

Title (en)  
LIQUID-DISPLACEMENT MACHINE

Publication  
**EP 0346677 B1 19920506 (DE)**

Application  
**EP 89109759 A 19890530**

Priority  
DE 3820062 A 19880613

Abstract (en)  
[origin: WO8912755A1] A turbine which delivers a solids-containing medium has a cavity (10) downstream of an impeller (2), which accommodates a shaft seal (7). An annular element (12) inside the cavity (10) protects the latter from wear due to erosion.

IPC 1-7  
**F04D 7/04**; **F04D 29/12**; **F04D 29/42**

IPC 8 full level  
**F04D 29/12** (2006.01); **F04D 7/04** (2006.01); **F04D 29/42** (2006.01)

CPC (source: EP US)  
**F04D 7/04** (2013.01 - EP US); **F04D 29/126** (2013.01 - EP US); **F04D 29/426** (2013.01 - EP US)

Cited by  
FR2904038A1; DE4431947A1; US5984629A; EP2520804A4; US7841187B2

Designated contracting state (EPC)  
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DOCDB simple family (publication)  
**EP 0346677 A1 19891220**; **EP 0346677 B1 19920506**; AT E75818 T1 19920515; CA 1330908 C 19940726; DE 3820062 A1 19891221; DE 58901311 D1 19920611; DK 171831 B1 19970623; DK 294990 A 19901212; DK 294990 D0 19901212; EP 0442883 A1 19910828; ES 2032073 T3 19930101; GR 3005061 T3 19930524; JP H03501761 A 19910418; JP H0646037 B2 19940615; US 5171126 A 19921215; WO 8912755 A1 19891228

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**EP 89109759 A 19890530**; AT 89109759 T 19890530; CA 602640 A 19890613; DE 3820062 A 19880613; DE 58901311 T 19890530; DK 294990 A 19901212; EP 8900604 W 19890530; EP 89906085 A 19890530; ES 89109759 T 19890530; GR 920401393 T 19920630; JP 50551789 A 19890530; US 63416590 A 19901213