



**Technical Board (Austrian Kachelofen Association)**

**Eco-labeled combustion chamber**

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## **Factsheet 10**

# **Eco-labeled combustion chamber**

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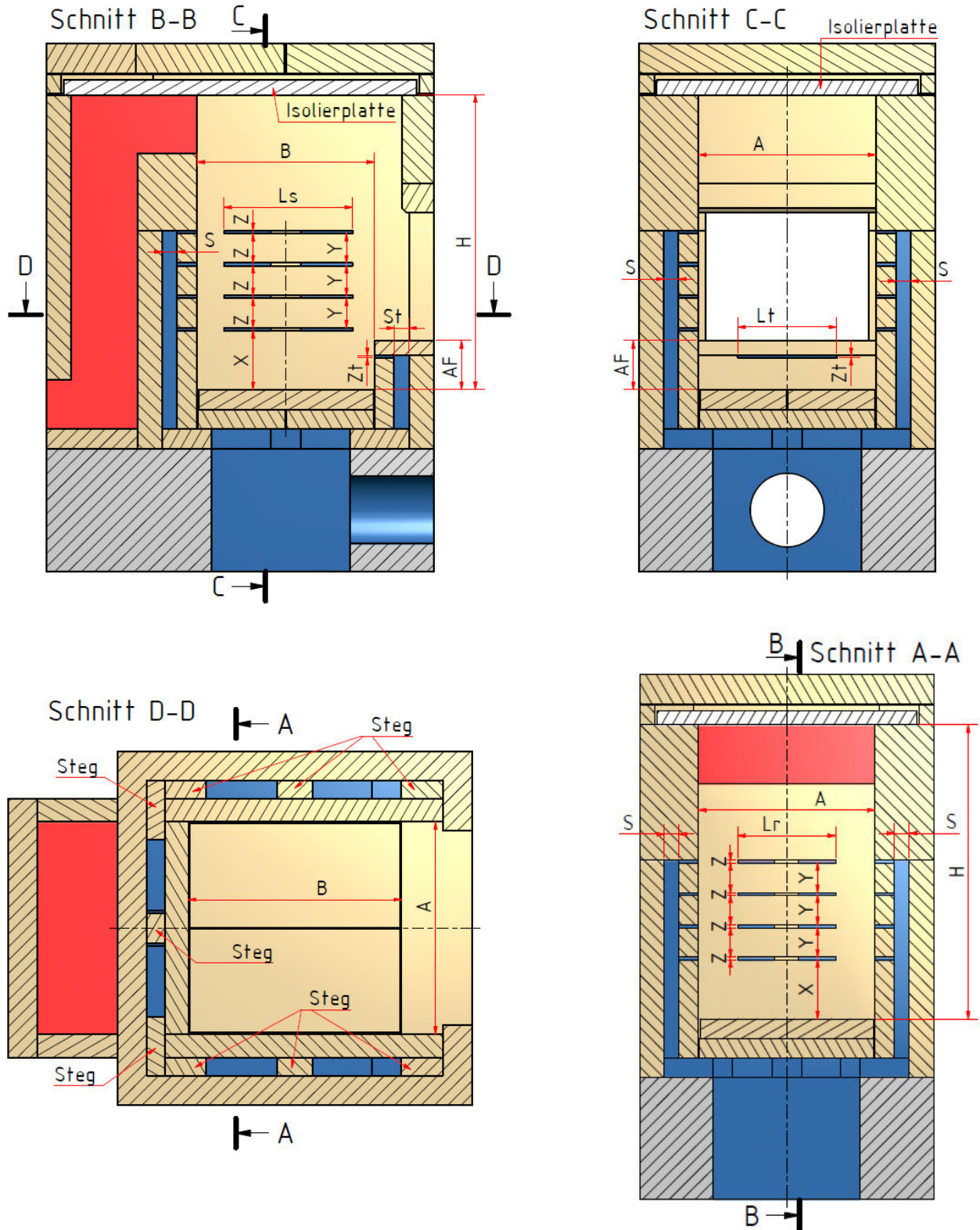
## Introduction

This leaflet is designed to assist in the construction of the Eco-labeled combustion chamber that is characterized by extremely low emission levels and permit the attainment of the Austrian Eco Label

### 1 Scope

This factsheet provides guidelines for the basic version of the Eco-labeled combustion chamber.

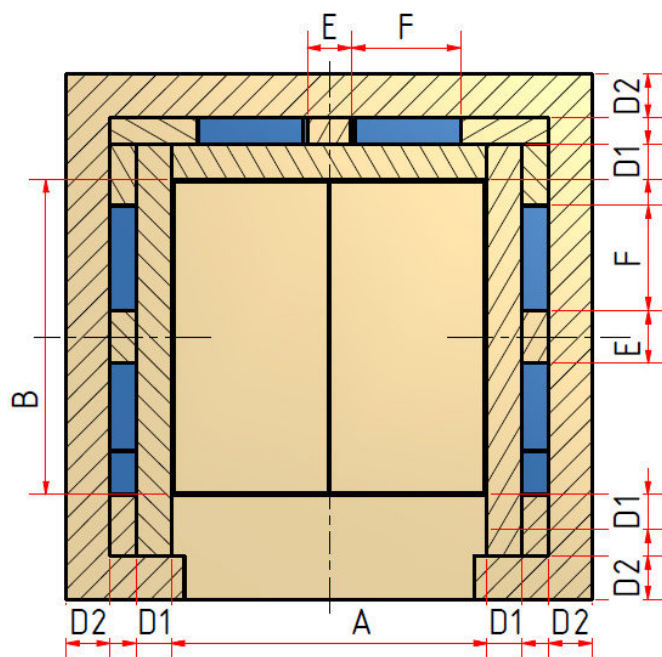
## 2 Technical drawings with notations



- A = dimension, width of combustion chamber  
 B = dimension, depth of combustion chamber  
 H = dimension, height of the combustion chamber  
 AF = (ash fall) dimension, depth of the ash compartment area of the firebox: distance between base of door opening to the floor of the firebox  
 Lr = dimension, width of the combustion air slot: rear wall  
 Ls = dimension, width of the combustion air slot: side wall  
 Lt = dimension, width of the combustion air slot: glass fire door wall  
 X = dimension from combustion chamber floor to the first combustion air supply slot  
 Y = dimension between combustion chamber air supply slots  
 S = minimum dimension between combustion chamber inner wall to outer wall: side and rear wall  
 St = minimum dimension combustion chamber inner wall to outer wall: glass fire door wall  
 Z = dimension combustion air slot: side wall  
 Zt = dimension combustion air slot: glass fire door wall

Dimensioning of the data Lr to Zt is figured out by the calculation program of the Austrian Kachelofen Association.

### 3 Implementation Details of 1,6 kW (6 kg) to 6,0 kW (22,2 kg)



Wall thickness at 1,6 kW (6 kg)  
to < 3,5 kW (< 12,9 kg)

	min. (cm)	max. (cm)
D1	4	6,5
D2	6,5	8

Wall thickness at 3,5 kW (12,9 kg)  
to 6,0 kW (22,2 kg)

	min. (cm)	max. (cm)
D1	5,5	12,5
D2	6,5	8

Note: all mentioned heat outputs correspond to 12 hrs nominal heating time.



- The dimensioning of the combustion chamber geometry is performed according to the ÖNORM EN 15544. By way of derogation it is allowed to change the width – depth ratio of the combustion chamber from 0.5 to 2.
- Fireclay material is used in accordance with ÖNORM B 8306<sup>th</sup> to construct the inner body of the stove
- The ash fall (AF) must be min. 5 cm or max. 12 cm run.
- The minimum combustion chamber height in cm is 25 + maximum amount of heat load in kg.
- The wall thickness D2 (fireclay materials) must not be less than the data according to the implementation details: figure 3.
- To provide a higher strength to the slotted fireclay material in the combustion chamber we recommend to that reinforcement bars are provided. These bars (for example 2 cm thick fireclay material) support the fireclay material against the back wall if the combustion chamber width slots are more than  $F > 18$  cm (smaller combustion air slots are possible).
- The width of the bar is  $E \leq 6$  cm.
- The sum of all space that bars cover is not allowed to exceed more than 20 % of the combustion air slots.
- The insulation plate has to be situated free of contact and pressure to the slab of the combustion chamber. The plate must be suitable for use in the combustion chamber and have a temperature resistance of  $> 1100$  °C (for example: vermiculite plates Thermax HD1200, SilcaBoard). The thermal conductivity of the plate must be less than 0,35 W/mK at 600 °C The combustion chamber insulation plate is to be additionally supported on the neighboured walls and has to be stretched to the slab of the neighbouring flue (the Out Burn).
- The use of carcinogenic and halogenated organic insulation materials is not allowed in Eco-labeled stoves (even the combustion chamber insulation plate).
- The design and arrangement of the combustion chamber air slots is to comply with the calculation program of the Austrian Kachelofen Association.
- The cleaning of the combustion chamber (eg ash falls in the slots) is done via the base plates. It should be noted that the bottom plate is constructed in several parts and the parts are loosely inserted, so that a cleaning can take place through the glass fire door. Alternatively, this opportunity can also be provided as an air tight inspection opening situated in the base.
- The Out Burn may be sideways, backwards or upwards realized. The upwards version has also to be insulated with an adequate insulation plate followed by the combustion chamber slab.
- When using a glass fire door with air wash system the combustion chamber slot situated in the front part below the door does not have to be implemented.
- Heating doors with glass panels can be used up to 1/6 area of the combustion chamber inner surface