

Title (en)

Internal combustion engine with two-stage internal gear pump

Title (de)

Brennkraftmaschine mit zweistufiger Innenläufer--Zahnradpumpe

Title (fr)

Moteur à combustion interne avec pompe à engrenages internes à deux étages

Publication

EP 0811765 A2 19971210 (DE)

Application

EP 97106781 A 19970424

Priority

DE 19622688 A 19960605

Abstract (en)

The engine comprises a two-stage internal runner gear wheel pump (1) with an intermediate runner (3), with separate pressure connections (6,7). Each pressure chamber (8,9) via a pressure limiting valve (7,20) integrated in the pump housing (4) is connected with the suction chamber (10,11). The second hydraulic circuit is used for the control and regulation of a valve drive-adjustment device, particularly a camshaft rotary angle adjustment device. The control and regulating pressure (P2) is greater than the delivery pressure (P1) for the lubrication system. The lubricating system hydraulic circuit, when a predetermined minimal pressure is not reached, is connectable via a controllable 4/2 path valve with the hydraulic circuit of the adjustment device. The path valve is integrated in the pump housing (4).

Abstract (de)

Für eine Brennkraftmaschine mit mittels Schmieröl versorgten gesonderten Hydraulikkreisen mit jeweils einer Pumpe wird zur Antriebsvereinfachung bei reduziertem Einbauraum vorgeschlagen, anstelle der gesonderten Pumpen eine mittels eines Zwischenläufers zweistufige Innenläufer-Zahnradpumpe zu verwenden. <IMAGE>

IPC 1-7

F04C 2/10; **F04C 15/04**

IPC 8 full level

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CPC (source: EP)

F04C 2/103 (2013.01); **F04C 11/001** (2013.01); **F04C 15/06** (2013.01)

Cited by

CN112879279A; AT407563B; GB2516523A; CN102900665A; EP3848592A1; CN113107637A; EP1961961A3; CN104929930A; CN109469609A; US6195990B1; US11598071B2; EP1961961A2; US9951771B2; US7946402B2; WO0042321A1; WO2006102948A1; JP2008202488A; JP2008537580A; JP4833277B2

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