

Title (en)  
METHOD FOR INTRODUCING HIGHLY PRECOMPRESSED COMBUSTION AIR INTO A COMBUSTION CHAMBER OF AN INTERNAL COMBUSTION ENGINE, HIGH-PRESSURE INLET VALVE THEREFOR AND INTERNAL COMBUSTION ENGINE HAVING SUCH A HIGH-PRESSURE INLET VALVE

Title (de)  
VERFAHREN ZUM EINBRINGEN HOCHVORVERDICHTETER VERBRENNUNGSLUFT IN EINEN BRENNRAUM EINER VERBRENNUNGSKRAFTMASCHINE, HOCHDRUCKEINLASSVENTIL HIERFÜR UND VERBRENNUNGSKRAFTMASCHINE MIT EINEM DERARTIGEN HOCHDRUCKEINLASSVENTIL

Title (fr)  
PROCÉDÉ POUR INTRODUIRE DE L'AIR DE COMBUSTION FORTEMENT PRÉCOMPRESSÉ DANS UNE CHAMBRE DE COMBUSTION D'UN MOTEUR À COMBUSTION INTERNE, SOUPAPE D'ADMISSION HAUTE PRESSION À CET EFFET ET MOTEUR À COMBUSTION INTERNE COMPRENANT UNE TELLE SOUPAPE D'ADMISSION HAUTE PRESSION

Publication  
**EP 3918186 A2 20211208 (DE)**

Application  
**EP 20701981 A 20200123**

Priority  

- DE 102019201123 A 20190129
- DE 102019202318 A 20190220
- EP 2020051598 W 20200123

Abstract (en)  
[origin: WO2020156915A2] A method for introducing combustion air into a cylinder (25) of an internal combustion engine, a high-pressure inlet valve (1) provided therefor and an internal combustion engine that operates using the method and the high-pressure inlet valve are described. All the combustion air for the respective cylinders (25) is introduced into the cylinder (25) of the internal combustion engine, by means of a high-pressure inlet valve (1) arranged in the relevant cylinder head (26) and on the basis of a controlled mass flow, such that mixture formation and charge exchange are intensified. In addition, the temperature and/or pressure of the combustion air is measured and the quantity of combustion air is introduced into the cylinder (25), in a controlled manner and on the basis of the measurement results, by means of the high-pressure inlet valve (1) by opening or closing a sliding piston (3) of the high-pressure inlet valve (1) by displacement. As a result of an axial displacement of the sliding piston (3) between guide sections (5) in the housing (2) of the high-pressure inlet valve (1), passage areas (6) for combustion air are blocked in a closed position (7) and opened in an open position (8). In the passage area (6), the sliding piston (3) has two pressurization areas (10, 11) facing each other, the surfaces of which are of equal size or differ from each other when projected in one plane. The first pressurization area (10) can be designed as a poppet valve (12) and the second pressurization area (11) can be designed as an annular surface (13). The internal combustion engine has a high-pressure line (27) for the combustion air, which line is connected to the high-pressure inlet valve (1). With respect to the longitudinal axis of the cylinder (25), the high-pressure inlet valve (1) is arranged in the cylinder head (26) in an upright or horizontal position.

IPC 8 full level  
**F01L 5/02** (2006.01); **F01L 1/053** (2006.01); **F01L 3/06** (2006.01); **F01L 3/10** (2006.01); **F01L 3/20** (2006.01); **F01L 5/14** (2006.01); **F01L 7/10** (2006.01); **F01L 7/16** (2006.01)

CPC (source: CN EP KR US)  
**F01L 1/0532** (2013.01 - CN KR US); **F01L 3/06** (2013.01 - CN EP KR US); **F01L 3/10** (2013.01 - CN EP KR US); **F01L 3/20** (2013.01 - CN EP KR); **F01L 5/02** (2013.01 - CN EP KR US); **F01L 5/14** (2013.01 - CN EP KR); **F01L 5/16** (2013.01 - US); **F01L 7/10** (2013.01 - CN EP KR); **F01L 7/16** (2013.01 - CN EP KR); **F02B 17/005** (2013.01 - US); **F02D 13/0223** (2013.01 - CN); **F02D 41/0002** (2013.01 - CN); **F02D 41/18** (2013.01 - CN); **F01L 1/0532** (2013.01 - EP); **F01L 13/04** (2013.01 - US); **F01L 2810/05** (2013.01 - CN EP KR US); **Y02T 10/12** (2013.01 - EP KR)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**WO 2020156915 A2 20200806**; **WO 2020156915 A3 20201203**; **WO 2020156915 A9 20210121**; AU 2020214459 A1 20210812; BR 112021014863 A2 20211005; CA 3128284 A1 20200806; CN 113383155 A 20210910; EP 3918186 A2 20211208; JP 2022518831 A 20220316; KR 20210114980 A 20210924; MX 2021008828 A 20210928; US 2022090522 A1 20220324

DOCDB simple family (application)  
**EP 2020051598 W 20200123**; AU 2020214459 A 20200123; BR 112021014863 A 20200123; CA 3128284 A 20200123; CN 202080011673 A 20200123; EP 20701981 A 20200123; JP 2021544261 A 20200123; KR 20217025424 A 20200123; MX 2021008828 A 20200123; US 202017426180 A 20200123