The aim of this study was to perform the first femtosecond laser cuts with a new prototype femtosecond laser, in vivo and to evaluate its safety, stability and efficacy. A LASIK cut was performed with a prototype 200 kHz femtosecond laser in both eyes of nine patients and one eye of two patients (20 individual eyes in total). A complete ophthalmic examination was performed preoperatively and postoperatively at 1, 3, 6 and 12 months after the procedure. In the pilot series of 20 eyes, flap creation was possible in each case. The mean preoperative manifest refractive spherical equivalent was À-4.22 D (SD ± 61.22 D). The postoperative spherical equivalent refraction was À-0.1 D (SD ± 60.26 D) at 1 month, À-0.22 D (SD ± 60.24 D) at 3 months and À-0.15 D (SD ± 60.16 D) 12 months after surgery. Femto-LASIK with this new laser system showed high levels of safety, stability and efficacy without any enhancement. http://www.dimdi.de.DE/CA126/AP4/3332/27/09. Bfam registration 09/03/2009, DE/CA126.