

Title (en)

Secondary tube combustion chamber located in the primary combustion chamber of a solid biofuel gasification boiler

Title (de)

In einer Primärbrennkammer eines Vergaserkessels für feste Biomasse angeordnete rohrförmige Sekundärbrennkammer

Title (fr)

Chambre de combustion secondaire de forme tubulaire disposée dans la chambre de combustion primaire d'une chaudière à gazéification de biomasse solide

Publication

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Application

EP 14386010 A 20140428

Priority

GR 2013100270 A 20130501

Abstract (en)

The invention concerns boiler for solid biofuels of the interjacent or upper combustion type, see figures 8 and 9 respectively. A secondary combustion chamber (2) is located within the primary combustion chamber (3) and consists of a temperature resistance tube with sufficient length and cross section. The tube (2) extends in the primary combustion chamber (3) in such a way, that it exposes the maximum outer surface to the hot exhaust gases and flames and being closed to the surface of the combusted biofuel (4), (5) in the primary combustion chamber (3). Within the tube (2) the primary combustion gases enter forcibly along with the secondary combustion air "S", which enters in the form of a high-speed jet, while the primary combustion air "P" is inserted in the primary combustion chamber (3). The hot gases are lead from the exit of the secondary chamber (2) to the heat exchangers (1) of the boiler. The particular this configuration achieves very good combustion efficiency, satisfying the three conditions of combustion, i.e. Temperature, since tube (2) is heated externally by the pyrolyzed mass and the combustion gases, Turbulence, since passing the exhaust gases within the narrow and long tube (2) are compulsory mixed with the secondary combustion air and finally Time, since the tube has adequate length to ensure enough combustion time. Measurements carried out on experimental boiler based on the invention, showed values of pollutants CO₂ = 16%, CO = 200ppm, O₂ = 14.9%, which are within the limits established under more stringent EU, to take effect after 2017.

IPC 8 full level

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CPC (source: EP)

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Citation (search report)

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