

**Kahhelahjud / krohvitud pinnaga ahjud.
Dimensioneerimine**

**One off Kachelgrundöfen/Putzgrundöfen (tiled/mortared
stoves) - Dimensioning**

EVS

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**One off Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves)
- Dimensioning**

Poêles en faïence, poêles en maçonnerie fabriqués in situ -
Dimensionnement

Ortsfest gesetzte Kachelgrundöfen/Putzgrundöfen -
Auslegung

This European Standard was approved by CEN on 19 June 2009.

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Foreword

This document (EN 15544:2009) has been prepared by Technical Committee CEN/TC 295 "Residential solid fuel burning appliances", the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Introduction

This standard specifies a calculation method for the dimensioning of Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves) based upon the required nominal heat output of the stove as declared by the producer. If the calculations of this standard are observed, the minimum energy efficiency of 78% and the emission values of carbon monoxide 1 500 mg/m³ (1 000 mg/MJ), nitrogen dioxide 225 mg/m³ (150 mg/MJ), organically bound carbon 120 mg/m³ (80 mg/MJ) and dust 90 mg/m³ (60 mg/MJ) will be observed too.

This calculation method for the dimensioning of Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves) is based on appropriate literature as well as EN 13384-1, and where empirically determined correlations are used in addition to physical and chemical formulas.

NOTE In case of a calculation method for different interior materials than fireclay the proof of the compliance of the emission values should be delivered separately. Furthermore the empiric data of the combustion chamber dimensions, the minimum flue pipe length, the burning rate as well as the combustion chamber temperature and the decrease of the temperature along the flue pipe should also be determined.

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1 Scope

This standard specifies calculations for the dimensioning of Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves) based upon the required nominal heat output of the stove as declared by the producer. The Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves) are of individual one-off construction design. The standard can be used for log wood fired Kachelöfen (tile stoves) that burn one fuel load per storage period with a maximum load between 10 kg and 40 kg and a storage period (nominal heating time) between 8 h and 24 h.

This standard is valid for Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves) equipped with fireclay as interior material, with an apparent density between 1,750 kg/m³ and 2,200 kg/m³, a degree of porosity from 18 % up to 33 % by volume and a heat conductivity from 0,65 W/mK up to 0,90 W/mK (temperature range 20 °C to 400 °C).

This standard is valid for Kachelgrundöfen/Putzgrundöfen (tiled/mortared stoves) with sidewise combustion air supply of the combustion chamber and an inflow speed from 2 m/s to 4 m/s, whereas the height of the lowest opening is at least 5 cm above the bottom of the combustion chamber.

This standard is not valid for combinations with water heat exchangers for central heating or other heat absorbing elements like glass plates greater than 1/6 of the combustion chamber surface, open water tanks, etc. It is also not valid for combinations with heating/fireplace elements according to EN 13229. Furthermore this standard is not valid for mass-produced prefabricated or partly prefabricated slow heat release appliances according to EN 15250.

NOTE Although for the purposes of this standard these calculations are applicable only to the requirements of this standard, the same calculations can be used for other purposes, e.g. to verify emission levels and energy efficiency in case of burning log wood or wood briquettes according to the producer's manual.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13384-1, *Chimneys – Thermal and fluid dynamic calculation methods – Part 1: Chimneys serving one appliance*

3 Terms and definitions

3.1

construction with air gap

construction, with an air gap between the inner and the outer shell

3.2

construction without air gap

construction, with no air gap between the inner and the outer shell

3.3

combustion chamber base A_{BR}

area of a horizontal cut through the combustion chamber at the height of the lower edge of the firebox opening

3.4

combustion chamber height H_{BR}

mean vertical distance between the combustion chamber base and the combustion chamber ceiling