

Title (en)  
VACUUM PUMP

Publication  
**EP 0391182 A3 19910116 (DE)**

Application  
**EP 90105628 A 19900324**

Priority  
DE 3911314 A 19890407

Abstract (en)  
[origin: EP0391182A2] The invention relates to a vacuum pump with a housing (1), with an expansion chamber (3) formed in the housing, with a minimum of one piston (4, 21, 22, 27, 35, 36) rotating in the expansion chamber, and with a shaft (15, 23, 24, 33, 37, 38) passing through the piston, housing and/or piston being manufactured using plastics in such a way that the housing, at least in the area of its peripheral expansion chamber inner wall, and/or the piston, at least in the area of its peripheral surface, are composed of plastic; in order to avoid elongations of the pistons owing to centrifugal forces and/or deformations of the housing walls owing to pressure differences, it is proposed that the plastic be provided with a reinforcement (2, 16, 17, 20, 25, 28, 29, 39, 41). <IMAGE>

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**F04C 25/02**

IPC 8 full level  
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CPC (source: EP)  
**F01C 21/08** (2013.01); **F01C 21/106** (2013.01); **F04C 18/084** (2013.01)

Citation (search report)  
• [X] EP 0303553 A2 19890215 - UNITED TECHNOLOGIES CORP [US]  
• [Y] FR 2527702 A1 19831202 - DANGER ROGER [FR]  
• [X] DE 2002518 A1 19710729 - VOGELSHANG HUGO FA [DE]  
• [AD] DE 3321718 A1 19841220 - PFEIFFER VAKUUMTECHNIK [DE]  
• [X] PATENT ABSTRACTS OF JAPAN, unexamined applications, M Sektion, Band 8, Nr. 37, Februar 17, 1984, THE PATENT OFFICE JAPANESE GOVERNMENT, Seite 28 (M-277); & JP-A-58 192 991 (NIPPON DENSO)  
• [X] PATENT ABSTRACTS OF JAPAN, unexamined applications, M sektion, Band 12, Nr. 364, September 29, 1988, THE PATENT OFFICE JAPANESE GOVERNMENT, Seite 13 (M-747); & JP-A-63 177 188 (AISIN)

Cited by  
DE102005057618A1; DE4439724A1; GB2440944A; EP1892417A3; GB2440944B; US7857607B2

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**EP 90105628 A 19900324; DE 3911314 A 19890407; JP 9049690 A 19900406**