

CHECK OUT YOUR WASHING MACHINE:

The energy label of my washing machine

The washing machine is one of the electrical appliances that can be found in almost every household. Without it, our everyday lives would be much more difficult. When it comes to buying a new washing machine, there are many different aspects to consider: not only the purchase price, but also the energy and water consumption, the noise level and many others.

Fortunately, there is a tool that can help us get all this information at a glance: the energy label. But how do we read the label on our washing machine correctly and what do all those symbols on it mean?

Overview “The energy label of my washing machine”

How to understand the different symbols on the washing machine’s energy label

Context
Everyday life
Finances

Cognitive processes
Managing situations
Analysing situations
Processing information
Reasoning
Mathematising
Critical thinking

Target group (incl. necessary prior skills and competences)

Adult learners with basic arithmetic and digital skills, interested in reflecting the energy efficiency of their washing machine and other electrical appliances in their household

Content
Quantity and number
Pattern, relationship and change
Using digital skills

Dispositions
Self-confidence
Collaboration
Flexibility
Math anxiety
Math difficulties

Outcomes and results

Learners understand the energy labels of different electrical appliances and can use that knowledge to make informed decisions

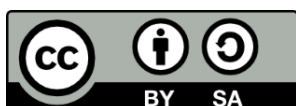


Main information

Content	Quantity and number: basic arithmetic operations (addition, multiplication) Online research
Target group	Adults with basic arithmetical and digital skills interested in knowing the energy efficiency of electrical appliances
Learning intention	What is the intention of adults to face this problem? – Numeracy for personal and private purposes – Numeracy for professional issues
Duration	Approx. 2-3 lessons
Material and resources	Flipchart, videos, examples of energy labels, different worksheets, smartphone, tablet or laptop for internet research
Group size	Range from 6 to 12 learners
Problem statement	The energy label on our washing machine provides us a lot of information about energy and water consumption, noise, etc. But it is not easy to understand and interpret it correctly.
Working questions	<ul style="list-style-type: none"> • What is an energy efficiency label? • On which electrical appliances can we find those labels? • What is the advantage of energy efficiency labels? • Which information is there on the label of a washing machine? • How can we choose the better option comparing the labels of two washing machines? • How can we calculate the cost of one washing cycle? • How can we save energy and money when using the washing machine?
Learning outcomes and results	The learners are able to read the energy efficiency labels found on washing machines and other household appliances. So, they can make informed decisions and purchase more eco-friendly products.
Reference to National Qualification Frame	Optional (country's decision)



30'+	<p>Activity - Presentation</p> <p>The trainer presents an example of an energy label for a washing machine.</p> <p>The learners work in pairs and match the correct terms with the illustration on the label.</p> <p>After this exercise, the different parts of the label can be explained in more detail.</p>	Worksheet (appendix2)	Collaborative learning
30'+	<p>Activity – Comparing labels</p> <p>The learners compare the labels of two washing machines.</p> <p>Optionally, they can research the price of the two models on the internet.</p> <p>Discussion in plenum on which model would be the best option (including all aspects: price, energy and water consumption, noise, etc.).</p>	Worksheet (appendix 3) Smartphone or tablet for the internet research	Hands on learning
60'	<p>Activity – Calculation</p> <p>Using the information on the energy labels, the learners do some calculations on energy consumption and costs.</p> <p>The learners could also be asked to check whether they can find a label on their washing machine at home. If so, they can use that information for the calculation exercises to identify their “real” costs.</p>	Worksheet (appendix 4)	Worked examples Hands on learning
	<p>Transfer</p> <p>The learners understand the information on energy labels.</p> <p>They can use their knowledge to examine other electrical household appliances for energy efficiency.</p> <p>They know how to save energy and money when using their washing machine.</p> <p>They make informed decisions when buying a new washing machine or other electrical appliance.</p>		



Suggestions for the teacher/user

The example presented here should be considered as exemplary and inspirational material presenting a guideline with a high range of possibilities of adapting those suggestions to a specific group of learners or an individual learner with his or her very personal requirements.

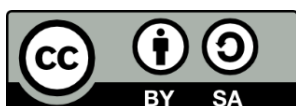
In concrete terms, the example “The energy label of my washing machine” could be adapted these ways:

- Duration: The duration of this example depends on the individual skills and interest of the learners. It might be necessary to explain difficult technical terms first. It is useful to allow sufficient time for the discussion, so that the learners are well informed about the topic.
- Further or additional material: To calculate the real cost of a washing cycle, you could let the learners calculate the cost of water consumption and the detergent needed. Therefore, it may be necessary to research prices on the internet in advance. Depending on the learners’ interest, you also can focus on the reduction of energy bills. The learners can be encouraged to compare their deals with energy suppliers. To do this, they can use online comparison tools.
- Level of difficulty: The calculation examples can be solved using mental arithmetic or using a calculator. To make the examples more difficult, decimal numbers can also be used in the calculations.

Our educational activities aim at numeracy skills being not only memorized, but first of all being practiced and functionally used by the learners in daily life or/and vocational situations. It is therefore recommended to implement the idea of HITS² (higher impacts of teaching skills) as far and often as possible: ...

- ... work with concrete and authentic material that learners will recognize from everyday life situations. Let the learners look where they can find energy efficiency labels at home. They can do the calculation examples using the information of their own appliances.
- ... ask the learners questions and let them raise questions themselves. It can be crucial to discuss numeracy themes, contexts and numbers.
- ... think of possible ways of transfer: Being able to read the energy efficiency labels correctly, the learners can make better decisions when purchasing new appliances. They have an overview about the energy consumption and the associated costs of their washing machine and other appliances.

² For general information and explanation on HITS please see teacher’s/user’s guide



Appendix 1

Example for a video: Tips for energy efficient washing

Waschen & Trocknen

Waschmaschinen finden sich heute in über 90 von 100 österreichischen Haushalten. Das EU-Energielabel hat den Vergleich von besonders energieeffizienten Geräten erleichtert, da diese jetzt auf mehrere Effizienzklassen verteilt sind. Unter dem alten Label waren die meisten Waschmaschinen in der Effizienzklasse A+++.

Energie- und Wasserverbräuche eines Gerätes wirken sich erheblich auf die Gesamtkosten über die Nutzungsdauer aus und sollten damit wesentliche Kaufentscheidungskriterien sein. Doch auch die passende Trommelgröße der Waschmaschine (bzw. das Fassvermögen an Wäsche in kg) ist bei der Auswahl zu beachten.

klimaaktiv topprodukte

Faktencheck:

Ecoprogramme



Source : <https://www.topprodukte.at/services/energiespartipps/haushalt/waschen-trocknen>; [27.08.2024]



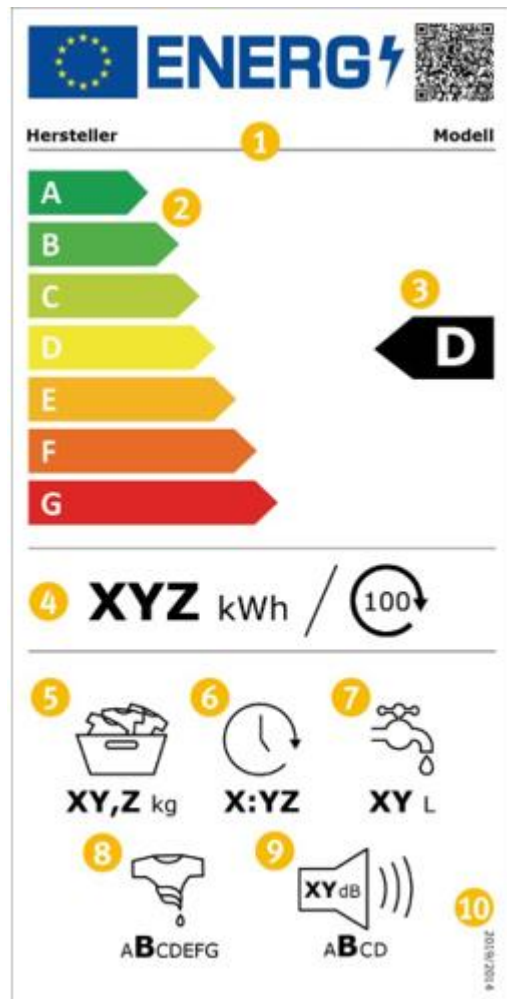
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Appendix 1

Match the following terms correctly.

- Noise level
- Water consumption
- Energy consumption per 100 wash cycles
- Spin efficiency class
- Energy efficiency class of the product
- Duration of the Eco programme
- Maximum load capacity
- Name of the producer and the model
- Colour bars to classify energy efficiency

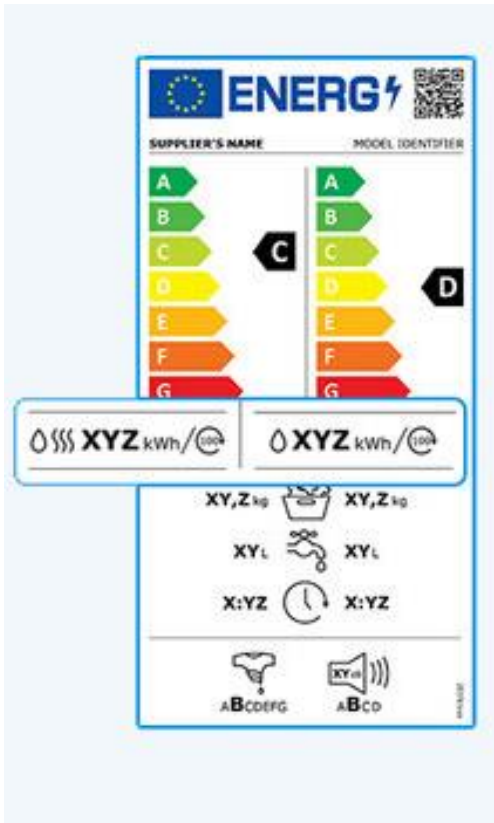
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Source : <https://www.verbraucherzentrale.de/wissen/energie/strom-sparen/beim-kauf-einer-waschmaschine-an-den-stromverbrauch-denken-5891> ; [22.08.2024]

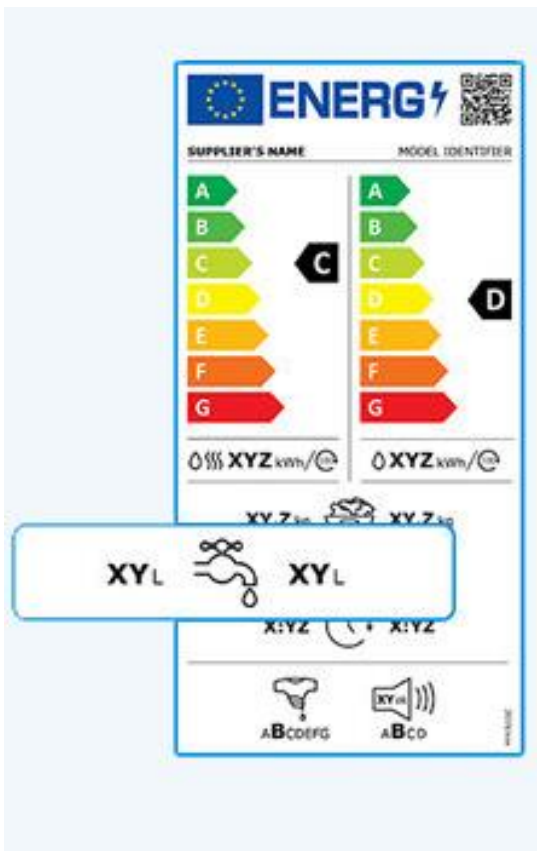


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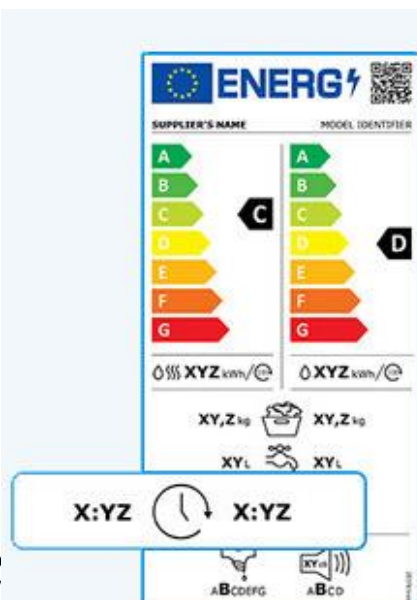
Energy consumption per wash and dryer cycle

The energy consumption shows how many kilowatt-hours (kWh) the appliance consumes for washing and drying. On the left, the kWh usage is displayed per 100 full cycles, with each full cycle encompassing both washing and drying phases. On the right, the kWh consumption for 100 wash cycles alone is presented.



Water consumption

The water consumption shows the amount of water, in liters, your machine uses per cycle. On the left side, the combined water usage for both washing and drying is presented. The right side specifies the water consumption for wash cycles alone.



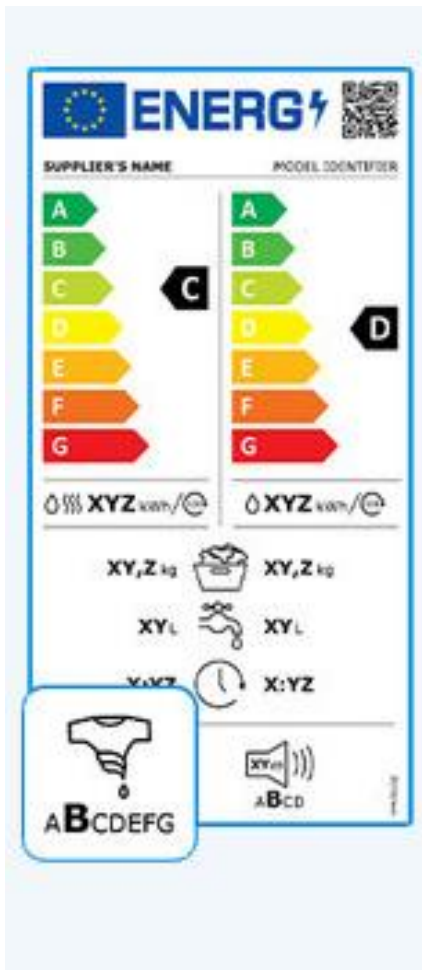
Cycle duration

The cycle duration displayed on the energy label of your washer-dryer com-



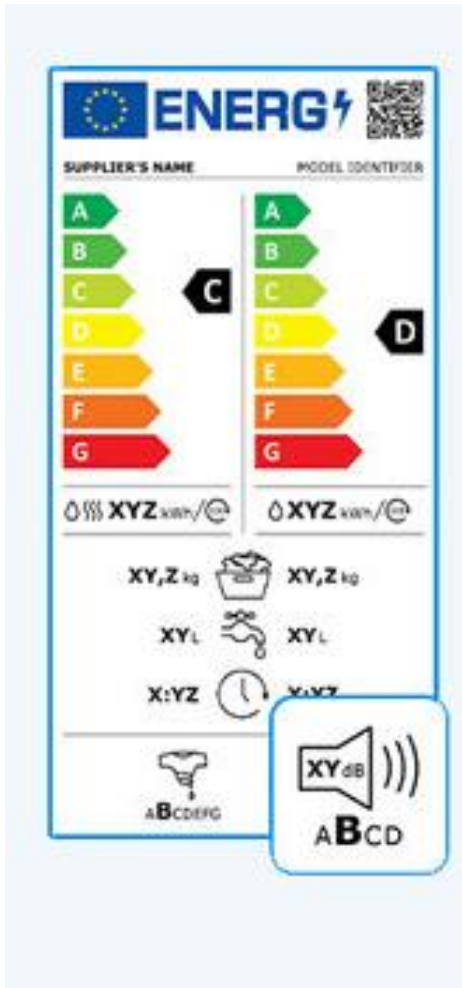
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bination reflects the time required for the appliance to wash a full load. On the left side, the combined duration for both washing and drying is shown. On the right side, it details the duration in hours and minutes for the ECO 40°C and 60°C cycles.



Spinning result

The spinning result shows how dry your clothes will be after the washing cycle. The machine spins the laundry at the cycle's end to remove as much water as possible from the fabric. This process ensures your clothes have minimal moisture before beginning the drying cycle.



Noise level

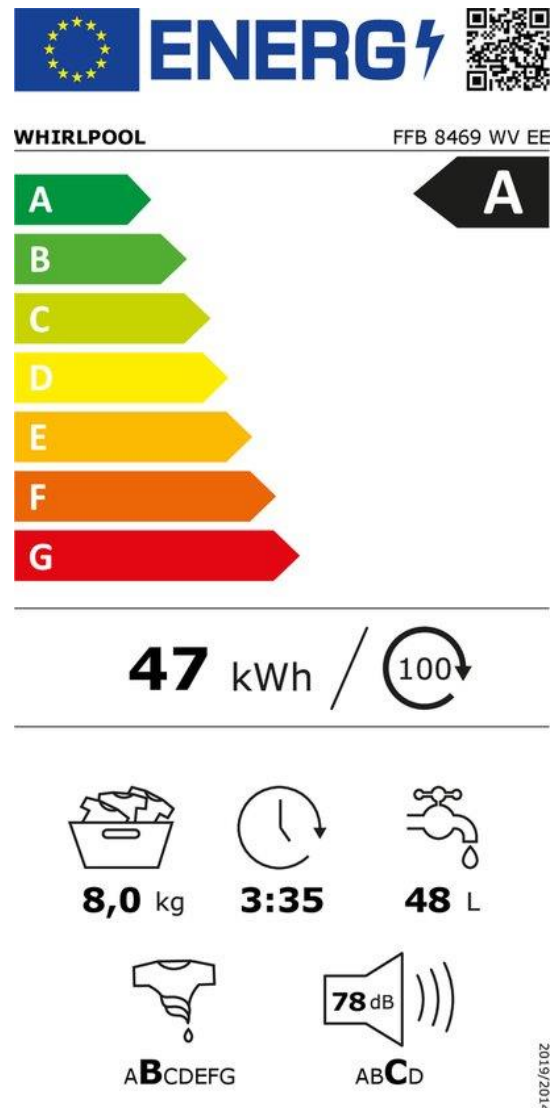
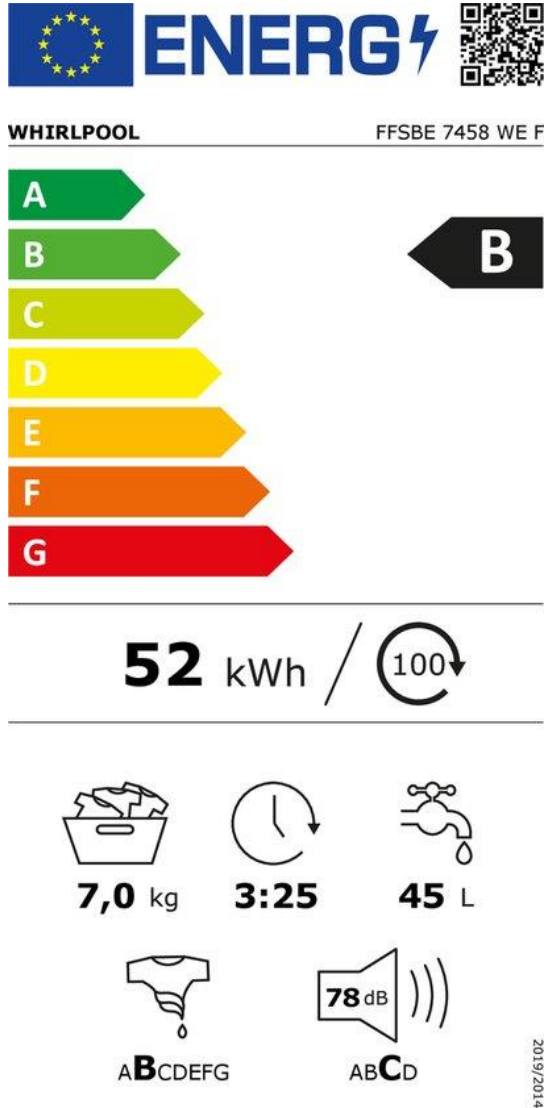
The noise level reveals the volume of your washer-dryer combo during the spin cycle. For those seeking a quiet washer-dryer combo, a noise level of 73dB is considered acceptable. Should your appliance exceed 78dB, placing it in a separate laundry room is advisable for reduced noise disruption.

Source: <https://digitalassets-cdn.thron.com/api/v1/content-delivery/shares/xoxl70/contents/do-23aa1037-9d7f-4981-a868-4b1cecb9be75/pdf/Nieuw-energielabel.pdf>;[22.08.2024]

Appendix 2

Compare the two labels.

Which washing machine would you prefer? Why? Discuss.



Source: [https://digitalassets-cdn.thron.com/api/v1/content-delivery/shares/xoxl70/contents/do-23aa1037-9d7f-4981-a868-4b1cecb9be75/pdf/Nieuw-energielabel.pdf;\[22.08.2024\]](https://digitalassets-cdn.thron.com/api/v1/content-delivery/shares/xoxl70/contents/do-23aa1037-9d7f-4981-a868-4b1cecb9be75/pdf/Nieuw-energielabel.pdf;[22.08.2024])



Appendix 3

Some calculation examples



1. Estimating washing machine use

Estimate how often you will use your washing machine over a given period.

- Consider your household's laundry habits. How many loads of laundry do you do in a week?
- Calculate the total number of uses in one year by multiplying the weekly loads by 52 (weeks in a year).
- Extend your calculation to estimate the total number of uses over the expected lifespan of the washing machine, typically around 10 years.

Example of a solution:

If you do 5 loads of laundry per week, your yearly usage would be:

5 loads x 52 weeks = 260 loads per year.

Over 10 years, this would amount to 260 loads x 10 = 2,600 uses.

2. Exercise: Cost per cycle calculation

Calculate the cost of operating your washing machine per cycles based on a fixed electricity rate.

- Determine your washing machine's energy consumption per 100 cycles (in kWh).
- Calculate the cost of running your washing machine for 1 cycle by dividing the energy consumption per 100 cycles by 100. Then multiply the electricity cost per kWh.

Example of a solution:

Estimated electricity rate: 43 cents per kWh

Estimated energy consumption per 100 cycles: 52 kWh

52 kWh / 100 = 0.52 kWh for one cycle

43 cents x 0.52 kWh = 22.36 cents for one cycle



3. Exercise: Calculating the lifespan cost of a washing machine

Determine the total cost of operating a washing machine throughout its lifespan.

- Using the estimated number of yearly uses, identify your washing machine's energy consumption per cycle (in kWh) for both washing and drying (if applicable).
- Calculate the annual energy consumption by multiplying the number of yearly uses by the energy consumption per cycle.
- Multiply the annual energy consumption by the electricity cost per kWh (€0.30).
- Add the purchase cost of the washing machine to the total electricity cost over its lifespan to find the total cost.

Example of a solution:

Estimated energy consumption per cycle: 1kWh

Estimated annual uses: 260 times a year

Annual energy consumption is $260 \times 1\text{kWh} = 260 \text{ kWh}$

Estimated electricity rate: €0.30 per kWh

Annual cost $260 \text{ kWh} \times €0.30 = €78$

Over 10 years, the total electricity cost is $€78 \times 10 = €780$.

Estimated cost of the washing machine: €500

Total cost over its lifespan is $€500 + €780 = €1280$.



Source Photos: www.pixabay.com

