An arbitrary squeeze flow of an incompressible fluid in a narrow gap between two flat, parallel elliptic disks, where the gap width $h(t)$ varies arbitrarily with time, is considered. The exact solution of the Navier–Stokes equation is obtained as a multifold series of an infinite set of time-dependent nondimensional parameters, for small values of the parameters, and applied to the case when the walls perform harmonic oscillations with finite amplitude. The hydrodynamic force acting on the wall surface is more distorted in wave form as the amplitude increases and becomes more advanced in phase as the squeeze Reynolds number increases, compared with the sinusoidal velocity due to the change in gap width.

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