

Title (en)  
SINGLE-BOILER-SHEET SERIES CAST ALUMINUM-SILICON WATER HEATER COUPLED TO PRE-MIXING WATER-COOLING COMBUSTOR

Title (de)  
EIN-KESSEL-BLECH-WASSERERHITZER AUS ALUMINIUM-SILIZIUM-GUSS IN VERBINDUNG MIT EINEM BRENNER MIT VORMISCHUNG UND WASSERKÜHLUNG

Title (fr)  
CHAUFFE-EAU EN ALUMINIUM-SILICIUM COULÉ EN SÉRIE DE TÔLES DE CHAUDIÈRE UNIQUES, ACCOUPLÉ À UNE CHAMBRE DE COMBUSTION À REFROIDISSEMENT PAR EAU ET À PRÉ-MÉLANGE

Publication  
**EP 4075075 A1 20221019 (EN)**

Application  
**EP 21843100 A 20210708**

Priority  
• CN 202010688233 A 20200716  
• CN 2021105092 W 20210708

Abstract (en)  
A premixed water-cooling combustion coupled cast-aluminum-silicon water boiler with series-connected boiler sections. A main structure is formed by axisymmetric series-connected boiler sections instead of three different boiler sections, including an upper radiation zone composed of a water-cooling combustion head, a front cover plate and a rear cover plate, a middle convection zone and condensation zone, and a lower special-shaped smoke box. A center of a combustion chamber of each boiler section is provided with a water-cooling combustion head including an annular water channel, two parallel ascending water channels or water channels respectively provided at two sides of an upper portion of a furnace. A flue gas-air mixture is ignited to burn after passing through anti-backfire ribs and flame-stabilizing fins. The flue gas is allowed to flow downward through radiation zone, the convection zone and a pin-fin heating surface of the condensation zone, and is collected in the special-shaped smoke box. The flue gas is allowed to turn to be upwardly discharged. The boiler is provided with a header inside rather than connected to an external water channel, so as to simplify sealing, improve working efficiency, and make a boiler structure more compact. The water boiler integrates water cooling and heat exchange, reducing a temperature of the combustion area, restraining a generation of nitrogen oxides, and reducing nitrogen oxides.

IPC 8 full level  
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