

Abstract Submitted
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Influence of Inertia, Gravity and Thermal Conditions on the Draw Resonance ZHEMING ZHENG, OLUS BORATAV, Corning Incorporated — The instability known as the “draw resonance” is studied for a Newtonian viscous flow. Both eigenvalue analysis and transient solutions are used to study the instability. The effects of inertia, gravity and the thermal conditions on stability are explored. The thermal conditions are studied as a combination of global and local heating/cooling conditions. While monotonous global cooling along the draw always gives critical draw ratios less than that of the isothermal case (i.e. $Dr^* = 20.218$ for isothermal), critical draw ratios larger than 20.218 can be obtained by local heating effects superposed onto the global cooling. The global heating is stabilizing and very large critical draw ratios are obtained when the intensity of this global heating is large.

Zheming Zheng
Corning Incorporated

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