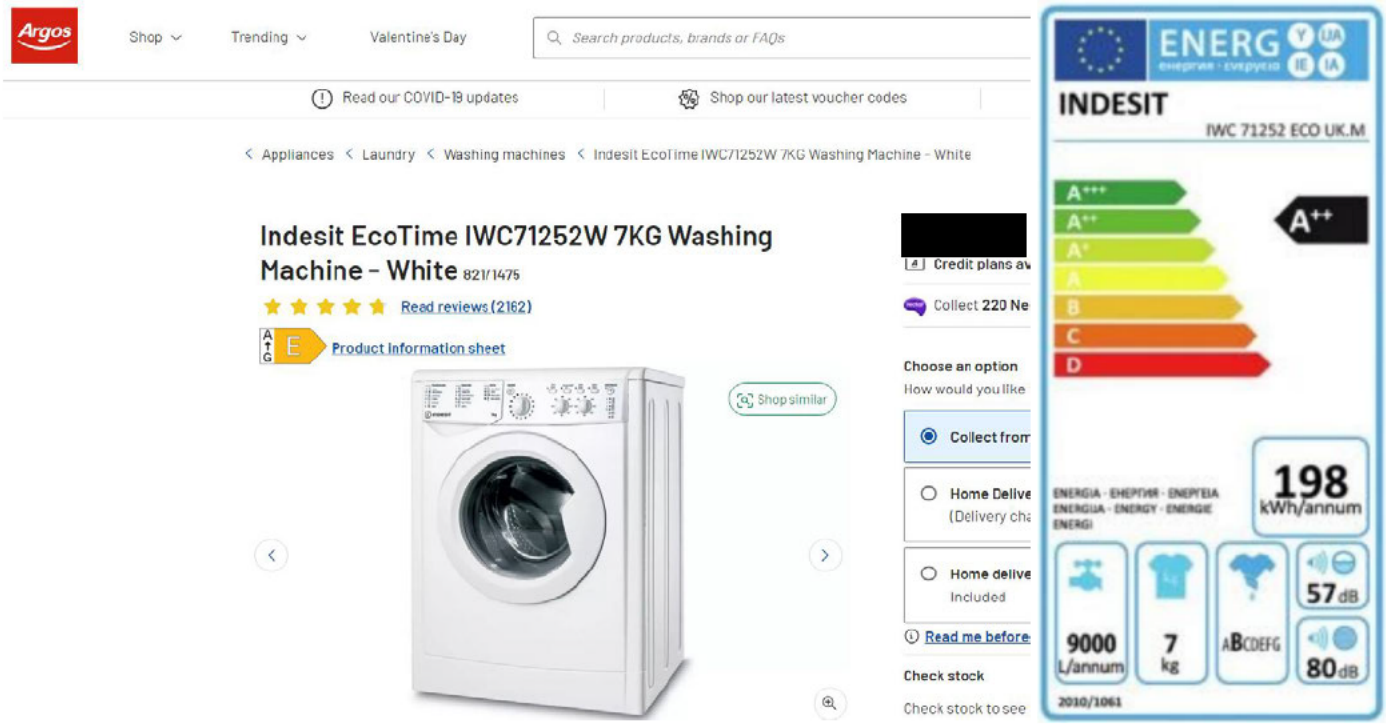
Kitchen / utility taps (5 litres/min)

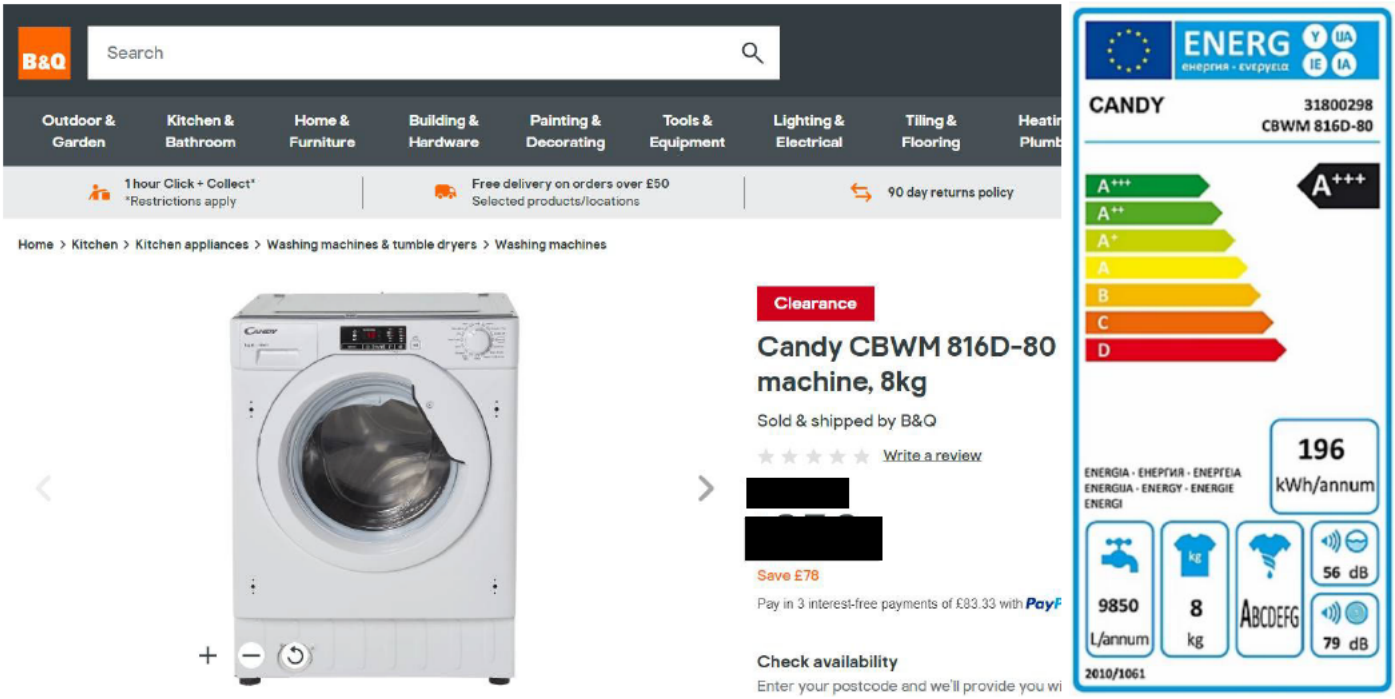
Most mixer taps can easily be restricted to 5 litres/minute by fitting the below readily available flow limiters:



Washing machine (6 litres/kg)

Modern washing machines can easily operate with less than 6 litres of water per kilogram dry load. The calculation using the energy label = annual water / 220 uses / kg capacity. See below cheap examples:



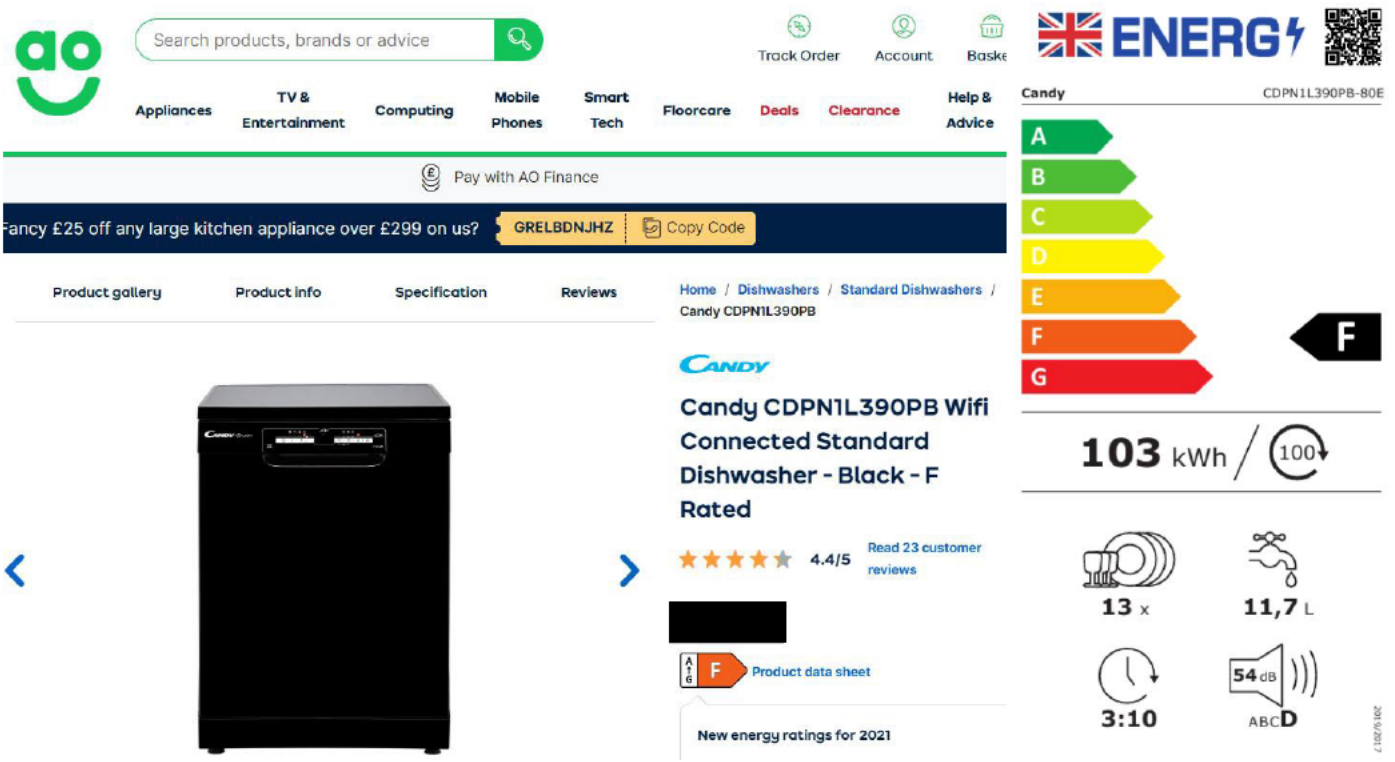


Dishwasher (0.9 litres/place setting)

Modern dishwashers can easily operate with less than 0.9 litres of water per place setting. The calculation using the energy label is either:

- Water per load / place settings, or
- Annual water / 280 uses / place settings.

See below cheap examples:



Menu Stores B&Q Search

Home > Kitchen > Kitchen appliances > Dishwashers



Hotpoint FDYB 10011 G Freestanding Grey Full size Dishwasher

Sold & shipped by B&Q

Write a review

[redacted]

Pay in 3 interest-free payments of £86.33 with PayPal. Learn more

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