

SCHEDULES

SCHEDULE 10

Regulation 23

Measurement methods and calculations for household washing machines and washer-dryers

1.—(1) Sub-paragraphs (2) to (4) apply for the purposes of the measurements and calculations referred to in paragraphs 2 to 7.

(2) Subject to sub-paragraph (4), for the measurement and calculation of the parameters in Schedule 9 and this Schedule for the eco 40-60 programme and the wash and dry cycle, the highest spin speed option for the eco 40-60 programme must be used at—

- (a) rated capacity;
- (b) half of the rated capacity; and
- (c) one quarter of the rated capacity.

(3) For—

- (a) washing machines with a rated capacity lower than or equal to 3 kg; and
- (b) washer-dryers with a rated washing capacity lower than or equal to 3 kg;

the parameters for the eco 40-60 programme and for the wash and dry cycle must be measured at rated capacity only.

(4) The duration of the eco 40-60 programme (t_w) and the wash and dry cycle (t_{WD}) must be expressed in hours and minutes, and rounded to the nearest minute.

*Energy efficiency index of household washing machines
and the washing cycle of household washer-dryers (EEI_w)*

Energy efficiency index

2.—(1) For the calculation of the EEI_w , the weighted energy consumption of the eco 40-60 programme at—

- (a) the rated washing capacity;
- (b) half of the rated washing capacity; and
- (c) one quarter of the rated washing capacity;

must be compared to its standard cycle energy consumption.

(2) The EEI_w must be rounded to one decimal place and calculated as follows—

$$EEI_w = (E_w / SCE_w) \times 100.$$

(3) For the purposes of sub-paragraph (2)—

- (a) E_w is the weighted energy consumption of the household washing machine or of the washing cycle of the household washer-dryer;
- (b) SCE_w is the standard cycle energy consumption of the household washing machine or the washing cycle of the household washer-dryer.

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(4) The SCE_W must be rounded to three decimal places and calculated in kWh per cycle as follows—

$$SCE_W = -0.0025 \times c^2 + 0.0846 \times c + 0.3920.$$

(5) For the purposes of sub-paragraph (4), c is—

- (a) the rated capacity of the washing machine; or
- (b) the rated washing capacity of the washer-dryer;

for the eco 40-60 programme.

(6) The E_W must be rounded to three decimal places and calculated in kWh per cycle as follows—

$$E_W = A \times E_{W,\text{full}} + B \times E_{W,\frac{1}{2}} + C \times E_{W,\frac{1}{4}}$$

(7) For the purposes of sub-paragraph (6)—

(a) $E_{W,\text{full}}$ is the energy consumption of—

- (i) the washing machine; or
- (ii) the washing cycle of the household washer-dryer;

for the eco 40-60 programme at the rated washing capacity, rounded to three decimal places;

(b) $E_{W,\frac{1}{2}}$ is the energy consumption of—

- (i) household washing machine; or
- (ii) the washing cycle of the household washer-dryer;

for the eco 40-60 programme at half of the rated washing capacity, rounded to three decimal places;

(c) $E_{W,\frac{1}{4}}$ is the energy consumption of—

- (i) the washing machine; or
- (ii) the washing cycle of the household washer-dryer;

for the eco 40-60 programme at a quarter of the rated washing capacity, rounded to three decimal places;

(d) A is the weighting factor for the rated washing capacity and rounded to three decimal places;

(e) B is the weighting factor for half of the rated washing capacity and rounded to three decimal places;

(f) C is the weighting factor for a quarter of the rated washing capacity and rounded to three decimal places;

(g) for washing machines with a rated capacity lower than or equal to 3 kg and washer-dryers with a rated washing capacity lower than or equal to 3 kg—

- (i) A is equal to 1;
- (ii) B and C are be equal to 0;

(h) for other washing machines and washer-dryers, the values of the weighting factors depend on the rated capacity according to the following equations—

- (i) $A = -0.0391 \times c + 0.6918$;
- (ii) $B = -0.0109 \times c + 0.3582$;
- (iii) $C = 1 - (A + B)$;

where c is the rated capacity of the washing machine or the rated washing capacity of the washer dryer.

Energy efficiency index (EEI_{WD}) of the complete cycle of household washer-dryers

3.—(1) For the calculation of the EEI_{WD} of a household washer-dryer model, the weighted energy consumption of the wash and dry cycle at—

- (a) the rated capacity; and
- (b) half of the rated capacity;

must be compared to its standard cycle energy consumption.

(2) The EEI_{WD} must be rounded to one decimal place and calculated as follows—

$$EEI_{WD} = (E_{WD}/SCE_{WD}) \times 100.$$

(3) For the purposes of sub-paragraph (2)—

- (a) E_{WD} is the weighted energy consumption of the complete cycle of the household washer-dryer;
- (b) SCE_{WD} is the standard cycle energy consumption of the complete cycle of the household washer-dryer.

(4) The SCE_{WD} must be rounded to three decimal places and calculated in kWh per cycle as follows—

$$SCE_{WD} = -0.0502 \times d^2 + 1.1742 \times d - 0.644.$$

where d is the rated capacity of the household washer-dryer for the wash and dry cycle.

(5) For household washer-dryers with a rated washing capacity lower than or equal to 3 kg, the weighted energy consumption is the energy consumption at rated capacity, rounded to three decimal places.

(6) For other household washer-dryers, the weighted energy consumption (E_{WD}) must be rounded to three decimal places and calculated in kWh per cycle as follows—

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$$E_{WD} = \frac{[3 \times E_{WD,full} + 2 \times E_{WD,1/2}]}{5}$$

(7) For the purposes of sub-paragraph (6)—

- (a) $E_{WD,full}$ is the energy consumption of the household washer-dryer for the wash and dry cycle at rated capacity, rounded to three decimal places;
- (b) $E_{WD,1/2}$ is the energy consumption of the household washer-dryer for the wash and dry cycle at half of the rated capacity, rounded to three decimal places.

Washing efficiency index

(8) The washing efficiency index of household washing machines and the washing cycle of household washer-dryers (I_W) and the washing efficiency index of the complete cycle of household washer-dryers (J_W) must be rounded to three decimal places.

Rinsing effectiveness

(9) The rinsing effectiveness of household washing machines and of the washing cycle of household washer-dryers (I_R) and the rinsing effectiveness of the complete cycle of household

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washer-dryers (J_R) must be based on the detection of the linear alkylbenzene sulfonate (LAS) marker, and rounded to one decimal place.

Maximum temperature

(10) The maximum temperature reached for 5 minutes inside the laundry being treated in household washing machines and the washing cycle of household washer-dryers must be rounded to the nearest integer.

Weighted water consumption

4.—(1) The weighted water consumption (W_W) of a household washing machine or of the washing cycle of a household washer-dryer must be rounded to the nearest integer and calculated in litres as follows—

$$W_W = (A \times W_{W,\text{full}} + B \times W_{W,1/2} + C \times W_{W,1/4}).$$

(2) For the purposes of sub-paragraph (1)—

(a) $W_{W,\text{full}}$ is the water consumption of—

(i) a washing machine, or

(ii) the washing cycle of a household washer-dryer,

for the eco 40-60 programme at rated washing capacity, in litres and rounded to one decimal place;

(b) $W_{W,1/2}$ is the water consumption of—

(i) a household washing machine, or

(ii) the washing cycle of a household washer-dryer,

for the eco 40-60 programme at half of the rated washing capacity, in litres and rounded to one decimal place;

(c) $W_{W,1/4}$ is the water consumption of—

(i) a household washing machine, or

(ii) the washing cycle of a household washer-dryer,

for the eco 40-60 programme at a quarter of the rated washing capacity, in litres and rounded to one decimal place;

(d) A, B and C are the weighting factors referred to in paragraph 2(7).

(3) For household washer-dryers with a rated washing capacity lower than or equal to 3 kg, the weighted water consumption of the wash and dry cycle is the water consumption at rated capacity, rounded to the nearest integer.

(4) For all other washer-dryers, the weighted water consumption (W_{WD}) of the wash and dry cycle must be rounded to the nearest integer and calculated as follows—

$$W_{WD} = \frac{[3 \times W_{WD,\text{full}} + 2 \times W_{WD,1/2}]}{5}$$

(5) For the purposes of sub-paragraph (4)—

(a) $W_{WD,\text{full}}$ is the water consumption of the wash and dry cycle of a household washer-dryer at rated capacity, in litres and rounded to one decimal place;

(b) $W_{WD,1/2}$ is the water consumption of the wash and dry cycle of a household washer-dryer at half of the rated capacity, in litres and rounded to one decimal place.

Remaining moisture content

- 5.—(1) The weighted remaining moisture content after washing (D) of—
- (a) a washing machine, or
 - (b) the washing cycle of a household washer-dryer,
- must be calculated as a percentage as follows, and rounded to one decimal place—

$$D = \left[A \times D_{\text{full}} + B \times D_{\frac{1}{2}} + C \times D_{\frac{1}{4}} \right]$$

- (2) For the purposes of sub-paragraph (1)—
- (a) D_{full} is the remaining moisture content for the eco 40-60 programme at rated washing capacity, as a percentage and rounded to two decimal places;
 - (b) $D_{1/2}$ is the remaining moisture content of the eco 40-60 programme at half of the rated washing capacity, as a percentage and rounded to two decimal places;
 - (c) $D_{1/4}$ is the remaining moisture content of the eco 40-60 programme at a quarter of the rated washing capacity, as a percentage and rounded to two decimal places;
 - (d) A, B and C are the weighting factors referred to in paragraph 2(7).

Final moisture content

- 6.—(1) For the drying cycle of a household washer-dryer, cupboard dry status corresponds to 0 per cent final moisture content.
- (2) For the purposes of sub-paragraph (1), 0 per cent final moisture content is the thermodynamic equilibrium of the load in ambient air conditions of—
- (a) temperature (tested at 20 ± 2 °C); and
 - (b) relative humidity (tested at 65 ± 5 per cent).
- (3) The final moisture content is rounded to one decimal place.

Low power modes

- 7.—(1) Where applicable, the power consumption of the off mode (P_o), standby mode (P_{sm}) and delay start (P_{ds}) must be measured.
- (2) The measured values must be expressed in Watts and rounded to two decimal places.
- (3) During measurements of the power consumption in low power modes, the following must be checked and recorded—
- (a) the display or not of information;
 - (b) the activation or not of a network connection.
- (4) Where the washing machine or washer-dryer provides a wrinkle guard function, this operation must be interrupted by opening the machine door, or any other appropriate intervention 15 minutes before the measurement of power consumption.