

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

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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)

CPC (source: EP KR US)
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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DOCDB simple family (publication)
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