

Title (en)  
Regulated water pump

Title (de)  
Regelbare Kühlmittelpumpe

Title (fr)  
Pompe à eau à débit variable

Publication  
**EP 1657446 A3 20130501 (DE)**

Application  
**EP 05006343 A 20050323**

Priority  
DE 102004054637 A 20041112

Abstract (en)  
[origin: EP1657446A2] The pump has a pressure spring arranged between a stopper and a pressure spring attachment bar (23) of an interior cylinder (18) of a valve slider (21). A piston ring is arranged in a ring retainer groove which is provided at an outer edge of a circular disk (19). The piston ring is shiftable along a cylindrical sliding surface. A sealing edge is arranged at the free end of an outer cylinder arranged at the disk.

IPC 8 full level  
**F04D 15/00** (2006.01)

CPC (source: EP)  
**F04D 15/0038** (2013.01); **F05D 2270/62** (2013.01)

Citation (search report)  
• [A] DE 881306 C 19530629 - VOITH GMBH J M  
• [A] WO 2004088143 A1 20041014 - GERAETE & PUMPENBAU GMBH [DE], et al  
• [A] US 3784318 A 19740108 - DAVIS D

Cited by  
JP2011520061A; DE102008048373B4; DE102013018205B3; AT508076B1; DE102010010223B4; EP2055959A3; US8628295B2; WO2016179619A1; EP2199619A1; WO2015062565A1; WO2009138058A1; DE102009060041A1; DE102009060041B4; DE102010010223A1; US8297942B2; DE102008048373A1; EP2273123B1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA HR LV MK YU

DOCDB simple family (publication)  
**EP 1657446 A2 20060517; EP 1657446 A3 20130501**; DE 102004054637 A1 20060524; DE 102004054637 B4 20070426

DOCDB simple family (application)  
**EP 05006343 A 20050323**; DE 102004054637 A 20041112