

Title (en)  
Pump for shear sensitive material

Title (de)  
Pumpe für scherempfindliche Fluide

Title (fr)  
Pompe pour fluides sensibles au cisaillement

Publication  
**EP 0898077 A1 19990224 (EN)**

Application  
**EP 98306642 A 19980819**

Priority  
GB 9717564 A 19970820

Abstract (en)

A pump for pumping shear sensitive material, has a housing (10) with an internal displacement chamber (42), an inlet (20), an outlet (22), a displacement rod (16) which passes sealingly and reciprocably into the displacement chamber through an aperture in the wall of the pump housing and first seal means (18) surrounding the displacement rod partially defining the displacement chamber. The pump also has an annular volume (V) surrounding the displacement rod on the opposite side of the first seal means (18) from the displacement chamber, the annular volume communicating with the exterior of the housing. <IMAGE>

IPC 1-7  
**F04B 53/16**

IPC 8 full level  
**F04B 53/16** (2006.01)

CPC (source: EP)  
**F04B 53/164** (2013.01)

Citation (applicant)  
EP 0677658 A1 19951018 - HYDRAIR LTD [GB]

Citation (search report)

- [XY] WO 9507412 A1 19950316 - ELOPAK SYSTEMS [CH]
- [Y] US 4086029 A 19780425 - CRANE ROBERT M, et al
- [Y] WO 8606453 A1 19861106 - BERTIN & CIE [FR]
- [Y] FR 2499634 A1 19820813 - POMPES INDLES HAUTE PRESSION [FR]
- [X] DE 9308066 U1 19930909 - LINCOLN GMBH [DE]
- [A] US 5129790 A 19920714 - OHNUMA SADABUMI [JP], et al
- [A] US 4833976 A 19890530 - LOLAND MAGNUS [NO]

Cited by  
EP1375921A1; CN100406734C; EA009029B1; US6668701B1; WO2004001228A3; WO0134981A1

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**EP 0898077 A1 19990224**; GB 9717564 D0 19971022

DOCDB simple family (application)  
**EP 98306642 A 19980819**; GB 9717564 A 19970820