



Tlf. +47 61 23 69 60    [www.norskkleber.no](http://www.norskkleber.no)  
[post@norskkleber.no](mailto:post@norskkleber.no)

21 dec 2021 Otta Norway

## DECLARATION REGARDING HHV NORSK KLEBER STOVES

We hereby declare that our masonry heaters that are for sale in Northern America, namely the series Merethe+, Babina+, Marcello and Kube all have high heating value efficiencies higher than 75% as has been testified by the independent research organisation SINTEF AS, Trondheim, Norway, based on the test results of independent, certified test institutions that have tested the named model series for Norsk Kleber AS.

The declaration from SINTEF AS is enclosed.

  
Egbert van de Schootbrugge  
CEO Norsk Kleber AS

 **NORSK  
KLEBER as**  
Org.nr. 954 953 505 MVA

**Your ref.**  
Egbert van de Schootbrugge

**Our ref.**  
FK/MS

**Project No. / File code**  
Project / File code

**Date**  
2021-03-04

To whom it might concern,

### Efficiency calculation according to B415.1-10

Upon a request from Egbert van de Schootbrugge, the CEO of Norsk Kleber AS, SINTEF Energy have used log data from the latest European type test reports for two stove model series, to calculate the efficiency for each, using an Excel spreadsheet in accordance with the procedure specified in CSA B415.1-10. The efficiencies according to the European type tests and recalculated according to B415.1-10 are:

Stove model series	EN 13240	B415.1-10
Kube (SINTEF report no. 102044.44A)	86.0 %	78.0 %
Octo +/+110, Merethe +/+110 and Babina +/+110 (SINTEF report no. 102044.11A, SINTEF 110-0363)	85.9 %	76.7 %
Marcello series	82.0 %	79.0 %

(See p.2 for CSA B415.1 Calculation reports)

Yours sincerely,  
for SINTEF Energi AS

Franziska Kausch, Research Engineer



Morten Seljeskog, Research Scientist



Reports from CSA B415.1 Calculations, Spreadsheet created by: Rick Curkeet, PE, Intertek Testing Services, NA Inc., Version 2.4 15 April 2010

### Kube

Manufacturer:	Granit Kleber
Model:	Kube
Date:	
Run:	
Control #:	
Test Duration:	46
Output Category:	nom

#### Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	78.0%	83.1%
Combustion Efficiency	99.2%	99.2%
Heat Transfer Efficiency	79%	83.8%

			(Btu/h)
Output Rate (kJ/h)	25 908	24 577	
Burn Rate (kg/h)	1.67	3.69	(lb/h)
Input (kJ/h)	33 226	31 518	(Btu/h)

Test Load Weight (dry kg)	1.28	2.83	dry lb
MC wet (%)	17		
MC dry (%)	20.48		
Particulate (g )	0		
CO (g)	20		
Test Duration (h)	0.77		

Emissions	Particulate	CO
g/MJ Output	0.00	0.98
g/kg Dry Fuel	0.00	15.24
g/h	0.00	25.50
lb/MM Btu Output	0.00	2.29

Air/Fuel Ratio (A/F)	11.08
----------------------	-------

v2.4 2010-04-15

### Octo

Manufacturer:	Granit Kleber
Model:	Octo
Date:	
Run:	
Control #:	
Test Duration:	53.5
Output Category:	nom

#### Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	76.7%	81.8%
Combustion Efficiency	99.5%	99.5%
Heat Transfer Efficiency	77%	82.2%

			(Btu/h)
Output Rate (kJ/h)	24 187	22 944	
Burn Rate (kg/h)	1.59	3.50	(lb/h)
Input (kJ/h)	31 518	29 898	(Btu/h)

Test Load Weight (dry kg)	1.42	3.12	dry lb
MC wet (%)	17		
MC dry (%)	20.48		
Particulate (g )	0		
CO (g)	11		
Test Duration (h)	0.89		

Emissions	Particulate	CO
g/MJ Output	0.00	0.50
g/kg Dry Fuel	0.00	7.66
g/h	0.00	12.15
lb/MM Btu Output	0.00	1.17

Air/Fuel Ratio (A/F)	13.93
----------------------	-------

v2.4 2010-04-15

### Marcello

Manufacturer:	Granit Kleber
Model:	Marcello
Date:	
Run:	
Control #:	
Test Duration:	44.5
Output Category:	nom

#### Test Results in Accordance with CSA B415.1-10

	HHV Basis	LHV Basis
Overall Efficiency	79.0%	84.2%
Combustion Efficiency	99.5%	99.5%
Heat Transfer Efficiency	79%	84.6%

			(Btu/h)
Output Rate (kJ/h)	34 739	32 954	
Burn Rate (kg/h)	2.22	4.88	(lb/h)
Input (kJ/h)	44 000	41 738	(Btu/h)

Test Load Weight (dry kg)	1.64	3.62	dry lb
MC wet (%)	17		
MC dry (%)	20.48		
Particulate (g )	0		
CO (g)	13		
Test Duration (h)	0.74		

Emissions	Particulate	CO
g/MJ Output	0.00	0.50
g/kg Dry Fuel	0.00	7.77
g/h	0.00	17.23
lb/MM Btu Output	0.00	1.15

Air/Fuel Ratio (A/F)	10.10
----------------------	-------

VERSION: 2.4 2010-04-15

For the Marcello series, SINTEF Energy Research AS has performed simulations to calculate a chimney temperature using data from European type testing and transferring these to the CSA B415 method. The US method measures the temperature significantly higher up in the chimney than the European one, resulting in a lower chimney temperature than what is achieved in the European EN13240 type testing method. Simulating according to the CSA B415 chimney setup results in a temperature drop from 261 deg.C to 182 deg.C with a corresponding efficiency of 79%.