$$|\vec{v}_\mu(t)|_{H^q(\Omega)} \leq |\vec{v}_\mu(0)|_{H^q(\Omega)} e^{\int_0^t C_q \left(|\nabla \vec{v}_\mu(t)|_{L^\infty(\Omega)} + |\vec{v}_{0,0}^\mu|_{W^{q+1,\infty}(\Omega)} \right) ds}$$