

Title (en)  
PISTON PUMP

Title (de)  
KOLBENPUMPE

Title (fr)  
POMPE A PISTON

Publication  
**EP 0932764 A1 19990804 (DE)**

Application  
**EP 98933502 A 19980512**

Priority  

- DE 9801308 W 19980512
- DE 19732811 A 19970730
- DE 19753083 A 19971129

Abstract (en)  
[origin: WO9906702A1] The invention concerns a piston pump (10) for a vehicle antiskid hydraulic brake system. It aims at ensuring tightness and guidance of the pump (10) piston (20) in a packing (12). To this end, is provided a rigid plastic sealing element (76), with a spacing surface (80) in the form of an inner cone, against which is pressed a piston return spring (54) directly or via a spacer ring (82) having a corresponding conical surface (84). The sealing element (76) is thus sealingly pressed against the packing (12). The advantage of the invention lies in the fact that it is not necessary to resort to separate guide and sealing ring, thereby reducing friction and wear.

IPC 1-7  
**F04B 53/14; F04B 53/12**

IPC 8 full level  
**B60T 8/40** (2006.01); **B60T 13/16** (2006.01); **F04B 1/04** (2006.01); **F04B 9/04** (2006.01); **F04B 53/12** (2006.01); **F04B 53/14** (2006.01)

CPC (source: EP US)  
**B60T 8/4031** (2013.01 - EP US); **B60T 13/168** (2013.01 - EP US); **F04B 1/0408** (2013.01 - EP US); **F04B 1/0421** (2013.01 - EP US); **F04B 9/045** (2013.01 - EP US); **F04B 53/126** (2013.01 - EP US); **F04B 53/143** (2013.01 - EP US); **F04B 53/148** (2013.01 - EP US); **F05C 2225/00** (2013.01 - EP US)

Citation (search report)  
See references of WO 9906702A1

Designated contracting state (EPC)  
DE FR GB

DOCDB simple family (publication)  
**WO 9906702 A1 19990211**; EP 0932764 A1 19990804; JP 2001501274 A 20010130; US 2001048884 A1 20011206

DOCDB simple family (application)  
**DE 9801308 W 19980512**; EP 98933502 A 19980512; JP 51033799 A 19980512; US 26967299 A 19991214