



D3.3 – Updated Topten HACKS Criteria Paper Taps & Shower Heads



Picture 1: Different types of taps and shower heads (Source: Topten.ch, 2022)

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European portal www.topten.eu/hacks

Project partners and websites

Austria, AEA
www.topprodukte.at

Germany, co2online
www.co2online.de

Norway, Naturvernforbund
www.energismart.no/

Sweden, SSNC
www.toptenverige.se

Belgium, GoodPlanet
www.topten.be

Italy, Eliante
www.topten.it

Poland, FEWE
www.topten.info.pl

Switzerland, Bush Energie
www.topten.ch

Czech Republic, SEVEN
www.usporiespotrebice.cz

Lithuania, LNCF
www.ecotopten.lt/

Portugal, Quercus
www.topten.pt

UK, EST
www.toptenuk.org

France, Guide Topten
www.guidetopten.fr

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www.oekotopten.lu

Spain, ECODES
www.eurotopten.es/

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About HACKS

The objective of the Heating and Cooling Knowhow and Solutions (HACKS) project is to achieve market transformation for heating and cooling (HAC) appliances and improve comfort and health of European citizens.

Across the EU almost half of all buildings have individual boilers that were installed before 1992 with efficiency of 60% or less. The expected energy savings from a speedy replacement are immense.

To achieve this goal, 17 HACKS partners in 15 countries are working together, thanks to the financial support of the European Horizon 2020 programme.

After scanning market actors, current policies and most commonly used products in each country, starting from April 2020 the HACKS partners will implement involvement campaigns to raise awareness of the economic and environmental benefits brought by good HAC products and solutions:

- HACKS will motivate households equipped with old and inefficient devices – boilers, water heaters, air conditioners, certain types of boilers and stoves, etc. – to replace them with new super efficient equipment.
- In each country, partners will set-up dedicated on-line platforms to assist consumers in their purchasing process. The platforms will propose: tools to assess households' needs and provide customised information; best product lists with technical specifications; direct links to suppliers of most efficient products; and advice on how to use and maintain equipment.
- For those households who need to improve their situation because they feel too hot, too cold, or too humid but who cannot invest in new equipment or can avoid getting equipped, HACKS will propose simple and low costs solutions. It is possible to reduce energy consumption and energy bills while improving winter and summer comfort, air quality and health conditions through the installation of shading devices, thermostats, water saving taps and showerheads, etc.

Beyond households, HACKS will target all relevant stakeholders (“multipliers”) that participate in the decision-making process of consumers by setting up strategic partnerships to facilitate the purchase of energy efficient appliances. HACKS places a strong emphasis on installers but also retailers and consumer organisations because of their proximity to consumers, their capacity to involve them and bring them guidance on energy efficient equipment.

More information on the HACKS project can be found at www.topten.eu/hacks



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Executive summary

With the Criteria Papers the intention is to be able to identify and select the most energy efficient models available on the market. The primary objective is to help project partners on their territory for their Topten and HACKS website, but the technical content may also support anyone willing to find good products from an environmental point of view.

This document provides an overview on energy efficient taps and shower heads, the voluntary Unified Water Label that covers these products and the market development of taps and shower heads in the European Union. Energy efficient taps and shower heads not only significantly reduce water consumption, but by lowering hot water demand, they can also decrease the hot water related energy consumption of a household by up to 50%.

Various technologies exist to limit flow rates and water temperature without negatively impacting user comfort. The most commonly implemented are flow integrated or external regulators as well as resistance levers. An overview of efficient flow rates as well as limits to energy efficiency due to functionality requirements is given.

This document presents and explains best product selection criteria and gives an overview of currently listed products on the Topten websites. It details a method to gather data in case the reader would like to set up a national product list and the type of information that can be collected.

Finally, the paper also includes information that can be integrated in consumer recommendations on purchase, tips on user behaviour patterns and system considerations.

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1 Topten.eu: Taps & Shower Heads – current selection criteria and products selected

1.1 Scope

Sanitary products provide water supply and disposal in all European households for human consumption, cleaning and bathroom functionalities. Appliances are available in a large range of designs and they provide different water temperatures and flowrates. A voluntary Unified Water Label¹ provides product information for the following categories: baths, toilet suites, cisterns, basin taps, shower controls, shower handsets, great water recycling units, kitchen taps, urinal controllers, electric showers, replacement toilet flushing devices, supply line flow regulators, independent toilet pans.

In addition to reducing a household's yearly water consumption, efficient sanitary products contribute significantly to the reduction of its energy consumption as hot water is generated within the house. For the HACKS project, Topten focuses on showerheads, kitchen and bathroom taps as well as flow regulators as they represent the most relevant market segments for domestic use.

1.2 Selection Criteria on Topten.eu

All products listed on Topten.eu fulfil the following criteria:

- Dark green arrow according to the Unified Water Label
- Listed on the official [product database](#) of the Unified Water Label
- A photo of the product must be included in the product database
- Available on the European market

1.3 Expected selection criteria at project end

Topten has considered additional criteria that can be established to identify the most efficient products within the products in the top efficiency range (dark green arrow). A practical additional technical criteria would be the default setting of cold water when the lever is in the middle position for mixer taps; however, this information is rarely included in product specifications or data sheets, resulting in mostly empty lists. As a result, Topten will focus on emphasizing the value of the Unified Water Label to retailers and manufacturers – as the label is voluntary, many retailers do not yet use it.

1.4 Best available products

In January 2022, there were 81 models of 15 different brands on the Topten.eu product list from the following brand names: AKW, Altecnic Ltd., Ceramics, Delabie SCS, Duravit, E.C.A., Griferias, Hansa, Hansgrohe SE, Huber Cisal, IKEA, La Torre srl., Roca Sanitario S.A., Sanitana, VADO. Of those products, 12 models can be used in kitchens, 62 are destined for washbasins, 5 for showers, 3 for bathtubs and 8 for bidets. The products have certain special characteristics such as one handle mixers (51), two handle mixers (4), automatic sensors (13), economy sprinklers (5), quantity stops (5) or specifications as internal flow regulators (3).

Table 1: Numbers of taps, shower heads and flow regulators models currently on Topten.eu with dark green arrow according to the manufacturer initiative Unified Water Label in January 2022 (in brackets: April 2020)

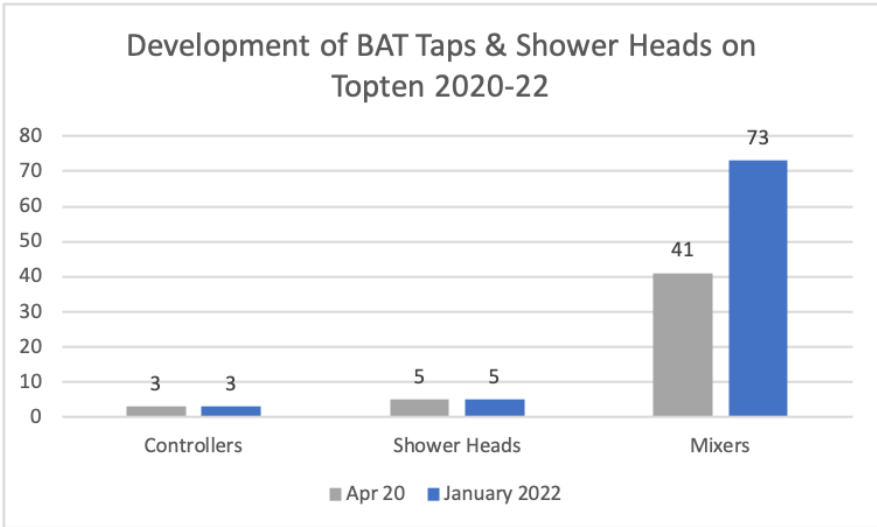
	A
Mixers	73 (41)
Shower heads	5 (5)
Controllers	3 (3)
Total	81 (49)

Source: Topten.eu

¹ The Unified Water Label is a voluntary scheme set up by the European Bathroom industry. <http://www.europeanwaterlabel.eu/>

Similar models that are from the same brand have not been counted. Products without product images are not displayed on Topten as design is one of the main criteria for consumers.

Figure 1: The development of Taps & Shower Heads on Topten from 2020-22 shows significant increases for mixer types while no increases for other types



Source: Topten.eu

The development of BAT products in this category from 2020 to 2022 shows a significant increase in dark green arrow models for the mixers but no increases at all for flow-controllers or shower heads. As the label is voluntary, it is not clear if no more shower heads exist that fulfil the dark green criteria or if they are simply not listed in the database.

New is the number of mixers with automatic sensors amongst the dark green arrow mixers, possibly in response to increased interest in non-contact solutions in public places due to the pandemic. The number of manufacturers offering dark green arrow models has increased from 10 to 15.

1.5 Technical Background

The main types of taps and shower heads considered in the HACKS project are defined as follows²:

Mixer

Mixers allow for a continuous flow and heat settings. They are used for wash basins in bathrooms, kitchen sinks and showers. Typical types are single lever mixers (a), two handle mixers (b) or automatic sensor faucets (c).



a) Single lever mixer

Most common type of mixers. Flow and heat settings can be regulated simultaneously through one single lever. The product is designed differently if used for a basin or a shower.

b) Two handle mixer

One handle regulates the hot water flow and the other the cold water flow. Users need to operate both to achieve the desired temperature and flow. Variation: Thermostatic mixer where one sides regulates temperature, the other regulates flow.

c) Automatic sensor faucets

An integrated proximity sensor turns the water on and off. Temperature settings are pre-set by the installer. Due to their contactless nature and automatic turn-off function, automatic sensor faucets are often used in public locations (e.g. public transport bathrooms, restaurants).



Kitchen Tap

Variation of regular mixers. A common additional feature is the extractable flexible hose, usually in combination with a single lever mixer. Alternative names: pull-out faucet, spray-function faucet.



Shower Head

Handheld or installed as part of the shower that includes the water outlet. The shower head can be outfitted with various flow regulators. Often, different settings can be chosen according to user comfort preference.



Flow regulator / controller

Flow regulators are added to mixers or shower fixtures to reduce the water flow. They can be installed between the fitting and hose or at the outlet of the tap. Regulators can be installed either **externally** (a) or **internally** (b).

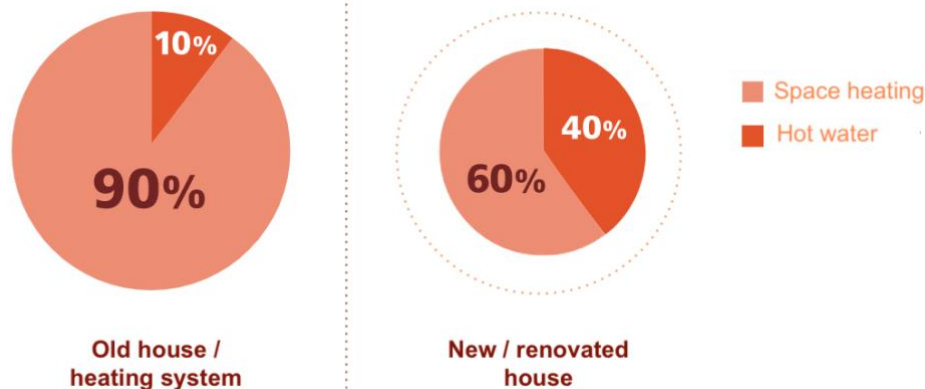
1.5.1 Saving potential and efficiency features

The two main resources of taps and shower heads which are consumed are water and energy. While the water supply and wastewater treatment only accounts for $\sim 2.6 \text{ kWh/m}^3$, the main energy consumption lies in the hot water production. While for old houses with an old heating system the energy consumption for the hot water supply only amounts to 10% of the overall energy consumption, in new or renovated houses, with a lower overall consumption, hot water production accounts for 40% of the household's energy consumption (see Figure 2).

The total water consumption and hence energy consumption is heavily influenced by the user's behavior and the hot water heating systems, nevertheless the hot water saving potential through the product choice is 50% (between 30%-70% depending on product type). For a new or renovated house that means that 20% of overall heating-related energy consumption can be saved through installing best available technologies.

² Image source: https://www.topten.ch/private/products/taps_and_showers (Sept. 2019)

Figure 2: Share of water heating in the heat-related total energy consumption



Source: <https://www.etiquetteenergie-sanitaire.ch/Informationen>

Various technologies and approaches are used to maximize the energy efficiency. Limiting water flow or temperature are the most common and can be achieved through different technologies.

Automatic sensor faucets: The energy efficiency potential lies in the automatic switch-off. Efficient products should automatically deactivate the water flow less than 2 seconds after removal of the sensor input. Other models activate only for a set number of seconds after initial sensor input. The fact that the user cannot adjust the water temperature is another advantage. Settings for water flow strength and time can save up to 70 % of the total water consumption.

Flow regulators: Flow regulators are either already integrated into the faucet (internal) or can be retrofitted (see Figure 3). The associated water saving can be as high as 30%. Flow regulators can be installed on taps, shower heads, shower armatures and bath taps. However, products should not be outfitted with several flow regulators at once; otherwise the comfort and functionality can be compromised.

Figure 3: External flow regulator on mixer



Source: <https://www.etiquetteenergie-sanitaire.ch/Informationen>

For shower heads, flow regulators can be integrated with the following technologies³:



Shower head with integrated flow regulator: The flow regulator/ limiter is permanently integrated in the shower head. This reduces the hot water consumption by up to 50% without loss of comfort.

Shower head with air intake: A nozzle in the shower accelerates the water by sucking in air and mixing it with the water jet. Depending on the ratio of air to water, this can influence the perceived “harshness” of the water stream and the user comfort (positive or negative depending on user preferences). This results in 50% less hot water consumption.

³ Source of image and content: <https://www.etiquetteenergie-sanitaire.ch/Informationen>



Shower head with eco-jet: By simply turning the shower head, users can switch between normal jet and eco jet. Some models offer more than two settings to account for different user preferences. The hot water saving is up to 50%.

Shower head with economy button: Similar to the eco-jet in effect but using a different technology; with the economy button on the shower handle, the hot water flow can be continuously reduced by up to 50%.

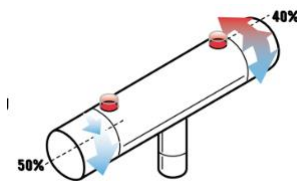
Flow regulator on shower mixer / armature: Flow regulators can be inserted in between the shower fitting and the hose. They reduce the hot water consumption by up to 50%. This solution cannot be used with instantaneous water heaters or pressureless water heaters.

Note: independently of individual user comfort preferences, a maximum water flow of 9 litres per minute is recommended for the shower. Efficient appliances consume roughly between 4 and 6 litres per minute. With current technologies, a flow rate of less than 4 litres per minute is likely to impair functionality and user comfort.

Figure 4: Resistance lever with a saving zone

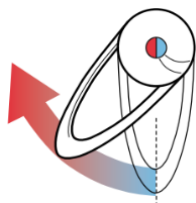


Figure 5: Resistance fitting with a “lock” button.



Source: <https://www.etiquetteenergie-sanitaire.ch/Informationen>

Figure 6: Mixer with cold water setting in the middle lever position



Source: <https://www.etiquetteenergie-sanitaire.ch/Informationen>

Resistance levers: include inbuilt “quantity breaks” and “hot water breaks” create noticeable resistance when moving the lever over the savings zones (Figure 4) or have to be overridden through pressing the “lock” button (Figure 5). These technologies exist in models for basin and kitchen taps as well as shower fittings. An additional advantage of resistance levers is that they simultaneously serve as child-proofing device.

Common safety zone thresholds are 50% of the water flow and 40°C for the temperature.

Resistance levers and switchable eco-functions allow users to increase flow and temperature when necessary – for example in the kitchen – while operating under efficient conditions the rest of the time.

Cold water in the middle lever position: as most users use the middle lever position as default setting, this feature means that no hot water is pulled up for short isolated uses, e.g. washing of hands.

1.6 Market in the EU

The 2013 Technical Background Report on Green Public Procurement for Sanitary Tapware provided total stock numbers for the EU27 region with a forecast until 2020. The study did not take into account the addition of Croatia in 2013 or the 2020 Brexit.

Figure 7: Stock of taps and showers in the domestic sector in EU 27

Stock of	2005	2007	2012	2015	2020
	in million units				
Taps	951.14	997.3	1'113.6	1'193.0	1'357.7
Shower	240.7	246.3	253.7	274.2	337.0

Source: Topten, based on JRC 2013

In their 2013 study on taps and shower, JRC estimates that an apartment in the EU has an average of 4.5 taps while for houses, this average is estimated at 5.5 taps (JRC, 2013). In both household types the estimated average number of showers is 1.25 (see Figure 8). The lifetime of a product that is intended for domestic use, as is the focus of HACKS, is 16 years for taps and 10 years for shower heads (see Figure 9).

Figure 8: Average number of taps and showers per 100 apartments and houses Figure 9: Average product life of taps and shower heads

	Apartment	House
Average number of taps	450	550
Average number of showers	125	125

Source: JRC, 2013

	Taps (years)	Showers (years)
Domestic dwelling	16	10
Non-domestic sector	10	7

Source: JRC, 2013

The 2014 preparatory study on taps and showers provided indicative scenarios for possible market developments, aiming for an average water consumption of 5-6 l/min under normal conditions of use as best scenario (JRC, 2014).

Figure 10: Indicative scenarios defined with stakeholders for the water consumption in taps and shower heads (baseline is business-as-usual, "actual" refers to the current consumption)

	Baseline	Best scenario	Worst scenario
Baths	185 L (50% actual)	155 L (40% actual)	200 L (60% actual)
Showers	10 L/min	6 L/min	14 L/min
Washbasin taps	8 L/min	5 L/min	10 L/min
Kitchen taps	8 L/min	5 L/min	11 L/min

Note: values are considered to express flow of water in normal conditions of use.

Source: Preparatory study for taps and showers, JRC 2014

2 Policy measures, standards and labels (Taps & Shower Heads)

2.1 Existing regulations (European and national)

There are currently no mandatory minimum requirements or energy label in place for taps and shower heads. However, the final version of the voluntary Unified Water Label is in use since 2018 and various preparatory studies and GPP (green public procurement) guidelines exist, that provide further information on the market situation and saving potentials.

National markets have long relied on their own labels for various tapware product types (see Table 2). As long as the Unified Water Label remains voluntary, it is to be expected that the transition to this label will take time and that manufacturers and retailers will continue to rely on established voluntary national labels. However, as many national associations participated in the creation of the Unified Water Label, there is a certain degree of compatibility with national labels.

Table 2: Main labels for energy efficient sanitary tapware

Ecolabel	Austrian Ecolabel	Blue Angel	Swiss Energy Label	WEPLS	WELL	Water Sense	WELLS
Issued by	Austria	Germany	Switzerland	UK	EUnited	US	Australia
Kitchen taps	✓		✓	✓	✓	✓	✓
Basin taps	✓		✓	✓	✓		✓
Showerheads	✓	✓	✓	✓	✓	✓	✓

Source: GPP background report, JRC 2013, adjusted by Topten

2.2 Explanation of the Unified Water Label

The Unified Water Label is a private initiative by the European manufacturer association. While first versions of the Unified Water Label were established in 2012, the final version was brought together in 2018⁴ by the European Bathroom industry. The label is voluntary and manufacturers may decide to use it or not.

The current Unified Unified Water Label merged the previous version of the Unified Water Label with the Swiss, Swedish and Portuguese voluntary labels into one central label under the guidance of the European Bathroom Forum (EBF)⁵. The EBF seeks to establish their current voluntary label as official Voluntary Agreement through the EC⁶. In the current phase, the objective is to attain support from manufacturers to achieve an 80% market representation for taps and showers by March 2021, in order to demonstrate that the voluntary label is working⁷. The website of the Unified Water Label names 66 currently committed manufacturers in February 2022 though marking the “market share to be determined”; as such achievement of the goal of 80% market representation is currently not possible. There are calls from various market stakeholders and NGOs, either strongly supporting the scheme or strongly opposing a VA in favor of a mandatory European label. HACKS strongly advocates the introduction of a mandatory European Label to make sure that average and non-efficient models are also labelled and consumers can make truly informed decisions. A mandatory label would also be supported by official market surveillance measures and sanctions in accordance with other mandatory European labels, further increasing the effectiveness of the label significantly.

In order to establish the optimum solution for the European market, the EC has planned to order a critical review of existing methods by a third party and to adjust it for maximum effect. At such a time (not yet determined by the EC) HACKS will assess the feasibility of a re-scaling of the current class thresholds (most products in the database have dark green arrows) and of the inclusion of technical features to save more water and energy by influencing user behaviour; this could mean that class thresholds are not determined by flow rate alone but that only appliances with additional features such as cold water at middle lever position or only cold water settings for automatic sensor faucets in public locations can reach the dark green arrow. The results of this assessment will be made available to the EC as policy recommendation. Two clear recommendations will also be that the design of the label for taps and shower heads be in line with other official European labels to induce trust and recognition value with the consumers and to include the brand and model names on the label to prevent mix-ups.

The current voluntary Unified Water Label is based on self-declaration of product data tested according to European Standards; for mixer showers that is EN 1111 and/or EN 1287, for

⁴ http://www.europeanwaterlabel.eu/pdf/presentation_0418.pdf

⁵ The European Bathroom Forum (EBF) is a platform of 57 European manufacturers and nine economic bodies and trade associations from the bathroom furnishings sector, founded in 2017.

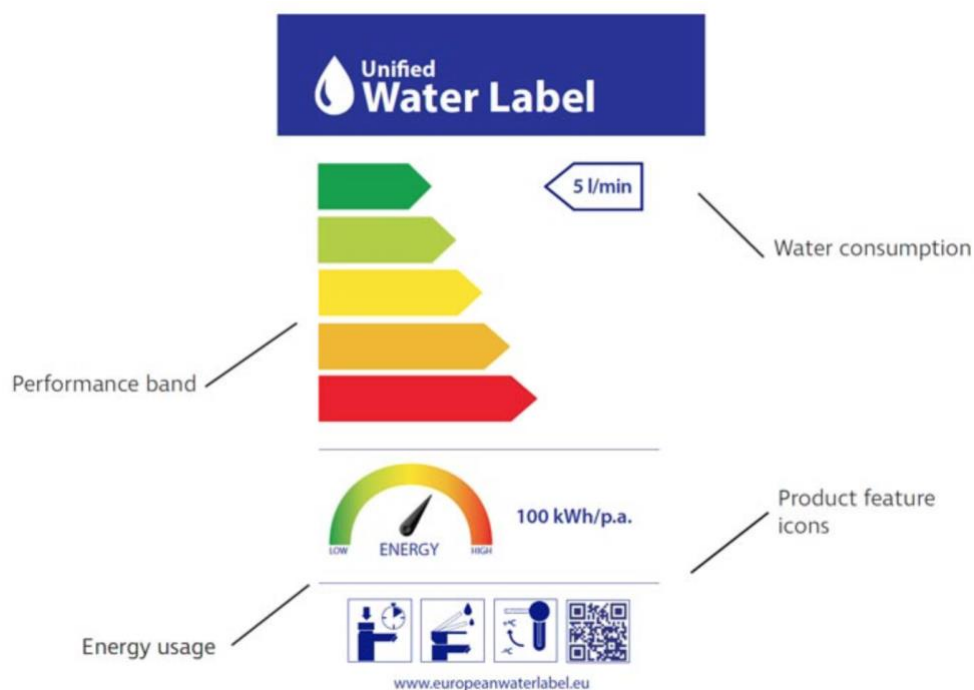
⁶ http://www.europeanwaterlabel.eu/pdf/UWL_ISH_c.pdf

⁷ <https://bathroom-association.org.uk/using-water-wisely-with-the-unified-water-label/>

shower outlets (shower heads) EN 1112 and for taps EN 200⁸. Participating manufacturers must sign a Declaration of Conformity, stating that the products comply with national and European safety regulations and CE marketing, and that they can be excluded from the programme if violations are discovered. In order to confirm compliance, the Unified Water Label has set an annual audit of 5% of the models to be undertaken by a third party.

The water label shows the product's performance band (not the name of efficiency class) on the left side with the product's water consumption being displayed in an arrow on the right. The annual energy consumption is shown below. At the bottom of the label, product features are shown as icons, followed by a QR code linking to the product information on the Unified Water Label database as well as the link to the official website of the Unified Water Label (see Figure 11).

Figure 11: Water label for a mixer tap showing the energy class through performance band, flow rate and annual energy consumption as well as technical features such as automatic switch-off and resistance lever



Source: Unified Water Label, 2018

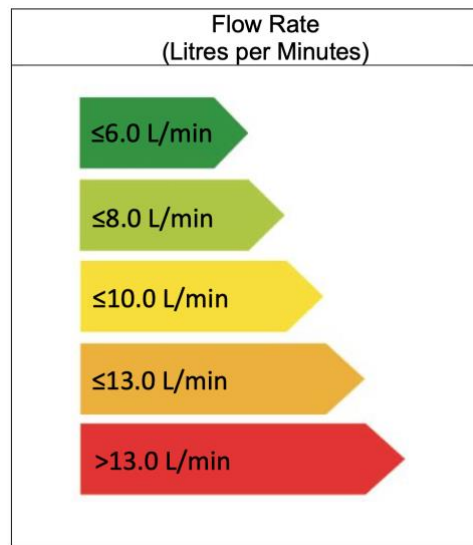
- Performance bands indicate the energy efficiency class of the product. The dark green arrow is most efficient while from the light green to the red arrows the efficiency declines.
- The water consumption is given in litre per minute and is positioned on the height of the product's energy class performance band.
- The annual energy consumption is calculated according to European Bathroom industry spreadsheets (<http://www.europeanwaterlabel.eu/energycalculation.asp>) and based on assumptions taken from the European Commission study into taps and showers task 3 (http://susproc.jrc.ec.europa.eu/taps_and_showers/docs/Task3_2ndTWG_v2.4.pdf). The assumptions about user behaviour and water temperatures are detailed in chapter **Error! Reference source not found.** of this document. Not taken into account for the calculations is the energy source.
- Icon showing product features are shown if applicable such as automatic faucets with a set switch-off time, resistance levers and cold water at middle lever position.

⁸ <http://www.europeanwaterlabel.eu/pdf/scheme-december2019.pdf>

2.3 Performance bands thresholds of the Unified Water Label

The performance bands of the Unified Water Label are based on the flow rate of the products. The class thresholds are the same for taps and shower heads.

Figure 12: Energy class thresholds of taps and shower heads by flow rate



Source: <http://www.europeanwaterlabel.eu/pdf/scheme-december2019.pdf>

Models that are submitted by manufacturers for the label must fulfill additional technical requirements that impact the comfort level for the user (Unified Water Label, 2019)⁹ on the ratio in between the lowest and highest flow rate as well as the pressure:

“The lowest flow rate shall not be less than 60 % of the maximum flow rate. Where the flow rate at the reference pressure 3 -0/+ 0.2 bar is ≤ 8.0 l/min the flow rate at the lower pressure 1.5 -0/+ 0.2 bar shall be ≥ 60 % of the maximum available flow rate.” (Unified Water Label, 2019)

3 How to gather data

Topten.eu serves as a reference and starting point for national Topten product lists. Product lists should reflect market availability of most efficient products for each country. The following procedure is recommended for data gathering and has been implemented throughout the project duration:

- Check what products are listed on topten.eu
- Check which of those products are available in your country
- Check national products which are only available in your country to see if they comply with the selection criteria and are available in the Water Label Database. Inform Topten.eu about them so they can be added to the topten.eu list.

Because the Unified Water Label is currently a voluntary label, product data may not be readily available from all national manufacturers and retailers. However, the official Unified Water Label website contains a [complete database](#) of all product types and countries covered by the label.

The list can be filtered by product type, efficiency class and country. The product information available in the database can be completed with national EAN numbers, links to national manufacturer websites and the calculation of the electricity cost over the product lifetime based on the declared yearly energy consumption.

⁹ <http://www.europeanwaterlabel.eu/pdf/scheme-december2019.pdf>

4 Input for Consumer Recommendations

4.1 Recommendation page

The general purchase recommendation for consumers is to look for high quality materials and long-time warranties. Low quality materials can negatively impact functionality and lessen user comfort as well as necessitate more frequent replacements.

Choosing the right product is not the only way users can save on their electricity and water bills. User behaviour has the biggest impact on energy and water savings. Common tips for users are the following:

- Taking a shower instead of a bath
- Reducing shower length
- Not leaving the water running while brushing teeth
- Washing dishes in a highly efficient dishwasher instead of under running water
- Washing hands under cold water

4.2 FAQ

Can anyone use highly efficient taps and shower heads?

No. In very old pipe systems, the pipe diameter of wastewater is significantly larger than in newer pipe systems requiring more pressure and thus wastewater, to effectively flush out solid waste in the pipes. Otherwise, clogging may occur. If in doubt, please consult with a technician to determine the diameter of the pipes and recommend the best options for energy efficient taps and shower heads.

What should I look for when buying new taps and shower heads?

All categories have a wide selection of models with dark green arrows. In addition, look for special features such as resistance levers or cold water on the middle lever position on the label. Good quality materials and long-term warranties are also positive indicators for a good product.

Does the energy efficiency of the appliance impact my user comfort?

The user comfort is very individual, especially for shower heads. While the air intake in shower heads is used to counter the feeling of low pressure without adding “harshness” to the water stream, the feeling may still differ slightly from a high flow rate. When in doubt, a shower head with various settings is more likely to offer a satisfactory solution.

Can I install the appliances myself?

Most appliances can be installed without the help of a technician. Owners are free to do this at any time. If they are leasing a house or an apartment, it is advisable to install efficient taps and shower heads as well to save water and electricity costs. If in doubt, tenants should consult with their landlords before purchasing and installing new taps and shower heads.

5 Terminology

5.1 Definitions

- **Flow regulators:** Small items that can be installed between the fitting and hose or at the outlet of a tap that reduces the water flow through the appliance. Alternative term: controller.
- **Mixer tap:** A tap that allows for continuous flow and heat settings. Used for basins, kitchens and showers.
- **Sensor faucet:** a faucet without manual regulator where a sensor turns the water on and off. This can save up to 70% of hot water.

5.2 Product attributes

The attributes are the information currently displayed on Topten.eu except for “purchase price” which is only used on national websites.

Table 3: Example of attributes for taps and showerheads

Attribute	Example
Brand	Aquis
Model	KWC IQUA, K.12.JB.52
EAN	7640143825592
Energy (kWh/year)	650
Flow rate (l/min)	5.0
Unified Water Label	Dark Green Arrow
Type	Mixer tap
Place of installation	Kitchen
Special features	Automatic sensor faucet
Link to manufacturer	http://www.aquacliv.ch
Electricity cost in 10 years	EUR 1'300
Purchase price	EUR 245

Source: Topten.eu

Energy consumption per year

The energy consumption per year is based on fixed assumption on consumer behaviour and calculated with the [Energy Calculator from the Unified Water Label](#). Calculations in the energy calculator are based on the following assumptions:

- Showers: 1 / day, 7 min ea.
- Washbasin taps: 7 / day, 1 min. ea.
- Kitchen taps: 7 / day, 1 min ea.
- Conditions:
 - Cold water inlet temperature: 15 °C
 - Hot water output temperature
 - 38°C (showers)
 - 40°C (basin taps)
 - 45°C (kitchen taps)

Product data must be measured and declared according to the [Unified Water Label](#).

6 References and links

6.1 Useful links

- Topten.eu product list: https://www.topten.eu/private/products/taps_and_showers
- Topten.eu selection criteria: <https://www.topten.eu/private/selection-criteria/taps-and-showers>
- Recommendation page on Topten.ch : <https://www.topten.ch/private/adviser/ratgeber-sanitarprodukte> (as topten.eu shows policy recommendations)
- Unified Water Label presentation : http://www.europeanwaterlabel.eu/pdf/presentation_0418.pdf

6.2 References

- EBF Forum (02.12.20): <http://www.europeanwaterlabel.eu/pdf/EBF021220.pdf>
- Unified Water Label (2019): <http://www.europeanwaterlabel.eu/pdf/scheme-december2019.pdf>
- Product Database from the Unified Water Label: <http://www.europeanwaterlabel.eu/findaproduct.asp?country=&category=&rating=A&manufacturer=&order=>
- Energy Calculator from the Unified Water Label: <http://www.europeanwaterlabel.eu/energycalculation.asp>
- JRC (2013). Green Public Procurement for Sanitary Tapware - Technical Background Report: https://susproc.jrc.ec.europa.eu/ecotapware/docs/GPP_Technical_background_Report_Tapware_final.pdf
- JRC (2013). Developing an evidence base and related product policy measures for "Taps and Showers": https://susproc.jrc.ec.europa.eu/taps_and_showers/docs/T&S_KO_27June2013_Working_document.pdf
- Unified Water Label (2019). Scheme December 2019. <http://www.europeanwaterlabel.eu/pdf/scheme-december2019.pdf>