

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61F 2/24	A1	(11) International Publication Number: WO 99/62437 (43) International Publication Date: 9 December 1999 (09.12.99)
(21) International Application Number: PCT/US99/12212 (22) International Filing Date: 2 June 1999 (02.06.99) (30) Priority Data: 60/088,184 5 June 1998 (05.06.98) US (71) Applicants (for all designated States except US): TRIFLO MEDICAL, INC. [US/US]; Suite 107, 3100 Airway Avenue, Costa Mesa, CA 92626 (US). LAPEYRE, Didier [FR/FR]; Chaignes, F-27120 Pacy sur Eure (FR). (72) Inventor; and (75) Inventor/Applicant (for US only): STEINSEIFER, Ulrich [DE/DE]; Fringsgraben 14, D-52068 Aachen (DE). (74) Agent: BAILEY, Matthew, T.; Morgan, Lewis & Bockius LLP, 1800 M Street, N.W., Washington, DC 20036-5869 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.
(54) Title: MECHANICAL HEART VALVE (57) Abstract The present invention relates to an improved trileaflet mechanical heart valve (100) and an improved leaflet (110) for use with such valve. The valve (100) and leaflet (110) of the present invention provide improved flow characteristics, minimize blood clotting behind the leaflets, and provide more natural opening and closing times. The valve includes a valve housing (105) which contains pivot/hinge mechanism (130, 200, and 300) for allowing rotation of and retention of the leaflets (110). The valve housing (105) also includes windows or openings (125) which allows for complete washing of the pivot/hinge mechanism (130, 200, and 300) as well as the leaflets (110). The novel leaflets (110) are air-foil-like having a complex S-shaped curvature on their outer surface. This novel geometry, when combined with the location of the leaflet's pivot axis, causes a tendency for the leaflet (110) to rotate towards the closed position. Thus, the leaflet (110) begins to close much earlier than a conventional leaflet and is substantially closed before the flow reverses, similar to the function of a natural valve. 		