

원통형 분자드래그펌프의 회전자 유동장내 압력분포

김도행¹, 권명근¹, 황영규²

¹성균관대학교 대학원 기계공학과, ²성균관대학교 기계공학부

Recently, Turbo-type molecular drag pumps (MDPs) are widely used in the liquid crystal display (LCD), semiconductor and other thin film industries. Siegbahn (disk-type) molecular drag pumps are used as high-pressure stages in the hybrid-type turbomolecular pumps, where they can operate in the viscous, the transition and the free molecular flow regime. The present study is performed to investigate the pumping characteristics of helical-type molecular drag pump (HTDP) in the molecular transition flow region. The experiments are measured with five vacuum pressure gauges in the positions for rotor of HTDP. The test is performed with nitrogen gas (N_2). In this numerical study, the pumping performance of each positions for HTDP are studied for the variation of throughputs in the pumping channel. Pressure contours and velocity vectors are obtained by the numerical simulation.