

Title (en)
Lubrication oil pump.

Title (de)
Schmierölpumpe.

Title (fr)
Pompe à huile de lubrification.

Publication
EP 0259619 A1 19880316 (DE)

Application
EP 87111451 A 19870807

Priority
DE 3627414 A 19860813

Abstract (en)
1. Internal combustion engine - having a lubricating oil pump and a lubricating oil channel (56), in which the lubricating oil pump is an internal gear pump having a plurality of outlet cells, with at least the outlet cells of greater volume each being sealed off from the lubricating oil channel (56) by a check valve (54) and there being located in the intake channel (35) of the lubricating oil pump a constant throttle (37) which is by-passed by a by-pass channel (38) having a pressure-controlled throttle valve (39) when the pressure in the outlet channel is below a threshold value, characterised in that the smallest opening cross-section of the constant throttle (37) is designed so that the minimum flow rate is more than 30% of the maximum flow rate controllable by the pressure-controlled valve (39) and at least two times, preferably eight to twenty times, the minimum consumption of the internal combustion engine, and in that the lubricating oil channel (56) is connected to the tank (36) by a pressure relief valve (control area (43) having opening (46) and control edge (47)) which is controlled by the outlet pressure.

Abstract (de)
Zur Schmierölversorgung eines Verbrennungsmotors dient eine Zellen-Innenzahnradpumpe. Im Einlaß der Pumpe ist ein Drosselventil angeordnet, das durch den Auslaßdruck gesteuert wird, ohne daß das Druckventil (39) bei höchstem Druck schließt. Bei Kaltstart wird dadurch eine schnelle Erwärmung herbeigeführt, daß die Drosselung des Einlasses so ausgelegt wird, daß die Fördermenge der Schmierölpumpe in jedem Fall ein Mehrfaches des Schmieröldurchlasses des Verbrennungsmotors ist. Darüber hinaus kann einem gesteigerten Bedarf das Umschalten des Druckventils auf einen erhöhten Druck Rechnung tragen.

IPC 1-7
F01M 1/16; F01M 1/02; F04C 15/04

IPC 8 full level
F01M 1/02 (2006.01); **F01M 1/16** (2006.01); **F04B 49/22** (2006.01); **F04C 14/24** (2006.01)

CPC (source: EP)
F01M 1/02 (2013.01); **F01M 1/16** (2013.01); **F04B 49/22** (2013.01); **F04C 14/24** (2013.01)

Citation (search report)
• [Y] US 2550967 A 19510501 - BURKS GEORGE E, et al
• [YD] DE 3506629 A1 19851003 - BARMAG BARMER MASCHF [DE]
• [A] GB 2049823 A 19801231 - BOSCH GMBH ROBERT
• [A] DE 3210759 A1 19831006 - SCHOPF WALTER
• [A] CH 385632 A 19641215 - SCHWEIZERISCHE LOKOMOTIV [CH]
• [A] GB 836321 A 19600601 - DAIMLER BENZ AG
• [A] US 1537013 A 19250505 - JEFFERS CLARENCE E

Cited by
DE102009020405B4

Designated contracting state (EPC)
DE FR GB IT

DOCDB simple family (publication)
EP 0259619 A1 19880316; **EP 0259619 B1 19901017**; DE 3627414 A1 19880218; DE 3765607 D1 19901122

DOCDB simple family (application)
EP 87111451 A 19870807; DE 3627414 A 19860813; DE 3765607 T 19870807