

Title (en)

Fuel injection pump for an internal-combustion engine.

Title (de)

Kraftstoffeinspritzpumpe für Brennkraftmaschinen.

Title (fr)

Pompe d'injection de combustible pour moteurs à combustion interne.

Publication

EP 0250785 A1 19880107 (DE)

Application

EP 87106629 A 19870507

Priority

DE 3619325 A 19860609

Abstract (en)

1. Fuel-injection pump for internal-combustion engines having an injection start adjustment device (2) which is influenced by a control pressure and which adjusts the injection start as the speed revolution increases from a retarded to an advanced setting, but in the warming up phase, at a low speed of revolution, likewise adjusts it to an advanced setting, having a first pressure-control valve (15) which controls the control pressure for the injection start adjustment device in dependence on the speed of revolution and which has a control piston (17) which is on the one hand loaded by the pressure of a fuel prefeed pump (3) and on the other hand loaded in a spring chamber (19) by the restoring force of a spring (20) and by a back pressure differentiated by a throttle (21), having a pressure valve (25) which influences the back pressure in the spring chamber of the pressure-control valve during the warming up phase, has a piston (32) loaded on the one hand by the control pressure and on the other hand by the restoring force of a spring (36) and which is connected to a backflow channel (40) which leaves the spring chamber of the first pressure-control valve, and having a temperature-dependant final control element (28) which maintains the pressure in the spring chamber of the first pressure-control valve during cold start and during the warming up phase, characterized in that the pressure-control valve is constructed as a second pressure-control valve (25) with a closing cross-section (39) for the discharge of fuel out of the spring chamber (19) of the first pressure-control valve (15) and which closing cross-section enlarges constantly as the control pressure increases, and in that there is a on-off valve (24) arranged in a second discharge channel (26) which is connected to the spring chamber (19) and which is provided parallel to the second pressure-control valve (25), said on-off valve being activated by the final control element (28).

Abstract (de)

Eine Kraftstoffeinspritzpumpe für Brennkraftmaschinen hat eine Verstelleinrichtung (2), die den Spritzbeginn mit steigender Drehzahl von spät gegen früh, jedoch in der Warmlaufphase auch bei niedriger Drehzahl ebenfalls auf früh verlegt. Der druckabhängig arbeitenden Verstelleinrichtung ist ein Drucksteuerventil (15) zugeordnet, welches einen mit zunehmender Drehzahl steigenden Steuerdruck einstellt. Zum Erzeilen eines frühen Spritzbeginns bei Kaltstart sind in dem ersten Drucksteuerventil ein temperaturabhängig geschaltetes Schaltventil (24) und ein zweites Drucksteuerventil (25) zugeordnet, welche den Druck im Federraum (19) des ersten Drucksteuerventils in Abhängigkeit von Temperatur und Steuerdruck beeinflussen, so daß auch im niederen Drehzahlbereich bei kalter Brennkraftmaschine ein erhöhter Steuerdruck eingestellt wird.

IPC 1-7

F02D 1/18

IPC 8 full level

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CPC (source: EP)

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Citation (search report)

- [Y] EP 0155404 A1 19850925 - BOSCH GMBH ROBERT [DE]
- [Y] DE 3334617 A1 19850411 - BOSCH GMBH ROBERT [DE]
- [Y] GB 2057720 A 19810401 - BOSCH GMBH ROBERT

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