

Title (en)  
Pump and method of manufacturing same

Title (de)  
Pumpe und ihr Herstellungsverfahren

Title (fr)  
Pompe et sa méthode de fabrication

Publication  
**EP 1253320 A3 20040204 (EN)**

Application  
**EP 02008979 A 20020423**

Priority  
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Abstract (en)  
[origin: EP1253320A2] A compact pump has a pump chamber, inlet and outlet channels communicating with the pump chamber, and a pair of check valve units between the pump chamber and the inlet and outlet channels. Each check valve unit has a thin film check valve membrane, and a check valve body with a channel opened and closed by the check valve membrane due to a pressure difference. <IMAGE>

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**F04B 43/04**; **F04B 53/10**

IPC 8 full level  
**F04B 43/00** (2006.01); **F04B 43/04** (2006.01); **F04B 53/10** (2006.01)

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**F04B 43/00** (2013.01 - KR); **F04B 43/046** (2013.01 - EP US); **F04B 53/1062** (2013.01 - EP US)

Citation (search report)  
• [XA] US 6033191 A 20000307 - KAMPER KLAUS-PETER [DE], et al  
• [XA] EP 0789146 A1 19970813 - SEIKO EPSON CORP [JP]  
• [XA] EP 0424087 A1 19910424 - SEIKO EPSON CORP [JP]  
• [XA] DE 19711270 A1 19980924 - SCHWERIONENFORSCH GMBH [DE]  
• [XA] US 5759014 A 19980602 - VAN LINTEL HARALD [CH]

Cited by  
DE10242110A1; EP1555469A1; US7284572B2; WO2023092934A1

Designated contracting state (EPC)  
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