

Title (en)

Method for mechanical processing a waste gas conveying surface area of a combustion engine or crankcase component as well as combustion engine crankcase and cylinder liner

Title (de)

Verfahren zur mechanischen Bearbeitung eines abgasführenden Oberflächenbereichs eines Brennkraftmaschinen- oder Kurbelgehäusebestandteils sowie Brennkraftmaschinen-Kurbelgehäuse und Zylinderlaufbuchse

Title (fr)

Procédé de traitement mécanique d'une surface transportant des gaz d'échappement d'un composant de moteur à combustion interne ou d'un carter d'embellage ainsi que carter d'embellage de moteur à combustion interne et une chemise de cylindre

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Application

EP 11005427 A 20110702

Priority

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Abstract (en)

The method for machining an exhaust-gas-conducting surface region of an internal combustion engine or crankcase part, comprises: machining the exhaust-gas-conducting surface region produced from a corrodible material using a surface-condition-changing machining tool; bringing the exhaust-gas-conducting surface region into contact, during the machining, with a tribochemically activatable substance activated during the machining; and forming a corrosion-resistant surface as a triboreaction layer with the respective surface region, by tribochemical reaction. The method for machining an exhaust-gas-conducting surface region of an internal combustion engine or crankcase part, comprises: machining the exhaust-gas-conducting surface region produced from a corrodible material using a surface-condition-changing machining tool; bringing the exhaust-gas-conducting surface region into contact, during the machining, with a tribochemically activatable substance activated during the machining; forming a corrosion-resistant surface as a triboreaction layer with the respective surface region, by tribochemical reaction; providing a cylinder barrel (3) of an internal combustion engine crankcase or the cylinder barrel of a cylinder sleeve as the exhaust-gas-conducting surface region; activating the tribochemically activatable substance as a function of a defined contact pressure of the machining tool or a defined machining temperature generated during the machining, where the machining step is carrying out by mechanically machining and changing the exhaust-gas-conducting surface region with regard to surface condition using a mechanical machining tool as the surface-condition-changing machining tool; providing a chip-removing or chip-forming machining tool as the surface-condition-changing machining tool; providing a honing tool as the surface-condition-changing machining tool; applying the tribochemically activatable substance directly to the surface to be mechanically machined before or during the machining using the machining tool; adding the tribochemically activatable substance as an additive to a lubricant (9) supplied during the mechanical machining; applying the tribochemically activatable substance directly to the surface to be mechanically machined before or during the machining using the machining tool; forming the tribochemically activatable substance of a metal silicate; and producing the triboreaction layer in a final machining step before finishing the part. The crankcase is formed of a material consisting of an iron material, a corrodible cast iron and a corrodible steel. Independent claims are included for: (1) an internal combustion engine crankcase; and (2) a cylinder sleeve.

Abstract (de)

Die Erfindung betrifft ein Verfahren zur mechanischen Bearbeitung, eines abgasführenden Oberflächenbereichs eines Brennkraftmaschinen- oder Kurbelgehäusebestandteils, insbesondere zur Bearbeitung von einer Zylinderlaufbahn (3) eines Brennkraftmaschinen-Kurbelgehäuses oder zur Bearbeitung einer Zylinderlaufbahn einer Zylinderlaufbuchse. Ein aus einem korrosionsanfälligen Werkstoff hergestellter abgasführender Oberflächenbereich (3) wird mittels des Bearbeitungswerkzeuges (2) mit einem tribochemisch aktivierbaren Stoff (9) in Kontakt gebracht, der im Verlauf der Bearbeitung, in Abhängigkeit von einem definierten Anpressdruck des Bearbeitungswerkzeuges (2) und/oder einer definierten Bearbeitungstemperatur, aktiviert wird und mit dem jeweiligen Oberflächenbereich durch tribochemische Reaktion eine korrosionsbeständige Oberfläche als Triboreaktionsschicht (13) ausbildet. Ferner wird ein solchermaßen ausgebildetes Kurbelgehäuse und eine solchermaßen ausgebildete Zylinderlaufbuchse vorgeschlagen.

IPC 8 full level

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CPC (source: EP US)

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