Energy consumption of coffee makers

Measurements according to EN60661:2014

Machine brand		GRAEF	
Type		ES 850	
Rated voltage		230	V
T ambient		23.3	°C
T machine		23.1	°C
T water in reservoir		22.8	°C
Input voltage		230	V

Default settings

Auto Shut off	time	30	min	Enter N/A if no power management system present
Energy safe mode	time	30	min	
Cup heater	on/off	N/A		Enter N/A if no cup heater present
Rinsing	yes / no	no		
….		--		
….		--		

Measurement § 26.Z2.2

		brewing 40 gr.	
Coffee type used		--	
Grinding function?	yes / no	no	
Temp in cup		61.8	°C
Weight total		49.3	g
Weight of cup		5.5	g
Weight of coffee		43.8	g

	brewing 120 gr.	
Coffee type used	--	
Temp in cup	71.1	°C
Weight total	122.6	g
Weight of cup	5.8	g
Weight of coffee	116.8	g

	brewing 2x40gr.		
Weight total	45.2	48.8	g
Weight of cup	5.5	5.8	g
Weight of coffee	39.7	43.0	g

Summary brew function

	Single 40	Single120	Double40	Average	
Temperature of servings	61.8	71.1		66.5	°C
Weight of servings	43.8	116.8	82.7	81.1	g

Energy consumption after 40 min.	59.50	Wh
Energy consumption after 100 min.	72.00	Wh

Measurement § 26.Z2.3

Steaming function First time

Weight of water (target=100g)	100.3	g
T water in beaker initial	15.4	°C
Weight after steaming	136.7	g
T water after steaming	56.7	°C
Energy used	19.30	Wh

…….Brew a coffee in between……

Steaming function Second time

Weight of water (target=100g)	100.4	g
T water in beaker initial	14.3	°C
Weight after steaming	133.8	g
T water after steaming	56.4	°C
Energy used	18.60	Wh

…….Brew a coffee in between……

Steaming function Third time

Weight of water (target=100g)	100.3	g
T water in beaker initial	14.2	°C
Weight after steaming	133.7	g
T water after steaming	56.6	°C
Energy used	17.10	Wh

Summary steam function

	Msrmt 1	Msrmt 2	Msrmt 3	Average
Weight of water (target=100g)	100.3	100.4	100.3	100.33
T water in beaker initial	15.4	14.3	14.2	14.63

Weight after steaming	136.7	133.8	133.7	134.73	Delta T steam	
T water after steaming	56.7	56.4	56.6	56.57	41.93	°C
Energy used	19.30	18.60	17.10	18.33		

Measurement § 26.Z2.4

Standby energy use

Energy use 60 minutes	0.39	Wh			
Power management system?	yes	yes / no	Resulting standby energy is:	0.39	Wh

Explanation:A power management system switches the machine automatically to standby or off mode.

Measurement § 26.Z2.5

Off energy use

Energy use 60 minutes	0.39	Wh	Take standby value in case no "off" mode exists

Calculation Energy consumption value

Machine brand	GRAEF				--	--
Type	ES 850				--	--
Benchmark for Coffee Period						$B_{heating\ up} + B_{ready\ to\ use} = B_{hu\&ready}$ = 43,5 Wh
Energy benchmark for the brewings	27.9	Energy benchmark for the heating Up	20.0	Energy benchmark for the ready to use	23.5	
§26.Z2.6.4 *(table Z1)*	**Weighting factor based on use frequency for function i**	**Benchmark energy value for function i (Wh)**	**Function i available** *(yes = 1; no = 0)*	**Weighting factor x benchmark energy value**	**Corrected benchmark energy (Wh)**	**Measured energy for function i x weighting factor (Wh)**
Coffee period	3	71.4		214.2	200.4	216.0
Steam function	1	15.0	1	15.0	15.7	18.3
Standby mode	11	1.0		11.0	11.0	4.3
Off mode	8	0.5		4.0	4.0	3.1
Rinsing	1	3.0	0	0.0	0.0	0.0
Grinding	1	2.0	0	0.0	0.0	0.0
Total energy consumption (Wh)	**241.7**	The annual consumption is the Total energy consumption (Wh) multiplied with 365.		Classes according to the Energy consumption value A+++ : < 37% A++: 37% ≤ x < 46% A+: 46% ≤ x < 58% A: 58% ≤ x < 72% B: 72% ≤ x < 90% C: 90% ≤ x < 112% D: 112% ≤ x		
Total Benchmark (Wh)	**231.1**					
Energy consumption value (%) *§ 26.Z2.6.4 (7)*	**104.6%**					
Efficiency class	**C**					