

Title (en)  
VARIABLE FLOW REDUCING VALVE AND GRADUAL CONTROL VALVE DISTRIBUTION SYSTEM FOR A COMPRESSED AIR INJECTION  
ENGINE OPERATING ON MONO OR MULTI ENERGY AND OTHER ENGINES OR COMPRESSORS

Title (de)  
EXPANSIONSVORRICHTUNG MIT VARIABLER ABNAHME UND PROGRESSIVE VENTILSTEUERUNG FÜR DRUCKLUFTMOTOREN

Title (fr)  
DETENDEUR A DEBIT VARIABLE ET DISTRIBUTION PAR SOUPAPE A COMMANDE PROGRESSIVE POUR MOTEUR A INJECTION D AIR  
COMPRI ME FONCTION NANT EN MONO ET PLURI ENERGIE ET AUTRES MOTEURS OU COMPRESSEURS

Publication  
**EP 1502006 A1 20050202 (FR)**

Application  
**EP 03740647 A 20030422**

Priority  
• FR 0301265 W 20030422  
• FR 0205010 A 20020422

Abstract (en)  
[origin: WO03089764A1] The invention relates to a variable flow reducing valve and distribution system for compressed air injection engines, comprising a high-pressure compressed air tank and a buffer capacity and operating on mono or dual energy with dual or triple supply mode. Said invention also comprises a system for controlling the stroke of the piston which can be used to stop said piston at the dead centre. Moreover, the air supply in the final use buffer capacity and the supply to the cylinders are ensured by pilot valves. The cams of the aforementioned pilot valves, which are used to control the rocker arm rods, are positioned directly on the flanges of the crankshaft (14) and each rocker arm pivots around a mobile shaft (21) that can move between the two ends thereof, thereby enabling the changing of the lever arm ratio which determines the lifting of the valve according to the movement of the rocker arm rod. The invention is suitable for use as a gas reducing valve or for engine or compressor distribution systems.

IPC 1-7  
**F01B 1/08**; **F01B 17/02**; **F01L 1/06**; **F01L 1/12**; **F01L 13/00**; **F01L 1/04**

IPC 8 full level  
**F01B 7/12** (2006.01); **F01B 1/02** (2006.01); **F01B 1/08** (2006.01); **F01B 17/02** (2006.01); **F01B 31/14** (2006.01); **F01L 1/14** (2006.01); **F01L 1/18** (2006.01); **F01L 1/46** (2006.01); **F01L 13/00** (2006.01)

CPC (source: EP KR US)  
**F01B 1/08** (2013.01 - EP KR US); **F01B 17/02** (2013.01 - EP KR US); **F01L 1/04** (2013.01 - KR); **F01L 1/146** (2013.01 - EP US); **F01L 1/181** (2013.01 - EP US); **F01L 1/182** (2013.01 - EP US); **F01L 1/46** (2013.01 - EP US); **F01L 13/0005** (2013.01 - EP US); **F01L 13/0021** (2013.01 - EP US)

Citation (search report)  
See references of WO 03089764A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)  
**WO 03089764 A1 20031030**; AP 2004003172 A0 20041231; AU 2003262394 A1 20031103; BR 0309469 A 20050209; CA 2486227 A1 20031030; CO 5631472 A2 20060428; EA 006027 B1 20050825; EA 200401412 A1 20050428; EP 1502006 A1 20050202; FR 2838769 A1 20031024; FR 2838769 B1 20050422; HR P20041027 A2 20050228; IL 164770 A0 20051218; JP 2005527734 A 20050915; KR 101029350 B1 20110413; KR 20040106375 A 20041217; MA 27199 A1 20050103; MX PA04010390 A 20050727; OA 13066 A 20061110; PL 373005 A1 20050808; TN SN04214 A1 20070312; US 2005224059 A1 20051013; US 7296405 B2 20071120; ZA 200408815 B 20051116

DOCDB simple family (application)  
**FR 0301265 W 20030422**; AP 2004003172 A 20030422; AU 2003262394 A 20030422; BR 0309469 A 20030422; CA 2486227 A 20030422; CO 04115474 A 20041117; EA 200401412 A 20030422; EP 03740647 A 20030422; FR 0205010 A 20020422; HR P20041027 A 20041102; IL 16477004 A 20041021; JP 2003586463 A 20030422; KR 20047017044 A 20030422; MA 27921 A 20041102; MX PA04010390 A 20030422; OA 1200400293 A 20030422; PL 37300503 A 20030422; TN SN04214 A 20041022; US 51215605 A 20050503; ZA 200408815 A 20041101