

Title (en)
Liquid-cooled piston.

Title (de)
Kolben mit Flüssigkeitskühlung.

Title (fr)
Piston refroidi par liquide.

Publication
EP 0285205 A1 19881005 (DE)

Application
EP 88200507 A 19880318

Priority
DE 3709969 A 19870326

Abstract (en)
1. Piston with liquid cooling for internal combustion engines, in particular for medium-fast running diesel engines, consisting of a lower section (2) receiving the gudgeon pin (1) and an upper section (5) delimiting a central cooling chamber (3) and bearing the ring zone (4), which are supported on each other on circular bearing surfaces (10, 11) in their division plane perpendicular to the piston axis and located on concentric supporting collars (8, 9), are braced together by screws guided through the supporting collars and the bearing surfaces, have in the region of their division plane a circumambient empty groove (13) made starting from the outer periphery and are centred relative to each other by a ring fit (12) made on the outer periphery of the bearing surface of the upper section and resting on the radial outside of the supporting collar of the bearing surface of the lower section, characterised in that the ring zone (5) has ring grooves (15, 16, 17) receiving two compression rings and an oil ring, the height of the top land (21) is 6 to 10% and the compression height is 65 to 90% of the piston diameter, an empty groove (14) extending behind the ring zone branches off from the empty groove (13), and from the cooling chamber (3) blind holes (22) which run into the middle section of the piston head parallel to the piston axis and from the periphery of the cooling chamber blind holes (20) which run radially outwards and are inclined ascending relative to the division plane extend into the regions between the top land and the edge of the piston head.

Abstract (de)
Bei einem gebauten Kolben für Brennkraftmaschinen stützen sich Ober- und Unterteil auf konzentrischen Auflageflächen gegeneinander ab und sind über Dehnschrauben miteinander verspannt. Zur Verringerung der Kolbenbauhöhe sind im Ringfeld des Oberteils nur zwei Kompressionsringe und ein Öling, eine Feuersteghöhe von 6 bis 10 % und eine Kompressionshöhe von 65 bis 90 % des Kolbendurchmessers sowie von dem im Oberteil befindlichen Kühlraum ausgehende sich hinter den Feuersteg und unter den Kolbenboden erstreckende Sacklochbohrungen vorgesehen.

IPC 1-7
F02F 3/22; **F02F 3/00**

IPC 8 full level
F02F 3/00 (2006.01); **F02F 3/22** (2006.01); **F02B 3/06** (2006.01)

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F02F 3/0023 (2013.01); **F02F 3/225** (2013.01); **F02B 3/06** (2013.01); **F02F 2200/04** (2013.01); **F05C 2201/021** (2013.01); **F05C 2201/0448** (2013.01)

Citation (search report)
• [A] US 4286505 A 19810901 - AMDALL JOHN K
• [A] EP 0041416 A1 19811209 - SEMT [FR]
• [A] FR 2317487 A1 19770204 - MASCHF AUGSBURG NUERNBERG AG [DE]
• [A] US 4517930 A 19850521 - NAKANO HIDEAKI [JP], et al

Cited by
US6539836B2; EP0373689A1; EP0520536B1; EP0464626B1

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