



D3.6 – Activity report of the European Product lists underlining the evolution of the products on the market (Year 3)

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Energy Efficient Taps & Shower Heads





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★ Energy Efficient Taps & Shower Heads Selection Criteria Taps and Showers heads

Brand: Select one or more opti Type of appliance: Select one or more opti Place of installation: Select one or more opti Special features: Select one or more opti Sort By: Energy (kWh/year) Asc

Clear all filters Export

Total 54 items. Last Updated: 3 Aug 2021

	Brand & Model	Energy	Type	Technical Data	Cost (€)
	Delabie SCS BINOPTIC MIX	Energy (kWh/year): 218	mixer	one handle mixer Max. flow rate (l/min): 3,0	Electricity in 10 years: €436
	Delabie SCS TEMPOMATIC 4 Further models: TEMPOMATIC MIX 3 / TEMPOMATIC MIX 4	Energy (kWh/year): 218	mixer	automatic sensor Max. flow rate (l/min): 3,0	Electricity in 10 years: €436
	Delabie SCS TEMPOMIX 2 Further models: TEMPOMIX / TEMPOMIX 3	Energy (kWh/year): 218	mixer	automatic sensor Max. flow rate (l/min): 3,0	Electricity in 10 years: €436
	Roca Sanitario S.A. Avant	Energy (kWh/year): 218	mixer	automatic sensor Max. flow rate (l/min): 3,0	Electricity in 10 years: €436

Steffen Hepp, Bush Energie GmbH

February 2023

HACKS coordinator: ADEME – www.ademe.fr

European portal www.topten.eu/hacks

Project partners and websites

Austria, AEA
www.topprodukte.at

Belgium, GoodPlanet
www.topten.be

Czech Republic, SEVEN
www.uspornespotrebice.cz

France, Guide Topten
www.guidetopten.fr

Germany, co2online
www.co2online.de

Italy, Eliante
www.topten.it

Lithuania, LNCF
www.ecotopten.lt/

Luxembourg, Oeko-Zenter
www.oekotopten.lu

Norway, Naturvernforbund
www.energismart.no/

Poland, FEWE
www.topten.info.pl

Portugal, Quercus
www.topten.pt

Spain, ECODES
www.eurotopten.es/

Sweden, SSNC
www.toptensverige.se

Switzerland, Bush Energie
www.topten.ch

UK, EST
www.toptenuk.org

Politecnico di Milano
www.eerg.polimi.it

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 worked 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 have implemented involvement campaigns to raise awareness of the economic and environmental benefits brought by good HAC products and solutions:

1. HACKS has motivated 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.
2. In each country, partners have set-up dedicated on-line platforms to assist consumers in their purchasing process. The platforms 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.
3. 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 proposed 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 has targeted 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 placed 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. Most national HACKS website will remain active after the end of the project.

Author: Steffen Hepp, Bush Energie, steffen.hepp@topten.ch

Editor: Therese Kreitz, ADEME, therese.kreitz@ademe.fr



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Executive summary

The intention of the yearly activity report is to describe and analyse the development of HAC product lists of most energy efficient models available on the HACKS European platform. The primary objective is to showcase major technical trends and developments in the top segment of the market and to identify opportunities for a further tightening of the Topten selection criteria.

This document covers the status and development of the following eight product lists on www.topten.eu/hacks:

- solid fuel boilers
- local space heaters
- heat pump water heaters
- heat pumps
- air conditioners
- comfort fans
- taps and shower heads
- circulation pumps

It does not include the development of national lists with different selection criteria or different product categories to suit national situation and product availability for consumers. All covered product lists are publicly available on www.topten.eu.

For each category, a description of data availability and background information are given. For categories with significant developments within the last year, the evolution of BAT products on the lists is presented and interpreted.

Since the project start in 2019, significant changes in available technologies and data have occurred in several product categories. As a result, selection criteria could be tightened

- for heat pump water heaters from class A to class A+
- for heat pumps from A+ to A++ and including the mandatory declaration of the η value
- for air conditioners with higher efficiency classes for all three types of ACs and introducing a minimum requirement for the global warming potential of the refrigerants used
- and for circulation pumps from maximum efficiency index 0.20 to 0.18.

Availability in data has increased for solid fuel boilers and local space heaters thanks to a financial incentive programme in Italy demanding product data, though remaining low in other countries. In general, data availability remains poor for many categories even where data declarations have been mandatory for a number of years. Increased activities of market surveillance authorities in these areas would benefit private consumers as well as installers.

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1 Introduction

Task 3.2 of the HACKS project covers the identification of the best available technologies (BAT) for the heating and cooling (HAC) categories covered in the criteria papers (D3.2 and D3.3). The presentation of the respective products is especially important as for the most part, consumers are not specialists in the topic and can get easily overwhelmed by the different technical solutions available and the terminology used in this sector.

In a first step, criteria papers have been compiled in early stage of the project, highlighting the maximum energy savings and comfort improvements for the different product groups as well as outlining ways to differentiate between efficient and less efficient products. They also include a technical explanation of the technology, an overview of policy measures, standards and labels, an FAQ and a market analysis.

The product lists are based on ambitious selection criteria, creating a shortcut for consumers in identifying and finding the best products amongst the hundreds of products available on the market. Manufacturers or associations are contacted in order to obtain as comprehensive data sets as possible. Additional data is gathered from online platforms and websites as well as product catalogues. An overview of the BAT products for Europe are presented on [Topten.eu](https://www.topten.eu). By the end of April 2020, 8 product lists with HAC products were publicly available on www.topten.eu. The following chapters reflect the data availability as well as the quantity and quality of products on Topten for each category within the time frame from September 2020 until February 2023. Where product updates show an especially interesting development – solid fuel boilers, local space heaters and air conditioners – the development of the BAT products on the market is analysed.

After August 2020 and August 2021, this analysis is the third and last update of the project to assess the market evolution.

In the meantime, the increase in popularity of our website [Topten.eu](https://www.topten.eu) is unbroken. The past-12-month average of monthly page views is 36'000 (Feb 22 till Jan 23). This is slightly down from the last report in August 2021 with nearly 40'000 views. It is still +60% compared to the very first report in August 2020 (22'000 monthly page views). This can be taken as a clear sign that the updated product lists and selection criteria are of high relevance for policy stakeholders, the main target group of [Topten.eu](https://www.topten.eu).

2 Solid Fuel Boilers

Solid fuel boilers were launched on [Topten.eu](https://www.topten.eu) in March 2020 and were updated last in December 2022. Though covered by EU regulations – energy labels are mandatory since September 2019 and product fiches since 2017 – product information for this category is hard to come by. By August 2021, the product fiche was available for less than half the products displayed online or in catalogues even through it is legally mandatory. As [Topten](https://www.topten.eu) selection criteria for this category cover emission rates as well as energy efficiency, gathering sufficient data to determine compliance or non-compliance with the [Topten](https://www.topten.eu) criteria is challenging.

The initial data set was made available through the Austrian HACKS partner who has long standing contacts with relevant dealers and installers. A large update has been completed in August 2021 with product data from Italy that allowed the addition of a significant number of new products to the list. This resulted in 3x more products compared the previous year August 2020. In Italy, a government incentive scheme for solid fuel boilers and local space heaters has led to more complete and consistent product declarations by the manufacturers.

Supplementing data was researched in catalogues and on manufacturer and installer websites.

While solid fuel boilers are typically pellet-burning, Topten also shows models that use logwood as fuel as long as they reach the same efficiency as pellet-burning solid fuel boilers.

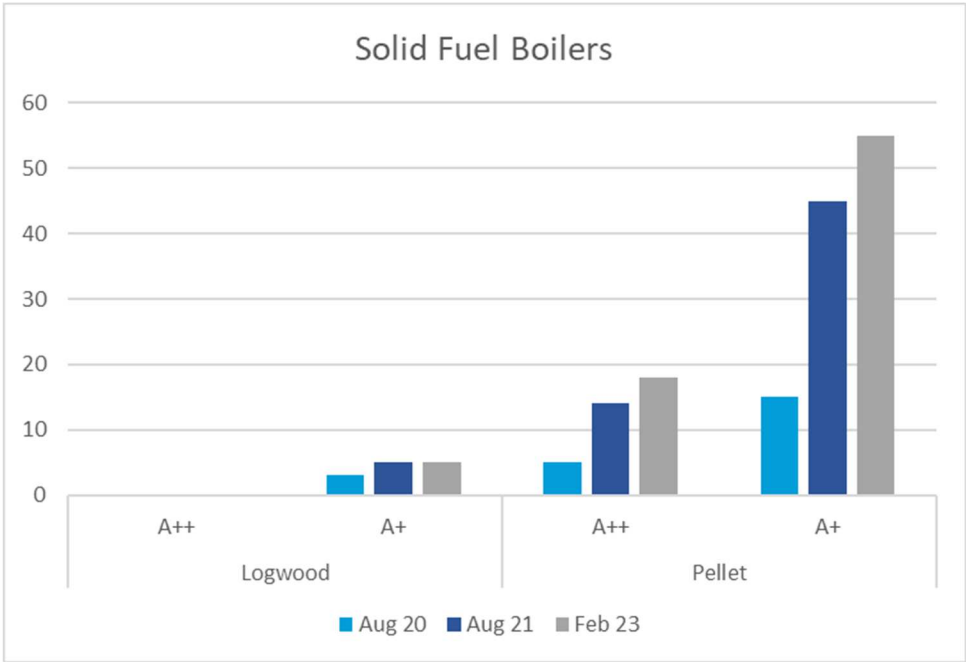
Table 1: Numbers of BAT products for solid fuel boilers listed on Topten.eu in February 2023

Fuel type	A++	A+	Total
Logwood	-	5	5
Pellets	18	55	73
Total	18	60	78

Source: Topten.eu

The product list contains 78 products from 19 manufacturers (compared to 64 products from 16 manufacturers in August 2021). The manufacturers are: Bösch, Domusa Calefaccion, Easypell, ETA, Extraflame, Fröling, Guntamatic, Hargassner, Herz Energietechnik GmbH, Hoval, KWB, MCZ Group Spa, ÖkoFEN, Ravelli, Schmid, Solarfocus, Solzaima, Strebel-Thermostrom, Viessmann.

Graph 1: Number of Solid Fuel Boilers listed on Topten.eu from August 2020 till February 2023



Source: Topten.eu

The graph clearly shows the increase in available data in the top segment of solid fuel boilers due to the incentive programme in Italy (August 2021). As manufacturers and dealers in general tend to provide more complete data on products of high efficiency and quality, it stands to reason that the data availability for less efficient products is even lower, much to the detriment of market transparency and consumers wanting to purchase a solid fuel boiler. In the years from Aug'21 till Feb'23 the number of models could be increased by 20% even without the help of any incentive scheme. Nonetheless, as product fiches have been mandatory since 2017, this category would profit from increased attention from market surveillance authorities.

3 Local Space Heaters

Local space heaters were launched on Topten.eu in February 2020 and last updated in December 2022. They are covered by EU regulations: energy labels are mandatory since 2018, product fiches are mandatory since the beginning of 2022. As Topten selection criteria for this category cover emission rates as well as energy efficiency and the publication of such emission values only became mandatory with the product fiches in 2022, until then, gathering sufficient data to determine compliance or non-compliance with the Topten criteria proved to be highly challenging. In the months following the enforcement of Ecodesign requirements at the start of 2022, the situation regarding availability of product declarations has noticeably improved.

Declaration and minimum efficiency requirements for emission values exist on a national level in several countries. While in Switzerland only two of the four emission values that are part of the Topten selection criteria are mandatory, the declaration of all four is mandatory in Austria and Italy. The initial set of product data was made available through the Austrian HACKS partner. A large Topten product list update has been completed in August 2021 with product data from Italy, that allowed the addition of a significant number of new products to the list (~ 4x more products than the year before in August 2020). A government incentive scheme for solid fuel boilers and local space heaters launched in Italy has led to more complete and consistent product declarations by the manufacturers.

Supplementing data was researched in catalogues and on manufacturer and installer websites.

In addition to national declaration requirements, minimum efficiency requirements also differ greatly between countries. National HACKS partners may adjust the selection criteria to fit their market and select products accordingly.

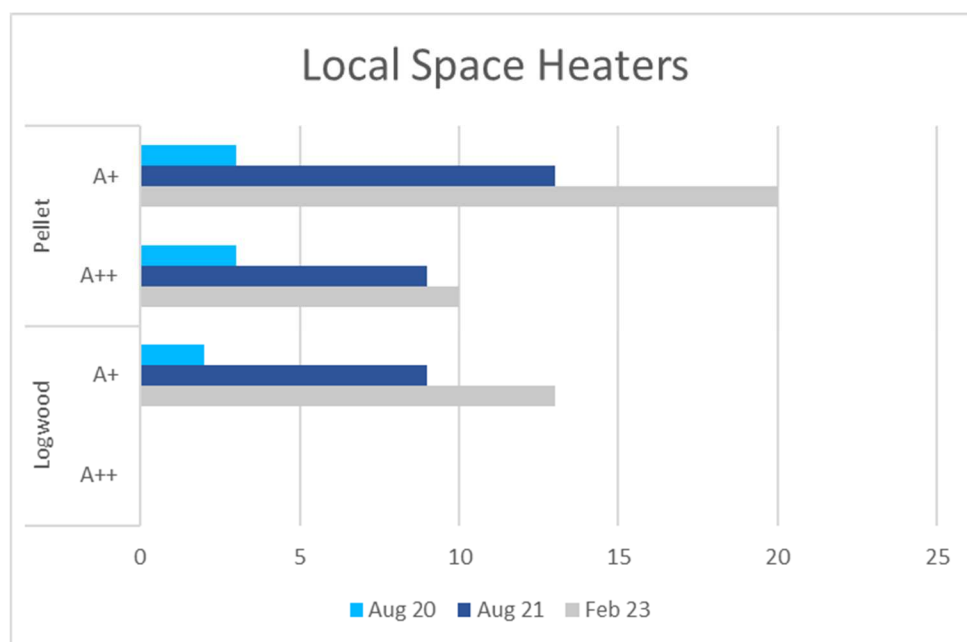
Table 2: Numbers of BAT products for local space heaters listed on Topten.eu in February 2023

Fuel type	A++	A+	Total
Logwood	-	13	13
Pellets	10	20	30
Total	10	33	43

Source: Topten.eu

The product list contains 43 products from 16 manufacturers. The manufacturers are: Arco, Caminetti Monte Grappa, Cola Stufe, CS Thermos, Dal Zotto, Edilkamin, Haas+Sohn, Italiana Camini, La Nordica, Laminox Idro, Lincar, MCZ, Palazzetti, RIKA, Ungaro, Windhager.

Graph 2: Number of Local Space Heaters listed on Topten.eu from August 2020 till February 2023



Source: Topten.eu

In August 2020, product data including emission values was only available for 8 local space heaters. By August 2021, product data for 23 more products could be added thanks to the Italian incentive programme, an increase of +288 %. Thanks to the product fiche becoming mandatory in 2022, more product data became available in the following months, allowing to list 12 more products, an increase of +39%.

4 Heat Pump Water Heaters

Heat pump water heaters were last updated on Topten.eu in December 2022. Heat pump water heaters are covered by an energy label where the class thresholds are based on the efficiency index η . On Topten, the selection criteria are also based on this label and the efficiency index η . Even though both the energy class and the declaration of efficiency index η have been mandatory since 2018, only few products display this value online; in an online research done in 2020 as part of the HACKs project only approximately 7% of products visible online contained both of these data points. Therefore, the majority of product data for the HACKs list has been obtained via surveys directly from the manufacturers. While there has been a substantial increase of models of +43% from Aug'21 to Feb'23, in absolute terms this corresponds only to 17 new models. The absolute basis is still very low compared to other categories.

The Topten selection criteria was tightened in May 2021 to allow only water heaters with efficiency class A+ (as opposed to Class A before). Since then, the number of A+ models on Topten.eu has increased and the first A++ model appeared. A+++ models have not been found on the market. Apparently, manufacturers have not yet been able to develop sufficiently efficient technologies to reach such classes.

Table 3: Numbers of BAT products for heat pump water heaters listed on Topten.eu in August 2020, August 2021, and February 2023

Efficiency Class	2020	2021	2023
A++	0	0	1
A+	34	42	59
A	3		
Total	37	42	60

Source: Topten.eu

The product list contains 60 products of 23 manufacturers. The manufacturers are: alpha innotec, Ariston, Atlantic Suisse AG, Bosch, CTA AG, Delta Solar, Dimplex, Domotec, Elcotherm AG, Heim AG Heizsysteme, Hoval, Makscom, Oekoboiler, MHG Heiztechnik, NIBE, Ochsner, Peter Wärmepumpen, Rossato, Stiebel Eltron, Vaillant, Viessmann, Weishaupt, Windhager, Wolf/Kronoterm.

5 Heat Pumps

Heat pumps on the European market are produced by a small number of only about 5 manufacturers but sold under numerous national brand and model names, making it almost impossible to identify the original manufacturer. As such, creating a European list of BAT products either leads to a list with multiple listings of the same model under different names or to a lot of research and manual comparison.

The Topten list today consists of input from the Eurovent database and from the manufacturers directly.

In May 2021 the Topten selection criteria were tightened from class A+ to A++. As of then, Topten also requires an additional data point which not all manufacturers were ready to provide: the energy efficiency index η (according to Eco-Design regulation mandatory since 2015). With the combination of those two requirements, the number of heat pumps listed on Topten.eu first dropped from 290 to 258. Since then, the number of listed products increased again and is now, in February 2023, at 275.

Heat pumps are labelled both with an efficiency class at 35°C – predominantly for houses with floor heating – and an efficiency class at 55°C – predominantly for houses with thermostat heating.

The following tables show the development of the 275 products on Topten.eu according to each efficiency class and type of heat pump.

It is of note that all models are more efficient in the efficiency class at 35°C than at 55°C. Of all the models that reach class A+++ at 35°C, 50% have also A+++ at 55°C, the other 50% have class A++ at 55°C. On the other hand, no model of class A++ at 35°C reaches class A+++ at 55°C.

For brine-to-water and air-to-water heat pumps, the majority of models on Topten.eu reaches class A+++ at 35°C but only class A++ at 55°C. The underlying cause seems to be the transfer of heat between mediums (brine respective air to water) as each of the water-to-water heat pumps reaches the same efficiency classes at 35°C and 55°C.

Overall, there was a big shift of models from class A++ to class A+++ at 35°C in the past two years. August 2021: 50% A+++, 50% A++ | February 2023: 80% A+++, 20% A++).

Interestingly, this shift occurred only in the efficiency classes at 35°C. The ratio between class A+++ and A++ models at 55°C remained the same.

A possible explanation is that the industry focussed its recent research & development efforts on products for houses with floor heating and therefore optimized their product portfolio to work efficiently in houses with floor heating.

Table 4: Numbers of BAT products for heat pumps listed on Topten.eu in February 2023 (August 2021) by efficiency class at 35°C

Efficiency class at 35°C				
Heat source	A+++	A++	A+	Total
Brine-to-water	89 (52)	17 (22)		106 (74)
Water-to-water	56 (45)	0 (5)		56 (50)
Air-to-water	77 (46)	36 (88)		113 (134)
Total	222 (143)	53 (115)		275 (258)

Source: Topten.eu

Table 5: Numbers of BAT products for heat pumps listed on Topten.eu in February 2023 (August 2021) by efficiency class at 55°C

Efficiency class at 55°C				
Heat source	A+++	A++	A+	Total
Brine-to-water	33 (25)	73 (49)		106 (74)
Water-to-water	50 (45)	6 (5)		56 (50)
Air-to-water	17 (11)	96 (123)		113 (134)
Total	100 (81)	175 (177)		275 (258)

Source: Topten.eu

The product lists contain 275 products from 12 manufacturers. For consumer convenience and better comparability, the three types of heat pumps are displayed in one product category; consumers can filter according to their personal requirements.

The manufacturers are: AerThermie, Buderus, CTA AG, Domotec, Hoval AG, Müba Energietechnik AG, Ochsner Wärmepumpen GmbH, Regli Energy Systems AG, SOLTOP Energie AG, Stiebel Eltron AG, Vaillant GmbH, Zehnder Group.

In March 2023 the next update of the heat pump product list will take place. In April 2023 the criteria for heat pumps will be tightened from A++ to A+++ for the efficiency class at 35°C.

6 Air Conditioners

A list of BAT products for air conditioners has been on Topten.eu since the beginning of the project. The selection criteria were tightened in 2020 (higher efficiency classes for all 3 types of ACs) and a GWP requirement (global warming potential of refrigerants) was introduced. The changes to the criteria in 2020 resulted in less products meeting the Topten criteria. The focus has been on growing the product list with further models fulfilling those criteria. This

was successful, considering that the number of listed models in February 2023 is almost back at the same level as right before the tightening of the criteria.

Data gathering is made difficult by the fact that the energy class depends on each combination of outdoor and indoor units and are rarely declared in catalogues or websites of manufacturers and installers despite being mandatory since 2013. Even catalogues with technical specifications as to compatibility and recommended combinations commonly do not contain respective energy class declarations.

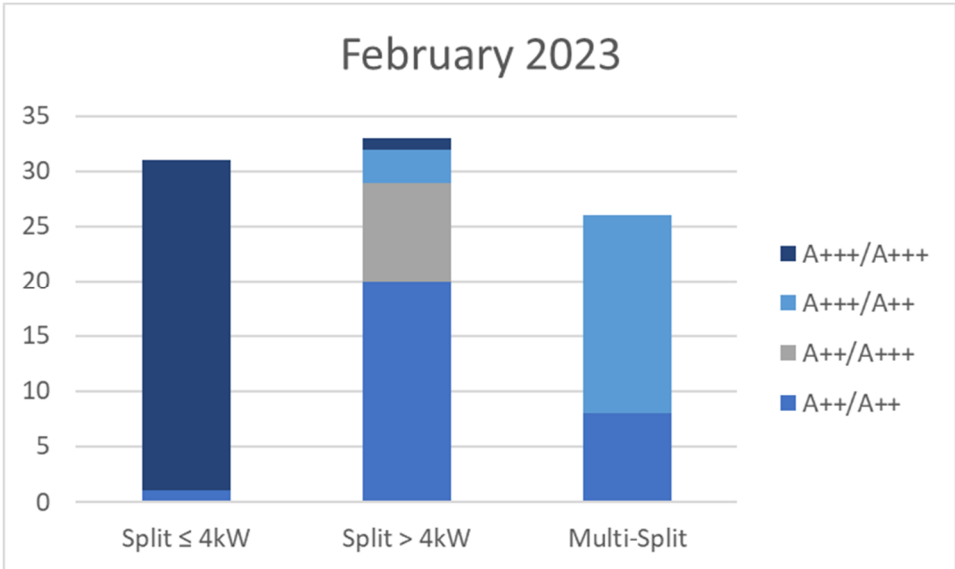
As such, all combinations have to be individually calculated through the use of the European label generator or one of the label generators widely available on one of the manufacturer or installer websites.

Various online platforms such as www.condizionati.ch or <https://www.klimaprofis.com/> claim to present comprehensive lists of air conditioners but installers frequently testify that the lists are out of date and as such not of any use to them. While SCOP and SEER values are reliably available in manufacturer materials, product fiches are rarely available.

Most reliable and comprehensive data sources are national and international installers; direct contacts with manufacturers are difficult to establish. As such, the data availability is dependent on established contacts with installers, leading to variabilities due to the high turn-over rate in those companies.

The BAT list for air conditioners currently contains 90 products from 8 manufacturers. The manufacturers are: Daikin, Fujitsu, Hitachi, LG, Mitsubishi Electric, Panasonic, Samsung, Toshiba.

Graph 3: Numbers of BAT products for air conditioners listed on Topten.eu in February 2023. The first energy class in each combination refers to the cooling efficiency of an individual product, the second energy class to its heating efficiency



Source: Topten.eu

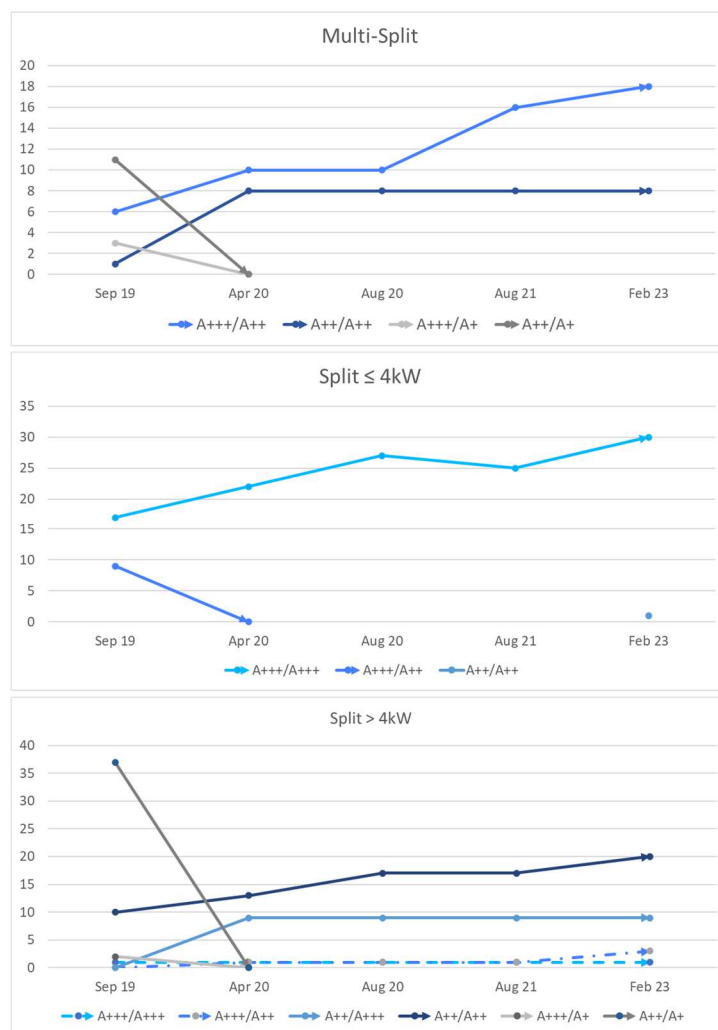
For multi-split appliances, the number of products with A++ classification for **cooling** has risen moderately in the last year. Still, there are no multi-split devices with A+++ classification for **heating** available on the market.

Small split appliances with ≤ 4kW for cooling have already reached the highest class for cooling and heating functions (A+++/A+++). All truly efficient devices in the market meet those criteria for over two years now.

Larger split appliances with > 4kW for cooling are on a high level in terms of efficiency, with BAT products covering the two top energy classes for both functions. Unfortunately, no shift from the second highest (A++) to the top class (A+++) has been seen in the past year.

Especially for small split appliances where products have already reached the highest possible classes (A+++/A+++), it is not possible for these products to differentiate each other. This is an opportunity for the ongoing revision of the Regulation for air conditioners (EU 206/2012) to set more ambitious MEPS and energy scale for the high performing products and will be addressed in the Consultation Forum taking place on the March 7th 2023. Even if the scale of the energy label covers all heating products, it should leave room for the development of more efficient air conditioners (air-to-air heat pumps). It is important on the consumers' side to be able to choose the best heating and cooling technology but also the best models within the technology. On the manufacturers' side, there needs to be an incentive to innovate. If products are all in the best class, it curbs their incentive to innovate and on the long-term reduces the potential energy savings.

Graph 4: Numbers of BAT products for air conditioners listed on Topten.eu from September 2019 until February 2023. The change in selection criteria is shown by arrows going down to zero in April 2020 for efficiency classes no longer allowed on Topten. The other arrows show the evolution of the remaining efficiency levels (the first energy class refers to the cooling efficiency, the second energy class to the heating efficiency of each product).



Source: Topten.eu

7 Comfort Fans

Comfort fans are listed on Topten.eu since March 2020. Data availability online is poor, making data gathering highly dependent on good contact persons with manufacturers and retailers. The collection of data on noise levels is a particular challenge as many values are not measured according to the official directives (set distance point) or not declared at all despite declaration of this value being mandatory since 2013 according to Ecodesign regulation for air conditioners and comfort fans (EU 206/2012). The noise levels are of special interest to consumers as they directly impact comfort levels in the vicinity.

The lack of data shows that the information requirements are insufficient and that there needs to be a mandatory MEPS and energy labelling in place to be able to monitor these products. During the data gathering, some manufacturers did not even know that information requirements were in place. Other countries, such as China which is the biggest exporter of comfort fans to Europe, already have these requirements in place. The data analysis from Topten showed that the products available in Europe did not even comply with the MEPS that are in place in China, the country of origin.

In various countries, products are sold under retailer brand names instead of the original manufacturer brand, causing additional effort to identify original brand names. The product list was updated in May 2022, adding new models on the market for the summer season as well as further products identified from national HACKS partners (esp. Italy). The table shows the development of comfort fans on Topten.eu from August 2021 to February 2023. There were only minor shifts within the efficiency ranges while the total number of models remained the same. We hope to see that the revised Ecodesign regulation that will likely be finalised during 2023 will bring some movement into the market, even though it will not enter into force until 2025.

Table 6: Numbers of BAT products for comfort fans listed on Topten.eu in February 2023 (August 2021)

Type	Efficiency index						Total
	min. 5.00	min. 2.75	min. 2.00	min. 1.00	min. 0.80	min. 0.45	
Table	-	1 (-)	-	19 (20)	9 (9)		29 (29)
Stand	-	2 (-)	1 (1)	28 (28)			31 (31)
Floor	-	-	1 (1)	10 (10)	1 (1)		12 (12)
Tower	-	-	-	1 (1)	3 (4)	16 (18)	20 (20)
Ceiling	12 (12)	16 (16)					28 (28)
Total	12 (12)	19 (18)	2 (2)	58 (59)	13 (14)	16 (15)	120 (120)

Source: Topten.eu

The product list contains 120 products from 23 manufacturers. For ceiling fans, the best product reaches an efficiency index of 13.73.

The manufacturers are: AEG, Aero, Argoclima, Balmuda, Bimar, CasaFan, Domo, Dyson, Fakir, Honeywell, Hunter, PRINCESS, Rotel, Rowenta, Solis, Sonnenkönig, Stadler Form, Styleis, TRISA, TRISTAR, Vortice, Weber, Westinghouse.

8 Taps and Shower Heads

Taps, shower heads and flow regulators are listed on Topten.eu since April 2020 and were last updated in December 2022. Source of the product data is the online [database](#) of the voluntary [Unified Water Label](#). The former activity report D3.5 still referred to the [European Water Label](#), which saw a re-branding and it now called “Unified Water Label”, including a new web presence. Beside the re-branding the two labels are the same, and the European Water Label is slowly fading out.

As consumers are particularly visually oriented in this category, products from the online database must both reach the highest efficiency class (which is represented as a dark green arrow) as well as include a product image.

In the future, we might closely consider the addition of secondary selection criteria such as the middle placement of the cold position for single-lever mixers or the automatic setting to cold temperatures for mixers with sensors such as are used at restaurants.

The number of models increased as the models from five additional manufacturers made it to the product list, a total of 15 manufacturers by February 23.

Table 7: Numbers of BAT products for taps, shower heads and flow regulators listed on Topten.eu in February 2023 (August 2021)

Product type	Dark Green	Total
Mixers	73 (46)	73 (46)
Shower heads	5 (5)	5 (5)
Flow regulators	3 (3)	3 (3)
Total	81 (54)	81 (54)

Source: Topten.eu

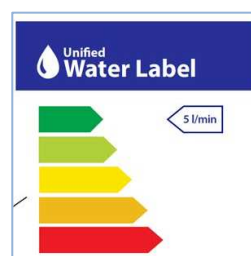


Figure 1: Scale using colour coding for efficiency

The product list contains 81 products from 15 manufacturers. Of the 73 mixers, 51 products were one-handle mixers, 13 had an automatic sensor and 4 products were two handle mixers.

The manufacturers are: AKW, Altecnic Ltd., Ceramicas, Delabie SCS, Duravit, E.C.A., GRIFERIAS, Hansa, Hansgrohe SE, Huber Cisol, IKEA, La Torre Srl, Roca Sanitario SE, Sanitana, Vado.

9 Circulation Pumps

Circulation pumps have been listed on Topten.eu since 2019. In April 2020 the selection criteria were tightened from maximum efficiency index 0.20 to 0.18 (0.23 is mandatory in Europe since August 2015 according to Ecodesign Regulation No 641/2009). With the last updates of circulation pumps in February 2022, May 2022, and December 2022, the number of products has doubled compared to August 2021. The circulator market as a whole has improved in efficiency. That is a very welcome development and might lead us to tighten the criteria soon from 0.18 to 0.17.

Whereas it is possible to reach an EEI of 0.15, nearly all of the newly added models that qualify for the product list according to the HACKS selection criteria have an efficiency index of 0.17 or 0.18. A possible reason for this is the manufacturers’ focus on the sector with the highest sales prospects – as the models with efficiency index 0.15 and 0.16 have low flow rates and are of the upper price segment, they do not fall under this sector. In order to save electricity, the

main focus in practice remains on replacing old and very inefficient circulation pumps with new and efficient models.

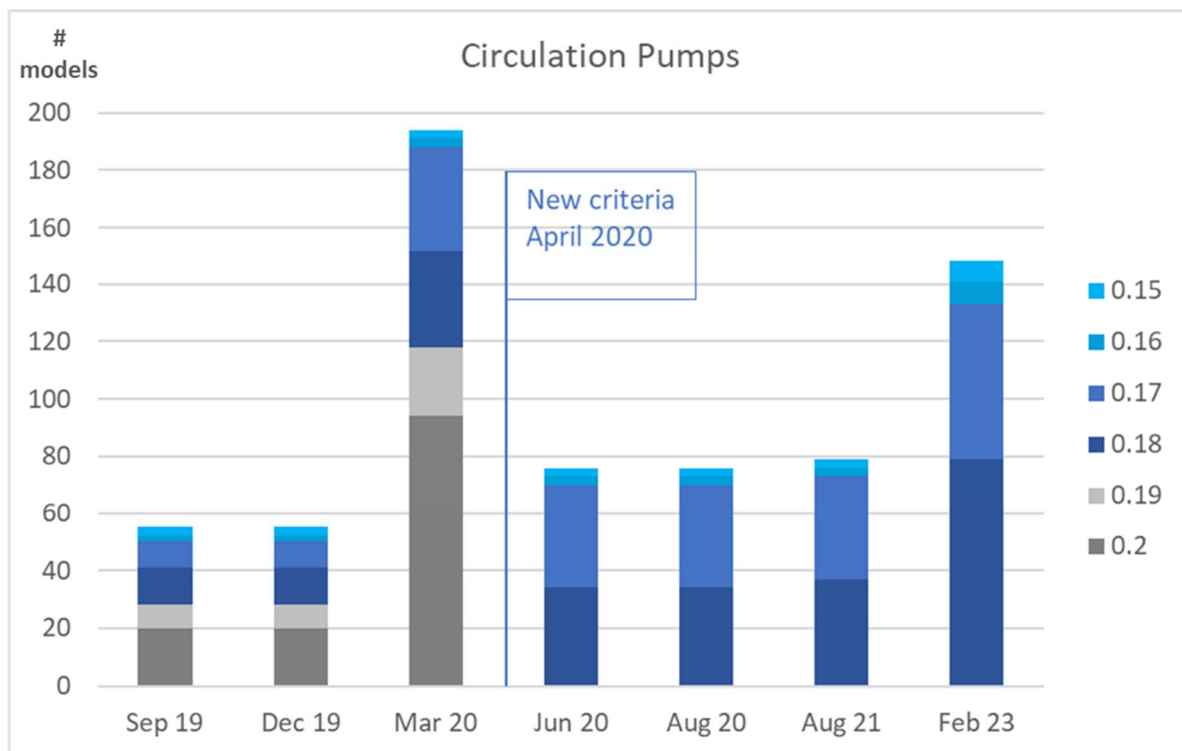
Table 8: Numbers of BAT products for circulation pumps listed on Topten.eu since September 2019

Date	Efficiency Index						Total
	0.15	0.16	0.17	0.18	0.19	0.20	
September 2019	3	2	9	13	8	20	55
December 2019	3	2	9	13	8	20	55
March 2020	3	3	36	34	24	94	194
June 2020	3	3	36	34			76
August 2020	3	3	36	34			76
August 2021	3	3	36	37			79
February 2023	7	8	54	79			148

Source: Topten.eu

The product list contains 148 products from 4 manufacturers. The manufacturers are: Armstrong, Biral, Grundfos, WILO.

Graph 5: Numbers of BAT products for circulation pumps listed on Topten.eu since September 2019.



Source: Topten.eu