

# TEST REPORT

## 300-VELA, Hood-Lab

Report No.:

300-Hood-Lab-19-08



**DANISH  
TECHNOLOGICAL  
INSTITUTE**

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Init: BBJN/ASOV  
Order no: 858171

**Customer:** Company: Trepol  
Address: Herluf Trolles Vej 20 B  
City: DK-5220 Odense SØ

**Component:** Range hood: Not fully automatic domestic range hood, with built in fan  
Manufacturer: Trepol  
Type: Model  
Model: 961  
Serial no.: -  
Exhaust diameter: 160 mm

**Selection:** The component have been selected and provided by the client.  
Component received: February 2019  
Component tested: May - July 2019

**Procedure:** DS/EN 61591:1997 Household range hoods - Methods for measuring performance  
ISO 5801:2017 Fans - Performance testing using standardized airways  
DS/EN 60704-2-13:2017 Household and similar electrical appliances - Test code for determination of airborne acoustical noise  
Ecodesign regulation 65/2014  
Ecodesign regulation 66/2014

**Result of test:**

EEI class	FDE class	LE class	GFE class	L <sub>WA</sub>	O <sub>f</sub>
<b>A</b>	<b>B</b>	<b>B</b>	<b>E</b>	<b>68 dB</b>	<b>91 %</b>

**Remarks:** Any remarks can be found on page 3.

**Storage:** The component will be stored according to the general terms and conditions of DTI after which it is disposed of.

**Terms:** The test has been performed according to the general terms and conditions of Danish Technological Institute.

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**Signature:** This document has been digitally signed by:  
*Asger S. Søvstø* & *Birger B. Jessen*  
Head of Hood-Lab Head of Noise-Lab

**Division/Centre:** Danish Technological Institute  
Energy & Climate  
Hood-Lab.: Taastrup



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### Objective:

The objective of this report is to document the energy label, volumetric airflow, efficiency of the lightning system, grease filtration and odour extraction of a range hood, measured and calculated following conditions as stated in DS/EN 61591:1997 incl A1, A2, A11 & A12 (Clause 11, 12, 13, 14 & 16.Z1), ISO 5801:2017, DS/EN 60704-2-13:2017, Ecodesign regulation 65/2014 and Ecodesign regulation 66/2014

### Primary measurement equipment used during all tests:

Parameter	Equipment	QA Equip. no.:
Power	Yokogawa WT310-C1-F/C7	173006
Pressure	ABB 2600T	138577
	ABB 2600T	138578
	ABB 2600T	138579
Temperature & humidity	Vaisala HMI38	171877
	Multi instrument TSI 9565-P	79650
Barometer		2138
Lightning test:	Kimo Lx100	172963
Grease Filter test	Kern ILS 50K-4	165307
Sound Power Level	Reverberation room fulfilling ISO 3741/3743-1.	79737
	Microphones type 4165	79014
	Microphones type 4165	79015
	Microphones type 4165	79016
	Microphones type 4165	79017
	Microphones type 4165	79019
	Microphones type 4165	79020
	1/3-octave analyzer A3050-A-060	77171
Reference sound source BK4204	77179	
Airflow	Elliptical nozzle Ø100 acc. ISO 5801	171928
	Elliptical nozzle Ø165 acc. ISO 5801	174062
Datalogger	Agilent 34970A	148160
MEK detector	Falco	173127

Signature:

Asger S. Søvsvø, M.Sc.  
Specialist

Signature co-reader:

Birger B. Jessen, M.Sc.  
Senior consultant



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### Test Results:

Trepol - Model - 961				
No.	Parameter	Symbol	Value	Unit
1	Energy Efficiency Index	$E_{EI_{hood}}$	<b>53,8</b>	
2	Energy Efficiency Class		<b>A</b>	
3	Annual Energy Consumption	$AEC_{hood}$	<b>30,1</b>	kWh/a
4	Time increase factor	f	<b>1,0</b>	
5	Fluid Dynamic Efficiency	$FDE_{hood}$	<b>26,5</b>	%
6	Fluid Dynamic Efficiency class		<b>B</b>	
7	Measured air flow rate at best efficiency point	$Q_{BEP}$	<b>227,5</b>	$m^3/h$
8	Measured static pressure at best efficiency point	$P_{BEP}$	<b>355,0</b>	Pa
9	Measured electric power input at best efficiency point	$W_{BEP}$	<b>84,5</b>	W
10	Average illumination of the lighting system on the hob	$E_{middle}$	<b>185</b>	lux
11	Nominal power of the lighting system	$W_L$	<b>8,6</b>	W
12	Lighting Efficiency	LE	<b>21,4</b>	$Lux/watt$
13	Lighting Efficiency class		<b>B</b>	
14	Grease Filtering Efficiency	GFE	<b>60,6</b>	%
15	Grease Filtering Efficiency class		<b>E</b>	
16	Measured power consumption off mode	$P_o$	<b>0,4</b>	W
17	Measured power consumption in standby mode	$P_s$	<b>0,4</b>	W
18a	Sound power level at minimum speed	$L_{WA-min}$	<b>51</b>	dB
18b	Sound power level at maximum speed	$L_{WA-max}$	<b>68</b>	dB
19	Sound power level at boost speed	$L_{WA-boost}$	<b>68</b>	dB
20a	Airflow at minimum speed	$Q_{min}$	<b>212,5</b>	$m^3/h$
20b	Airflow at maximum speed	$Q_{max}$	<b>437,7</b>	$m^3/h$
21	Airflow at boost speed	$Q_{boost}$	<b>476,5</b>	$m^3/h$

### Remarks



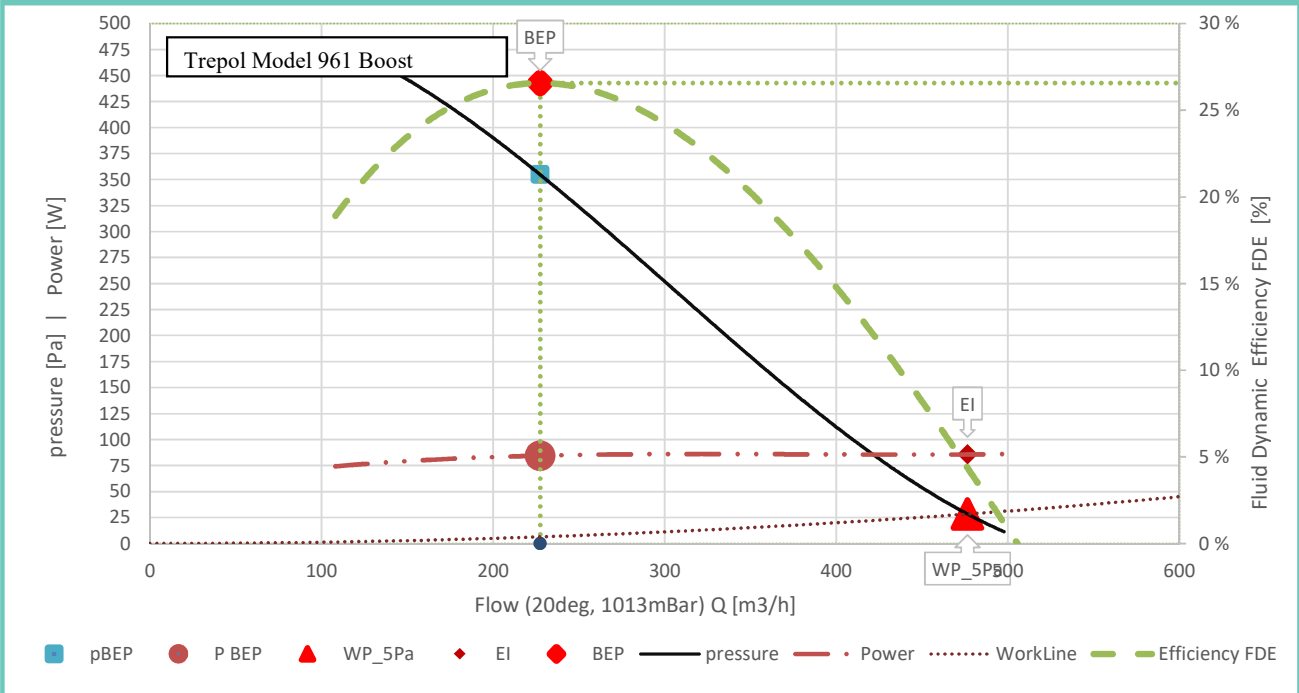
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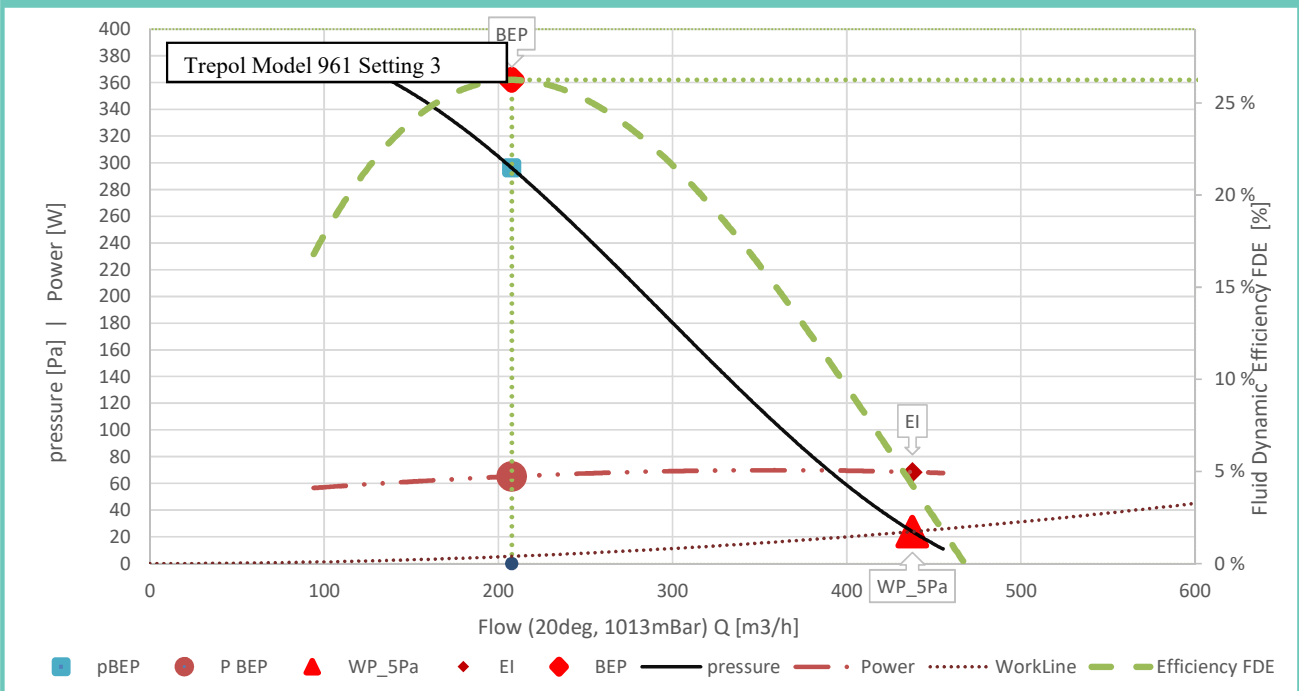
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### Test results - continued:

#### Volumetric airflow - Boost



#### Volumetric airflow - Max





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### Test results - continued:

#### Lightning

Back left  Back right  Middle  Back right  Back right   
Front left  Front left  Front Right  Front Right   
Average Light level:  lux LE:  Class:

#### Grease absorption

Filter  g Abs.Filter  g Airways  g Range Hood  g  
GFE  % GFE Class

#### Sound Power Level

Total and Octave values:	125	250	500	1000	2000	4000	8000	Sum A	
Setting 1	39,0	43,5	45,2	40,9	46,6	37,8	22,4	<b>51,1</b>	dB(A) re 1pW
Setting 2	42,2	51,7	52,2	49,3	53,9	50,9	35,0	<b>59,0</b>	dB(A) re 1pW
<b>Setting 3</b>	51,8	63,6	59,6	56,0	60,5	58,4	47,5	<b>67,6</b>	dB(A) re 1pW
Setting 4 / Boost	49,3	57,8	63,1	0,0	62,3	60,6	50,6	<b>68,1</b>	dB(A) re 1pW
Background	-5,8	-1,8	2,9	7,7	12,5	17,1	19,6	23,8	dB(A) re 1pW
RefSoundSource	65,5	73,1	78,9	85,4	87,4	85,1	80,1	91,6	dB(A) re 1pW

Measured

The total standard deviation  $\sigma$  according to ISO 3743-1 in the conducted measurement is 1,6 dB.

Pleaser refer to appendix I for elaboration.

#### Performance of odour extraction

Flowrate  m<sup>3</sup>/h C1  ppm C2  ppm  
O<sub>f</sub>  %



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### Test object pictures:





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### Appendix I - Enclosure: Sound Power emission from Range Hood:

<b>Make and model :</b>	Model 961i	SerNo:	Testversion
<b>Measurement date:</b>	27.06.2019	<b>Initials:</b>	BBJN

#### Measurement Method:

DS/EN 60704-2-13:2017 Household and similar electrical appliances - Test code for determination of airborne acoustical noise - Part 2-13: Particular requirements for range hoods.

**Measurement site:** Reverberation room at Technological Institute, Gregersensvej 3, Taastrup.

#### Measurement system:

The measurement setup consisted of six Brüel & Kjaer microphones of the type 4165 connected to a six channel A/D converter type Brüel & Kjaer LAN-XI 3050-A-060 controlled by software B&K "PULSE" version 20.0.0.455 on a Windows-10 computer.

The room temperature, humidity and appliance temperature was recorded and logged by a TSI-9565-P system. The external calibrated reference sound power source is of make Brüel & Kjaer type 4204 . The determination of the sound power is based on measurements in 1/3-octaves ensuring correct frequency dependent calculation. All sound pressure measurements were determined by the energetic mean of all 6 .

All measurement systems are calibrated according to DANAK certification no.300.

Measurement conditions: Temperatur 23 deg.celsius, Humidity 41 %RH.

#### Picture of mounted range hood:



NOTE: Cabinet front mounted during measurements