

Title (en)

Device for cleaning oxidized or corroded components in the presence of a halogenous gas mixture

Title (de)

Vorrichtung zur Reinigung oxidierter oder korrodierter Bauteile in Gegenwart eines halogenhaltigen Gasgemisches

Title (fr)

Dispositif à nettoyage des composants oxydés ou corrodés en présence d'un mélange gazeux de halogènes

Publication

EP 2192209 A3 20140813 (DE)

Application

EP 09175543 A 20091110

Priority

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- US 35264109 A 20090113

Abstract (en)

[origin: EP2192209A2] The device for cleaning oxidized or corroded turbine blade (26) exposed to hot gases in the presents of halogen-containing gas mixture, comprises a cleaning reactor in which a feeder directly or indirectly flows that is connected over a flow control arrangement with a gas reservoir stocking the halogen-containing gas. The flow control arrangement provides a gas quantity control valve (5), a heat exchanger unit (9) and/or a gas quantity measuring unit (6) in sequence along the flow direction of the halogen-containing gases flowing through the feeder. The device for cleaning oxidized or corroded turbine blade (26) exposed to hot gases in the presents of halogen-containing gas mixture, comprises a cleaning reactor in which a feeder directly or indirectly flows that is connected over a flow control arrangement with a gas reservoir stocking the halogen-containing gas. The flow control arrangement provides a gas quantity control valve (5), a heat exchanger unit (9) and/or a gas quantity measuring unit (6) in sequence along the flow direction of the halogen-containing gases flowing through the feeder. A shut-off valve (3) is equipped downstream and upstream to the flow control arrangement in the feeder and a bypass line is equipped to the flow control arrangement along the feeder along which a control valve is arranged. The shut-off valve is formed as block valve and the control valve is formed as manual valve. The heat exchanger unit comprises an electric heater. The halogen-containing gas is hydrogen fluoride gas. The feeder flows into an inlet line guiding the cleaning reactor before entering into the cleaning reactor. In the inlet line, a second feeder flows before entering into the cleaning reactor. The second feeder is connected with a hydrogen gas reservoir. A central tube is connected directly or indirectly with the feeder. The central tube extends itself from a reactor head up to a reactor sump within the cleaning reactor and is connected in the area of the reaction sump with a first distribution structure extending itself radially to the central tube. The first distribution structure enacts over discharge opening for the halogen-containing gas mixture and projects a support plane for the component to be cleaned. A second distribution structure is arranged to the first distribution structure at the central tube and projects a support plane for the component to be cleaned extending itself radially to the central tube. The distribution structure possesses discharge openings for the halogen-containing gas. Further distribution structures are arranged distanced to each other along the central tube. The second and further distribution structure have discharge opening for the halogen-containing gas, where the discharge openings are arranged on the distribution structure directly adjoining along the central tube. The first and further distribution structures are formed in plate- or grid shaped manner. The distribution structure possesses a stub radially passing by the central tube. A closed circular pipeline circularly passing the central tube exists radially from the stub to the central tube. The discharge openings are arranged along the stub and/or the circular pipeline. The stub and circular pipeline are made from a form stable tubular material and describe a spiders web-like support plane, on which the components to be cleaned are directly laid out. The distribution structure surrounds the central tube in disc-like manner and comprises a disc edges of disc volume connected in fluid tight manner with an upper ad lower disc plates and/or both disc plates at its circumference edge. The disc volume is supplyable over an opening turned to the central tube in the distribution structure with the halogen-containing gas. The upper disc plate comprises discharge opening for the halogen-containing gas. Flow deflector units influencing the gas discharge direction are equipped on the discharge opening. The upper disc plate projects recesses in which modular-like sector plates are inserted and the sector plate projects individual pattern at the discharge opening. The distribution structure is connected with interiorly lying radial cuffs that serve as carrier- and support structure. Cylindrical shaped spacer cuffs are equipped along the central tube for mutual spacing of distribution structures along the central tube.

IPC 8 full level

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Citation (search report)

- [ID] EP 0209307 B1 19880907
- [YA] EP 1882823 A2 20080130 - ROLLS ROYCE PLC [GB]
- [YA] JP 2001003705 A 20010109 - HITACHI LTD

Cited by

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