TÜV AUSTRIA
SERVICES GMBH

Office:
Deutschstrasse 10
1230 Vienna/Austria
Tel.:
+43 (0)1 610 91-0
Fax:
+43 (0)1 610 91-6655
pzw@tuv.at

Division:
Product Safety

Contact:
Ing. Johann Lipp
Telephon:
+43 (0)1 61091-6730
li@tuv.at t

TÜV ®

Company
DODEKA Ltd.

To the attention of Mr. Stefan Nestler

Statteggerstraße 60
A-8045 Graz

Vienna, 22.06.2011
dodw0209-LI

Regarding: Power consumption measurement with and without power saving device
(TÜV order no: 2011-PS/PZW-EX-0068)

REPORT

As per the order, TUV Austria carried out a comparative measurement of the power consumption of an induction hob with and without power saving device in June 2011.

Applicant:	**DODEKA Ltd.** Statteggerstraße 60 A-8045 Graz
Test object:	Power saving devices UC-50 and UR-7
Manufacturer:	KESECO CO., LTD. Korea

Test object - Figures:

Power saving device UR-7

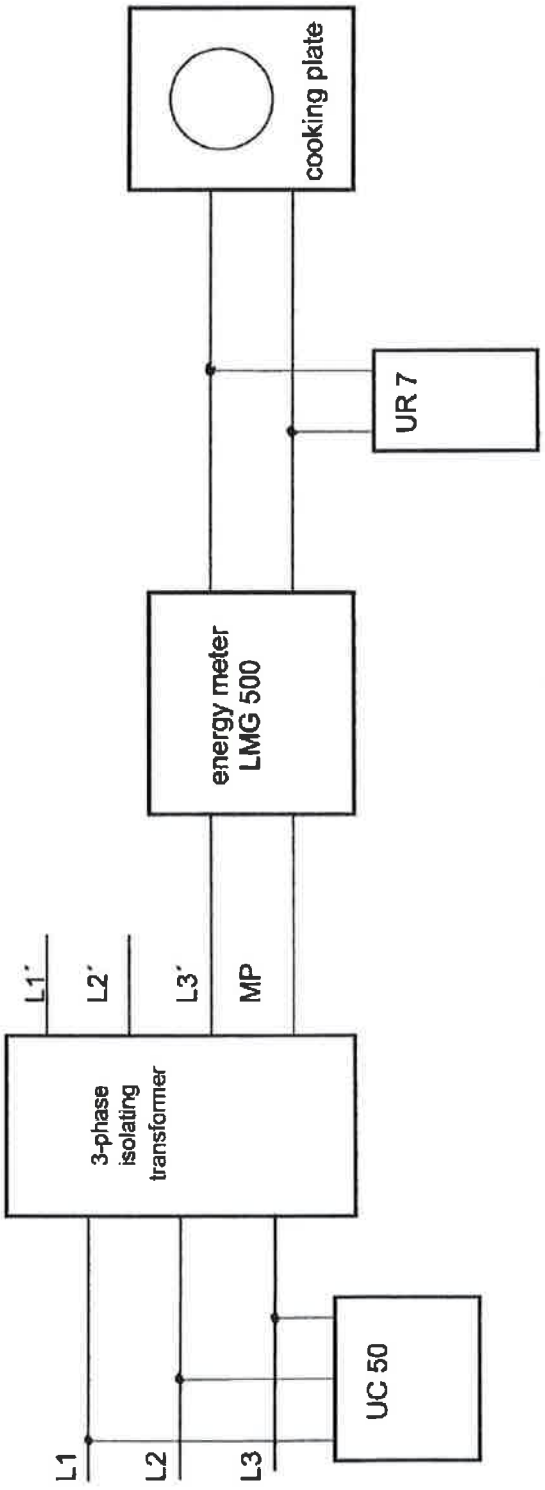
Specification plate:

Power saving device UC-50

Specification plate:

TÜV AUSTRIA

Test setup:



UC 50.....3-phase energy saving appliance
UR 7.....1-phase energy saving appliance
3-phase isolating transformer...400V//400V//230V//3500VA
energie meter.....LMG 500, Zimmer Electronic Systems
cooking plate.....induction hob, CASO BASIC 2002, Mod. C20L

Figure Induction hob:

Specification plate of the induction hob:

Carrying out the test:

The power required for boiling 1 litre of water on a new induction hob was first measured without power saving devices.
The induction hob was used several times for boiling 1 litre of water for 30 minutes respectively before recording the power consumption values. Before recording the first power consumption value, it was ensured that the induction hob was cold. That is, the last boiling operation took place 30 minutes before recording the value.
The second and third power consumption measurements were carried out 10 minutes after the previous boiling operation. The temperature on the induction hob was set to 100 ° C.

One boiling operation lasted for 30 minutes, the water temperature was 21.5 °C at the start of each boiling operation, the amount of water used was 1 litre, and the ambient temperature was 25 °C during the boiling operation.

1) Measuring the power consumption without power saving devices:

1. Boiling operation: Average value of the operating voltage during the boiling operation:	228.5V
Time required for the water to reach 90 °C:	3 minutes 54.5 s
Power consumption for the water to reach 90 °C:	104.9 Wh
Power consumption for 30 minutes of boiling time:	680.0 Wh

2. Boiling operation: Average value of the operating voltage during the boiling operation:	228.5V
Time required for the water to reach 90 °C:	3 minutes 49.5 s
Power consumption for the water to reach 90 °C:	104.08 Wh
Power consumption for 30 minutes of boiling time:	656.2 Wh

3. Boiling operation: Average value of the operating voltage during the boiling operation:	229.4V
Time required for the water to reach 90 °C:	3 minutes 51.5 s
Power consumption for the water to reach 90 °C:	104.3 Wh
Power consumption for 30 minutes of boiling time:	641.85 Wh

Total power consumption for the 3 boiling operations each of 30 minutes without power saving devices:	**1978.05 Wh**

After measuring the power consumption without the power saving devices, the two power saving devices were installed in the test setup and an adaptation period of 2 days was followed during which the test setup was constantly connected to the mains power and several boiling operations were carried out with 1 litre of water each for 30 minutes. Before recording the first power consumption value, it was ensured that the induction hob was cold. That is, the last boiling operation took place 30 minutes before recording the value.
The second and third power consumption measurement with power saving devices were carried out 10 minutes after the previous boiling operation. The temperature on the induction hob was set to 100 ° C.

One boiling operation lasted for 30 minutes, the water temperature was 21.5 °C at the start of each boiling operation, the amount of water used was 1 litre, and the ambient temperature was 25 °C during the boiling operation.

2) Measuring the power consumption with power saving devices:

1. Boiling operation: Average value of the operating voltage during the boiling operation:	230.1V
Time required for the water to reach 90 °C:	3 minutes 54.0 s
Power consumption for the water to reach 90 °C:	104.9 Wh
Power consumption for 30 minutes of boiling time:	635.6 Wh

2. Boiling operation: Average value of the operating voltage during the boiling operation:	229.6V
Time required for the water to reach 90 °C:	3 minutes 51.5 s
Power consumption for the water to reach 90 °C:	104.08 Wh
Power consumption for 30 minutes of boiling time:	614.0 Wh

3. Boiling operation: Average value of the operating voltage during the boiling operation:	229.0V
Time required for the water to reach 90 °C:	3 minutes 48.5 s
Power consumption for the water to reach 90 °C:	104.3 Wh
Power consumption for 30 minutes of boiling time:	630.2 Wh

Total power consumption for the 3 boiling operations each of 30 minutes with power saving devices:	**1879.80 Wh**

Percentage difference between the power consumption for 3 boiling operations with and without power saving devices: 1879.80 Wh / 1978.05 Wh = 0.95 ⇒ Saving: 5.0%

Test result:

The comparative measurement of the power consumption of an induction hob with and without power saving devices UC-50 and UR-7 manufactured by KESECO CO., LTD. showed a saving of 5.0% of power consumption under the same conditions, without the rate of heating decreasing.

The measurement inaccuracy of the energy meter LMG 500 used is ± 0.5Wh.
The measurement inaccuracy of the temperature measuring device used (data logger HIOKI 8430-20 with thermocouples) is ± 0.50 °C.

We hope this information is of use to you.

TÜV AUSTRIA SERVICES GMBH

Engr. Johann Lipp
Senior expert Product Safety - Electrical

Engr. Zoltan Frakas
Technical expert - Electrical