

Title (en)

Valve control with suction regulated internal gear pump

Title (de)

Ventilsteuerung mit sauggeregelter Zahnring-/Innenzahnradpumpe

Title (fr)

Contrôle des soupapes avec pompe à engrenages internes avec réglage de l'aspiration

Publication

**EP 0712997 A3 19960828 (DE)**

Application

**EP 95115966 A 19951010**

Priority

- DE 4437076 A 19941017
- DE 19523533 A 19950628

Abstract (en)

[origin: EP0712997A2] A pump driven by the engine is used for supplying the valve timing and lift adjustment component with work fluid. The pump is formed as a suction-regulated gear ring pump with a sealing plate extending over several delivery cells (17.1-17.3) and has a speed-dependent delivery characteristic line which is matched to the work fluid requirement of the adjustment component. The valve control components are camshafts, the phase position of which is alterable for control of the overlapping times of inlet and exhaust valves. The pump supplies with work fluid an adjustment component for altering a valve lift. The pump also supplies the engine with lubricating oil which also acts as work oil for the hydraulic adjustment component.

IPC 1-7

**F01L 1/344; F04C 15/04**

IPC 8 full level

**F01M 1/16** (2006.01); **F01L 1/34** (2006.01); **F01L 1/344** (2006.01); **F01M 1/02** (2006.01); **F02D 13/02** (2006.01); **F04C 2/10** (2006.01);  
**F04C 14/12** (2006.01); **F04C 14/24** (2006.01); **F04C 14/26** (2006.01); **F04C 15/06** (2006.01)

CPC (source: EP KR US)

**F01L 1/34406** (2013.01 - EP KR US); **F04C 14/12** (2013.01 - EP KR US); **F04C 14/24** (2013.01 - EP KR US); **F04C 2/102** (2013.01 - EP KR US)

Citation (search report)

- [Y] US 5247914 A 19930928 - IMAI HIROAKI [JP], et al
- [DY] DE 4209143 C1 19930415
- [Y] EP 0619430 A1 19941012 - EISENMANN SIEGFRIED A [DE]
- [YA] US 2509321 A 19500530 - TOPANELIAN JR EDWARD
- [YA] DE 3913414 A1 19901025 - SCHOPF WALTER [DE]

Cited by

EP0875678A3; EP0785361A1; US5759013A; US6168391B1; DE102008056629A1; WO2018196991A1

Designated contracting state (EPC)

DE ES FR GB IT SE

DOCDB simple family (publication)

**EP 0712997 A2 19960522; EP 0712997 A3 19960828; EP 0712997 B1 20000412;** BR 9504427 A 19970520; CA 2159672 A1 19960418;  
CA 2159672 C 20090915; CN 1131731 A 19960925; DE 59508170 D1 20000518; ES 2146694 T3 20000816; JP 2825782 B2 19981118;  
JP 3292458 B2 20020617; JP H08210116 A 19960820; JP H10317932 A 19981202; KR 960014598 A 19960522; US 5738501 A 19980414;  
US 5842449 A 19981201

DOCDB simple family (application)

**EP 95115966 A 19951010;** BR 9504427 A 19951017; CA 2159672 A 19951002; CN 95116181 A 19951016; DE 59508170 T 19951010;  
ES 95115966 T 19951010; JP 26889595 A 19951017; JP 6176098 A 19980312; KR 19950035270 A 19951013; US 54407495 A 19951017;  
US 96905597 A 19971112