

Fig. 4.46 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for various jet Reynolds numbers at $Ra=60,160$ ($\Delta T=10^\circ\text{C}$) for $H = 40.0$ mm.

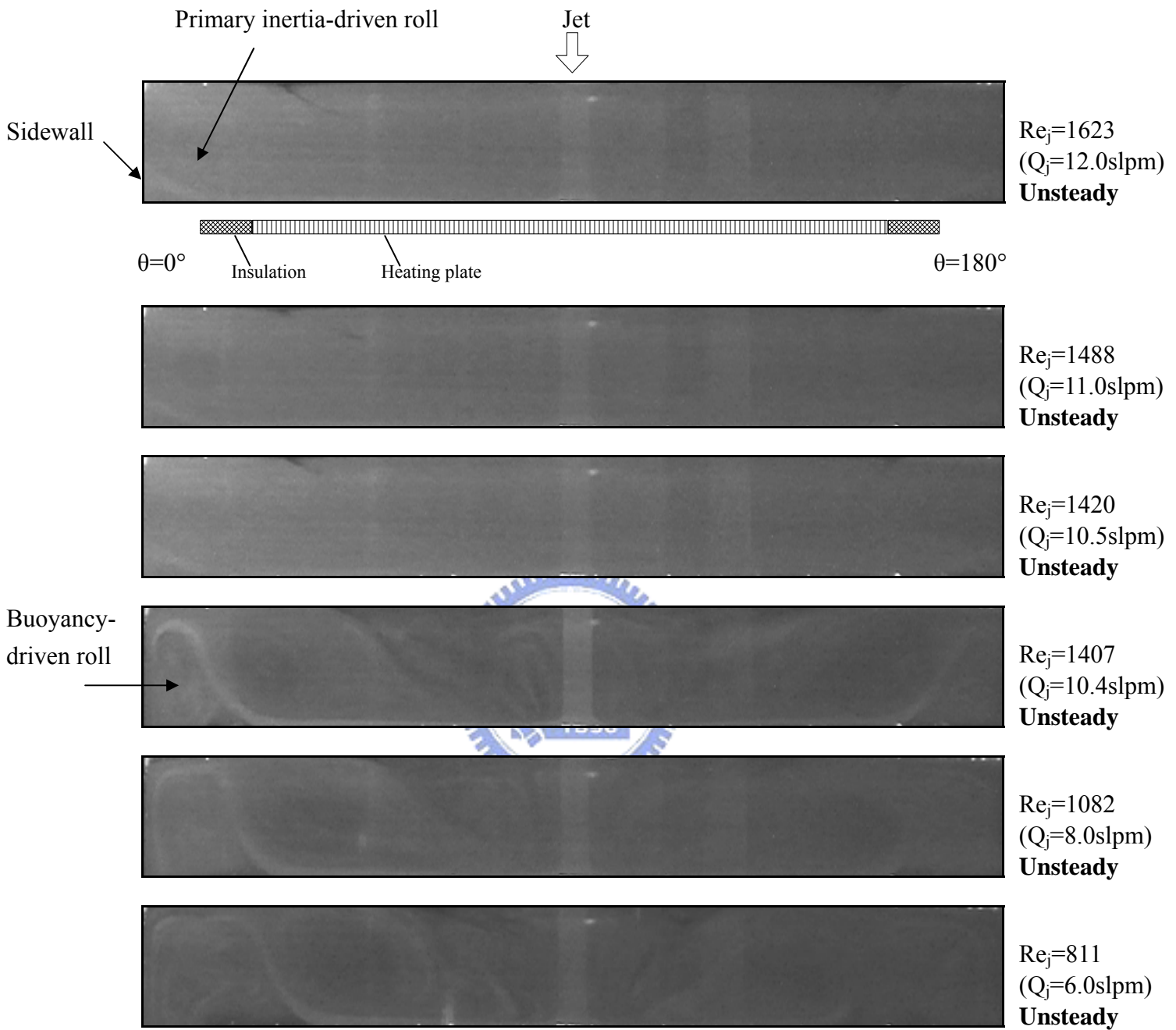


Fig. 4.47 Unsteady side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=90,195$ ($\Delta T=15^\circ\text{C}$) for $H=40.0$ mm.

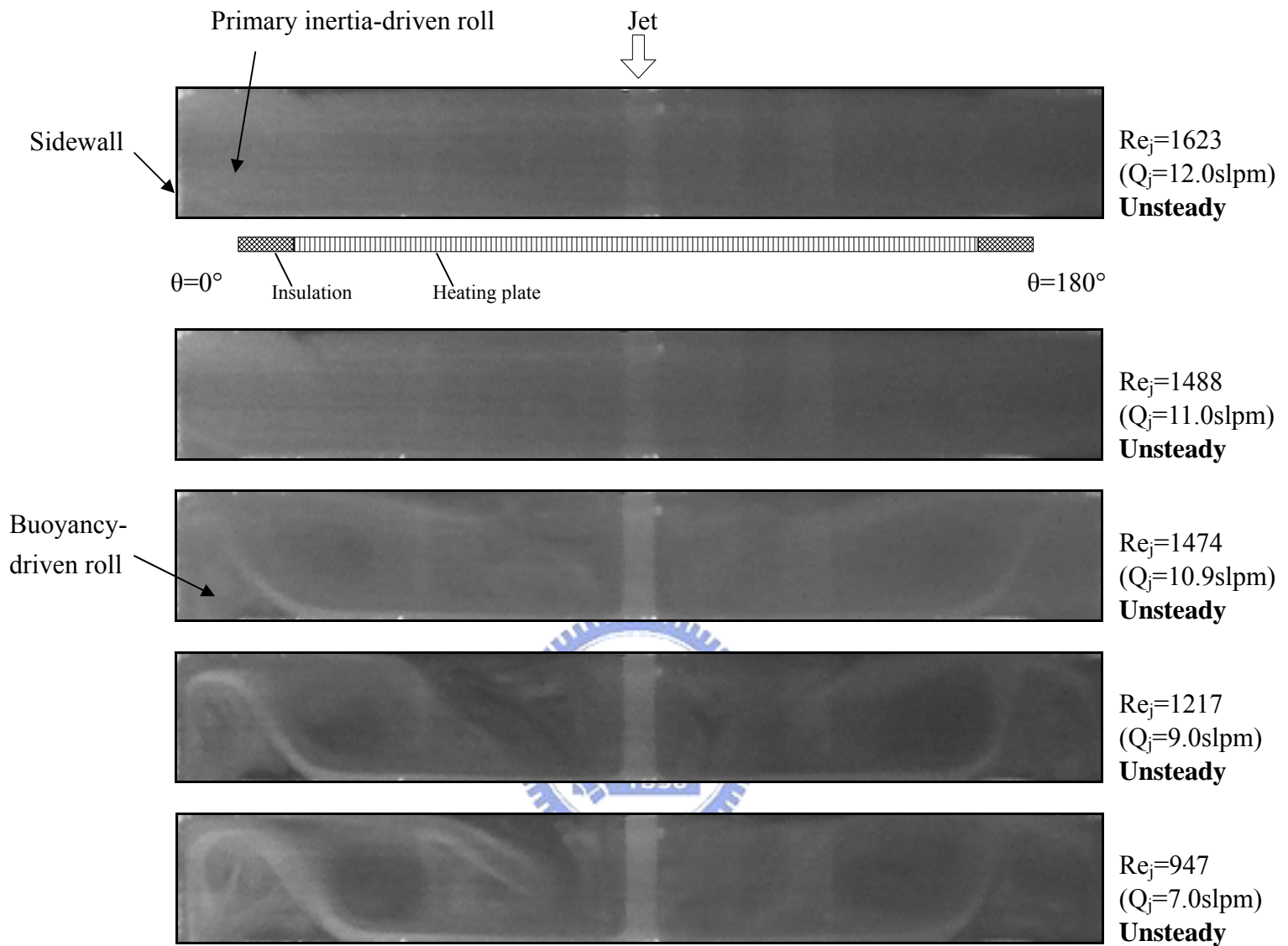


Fig. 4.48 Unsteady side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=120,260$ ($\Delta T=20^\circ\text{C}$) for $H = 40.0$ mm.

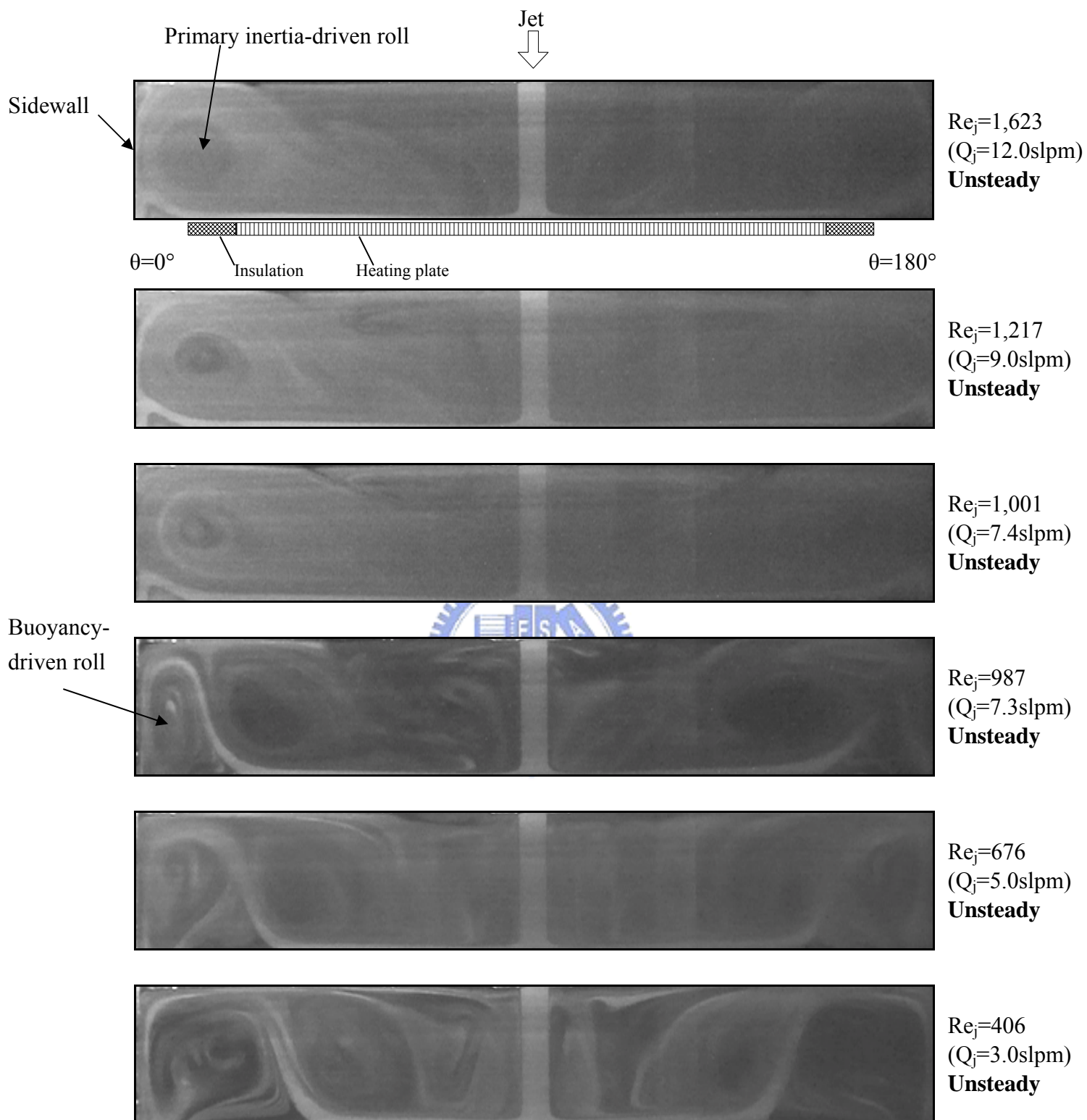


Fig. 4.49 Side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for various

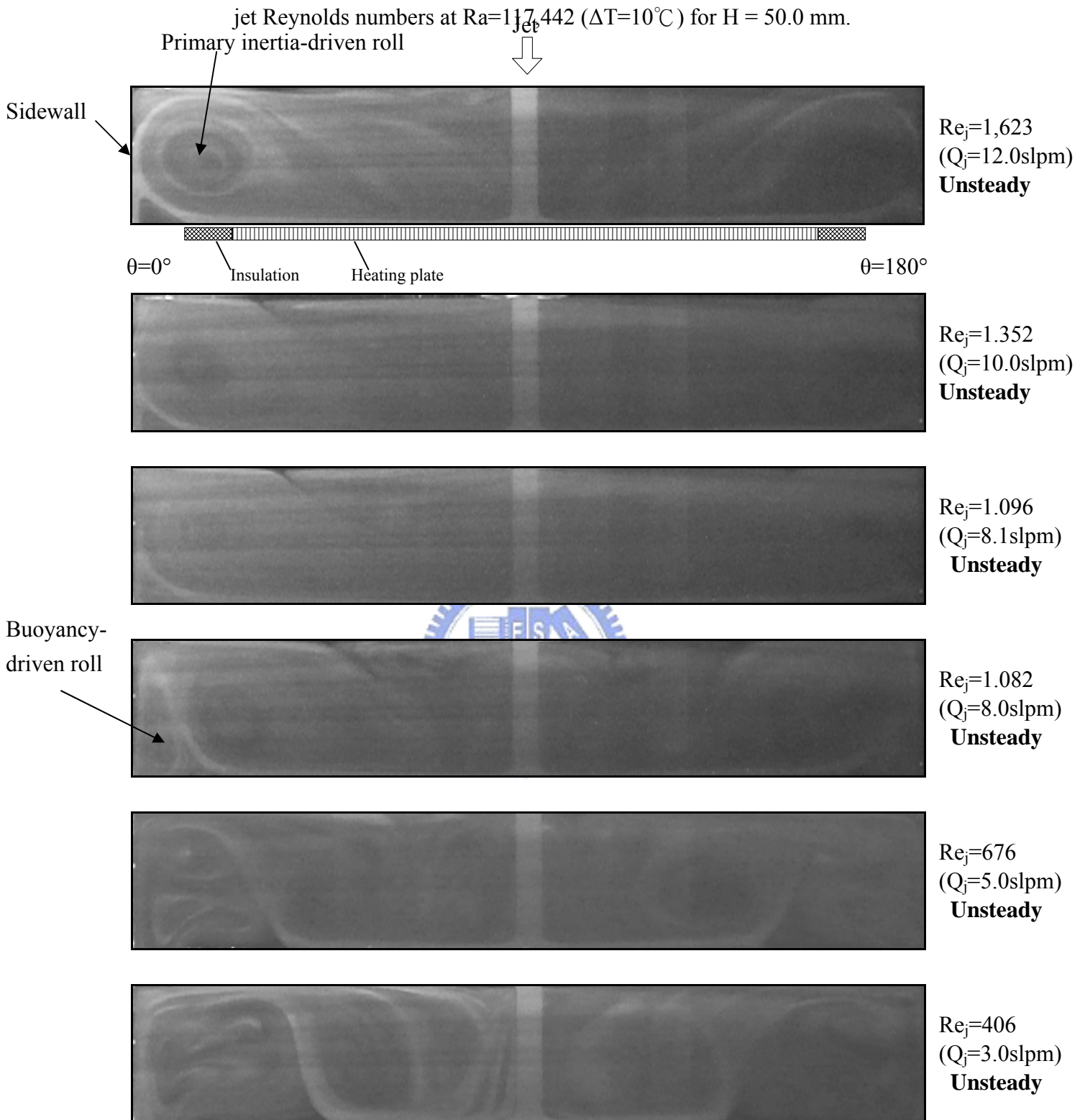


Fig. 4.50 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for

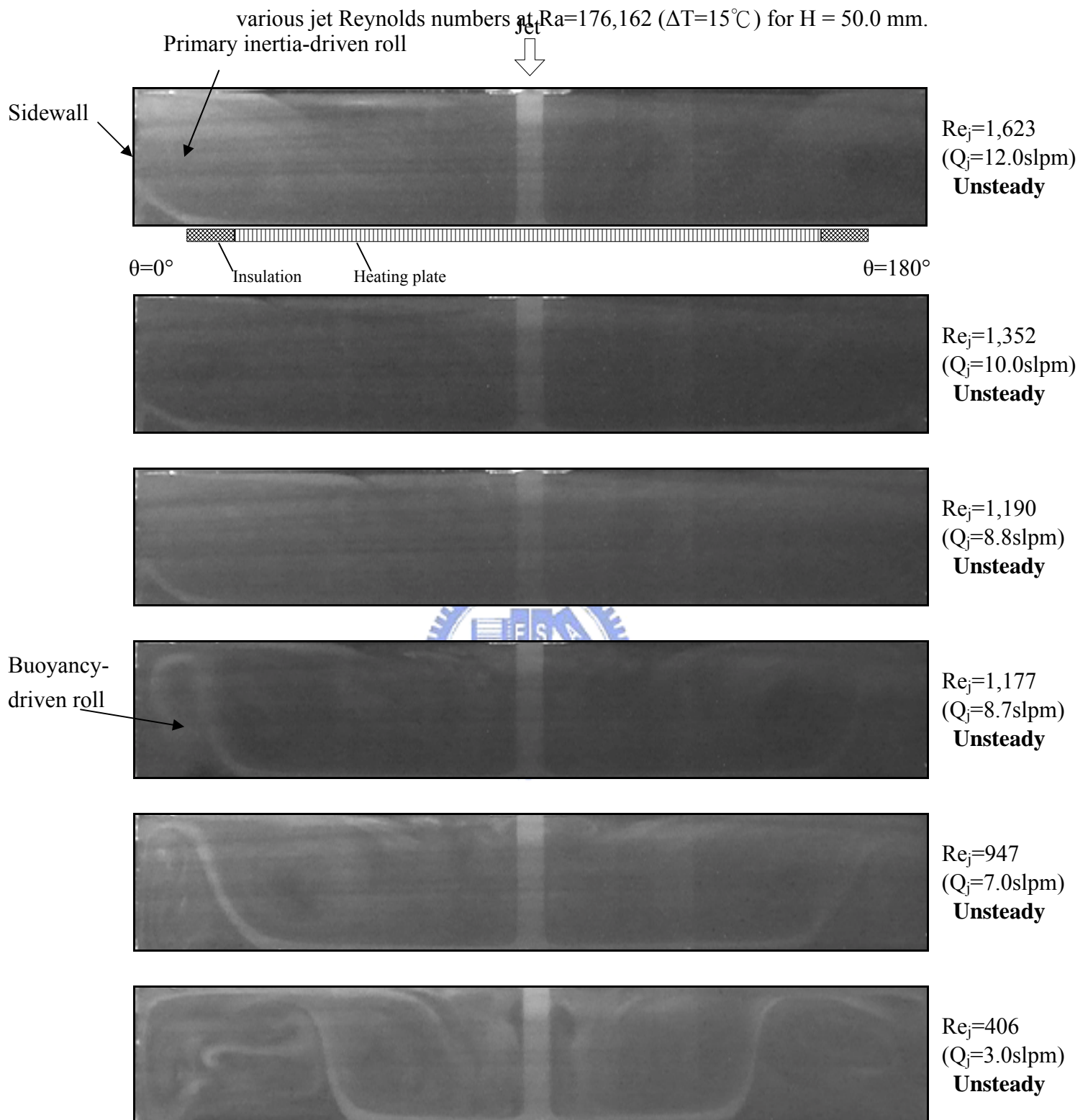


Fig. 4.51 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for

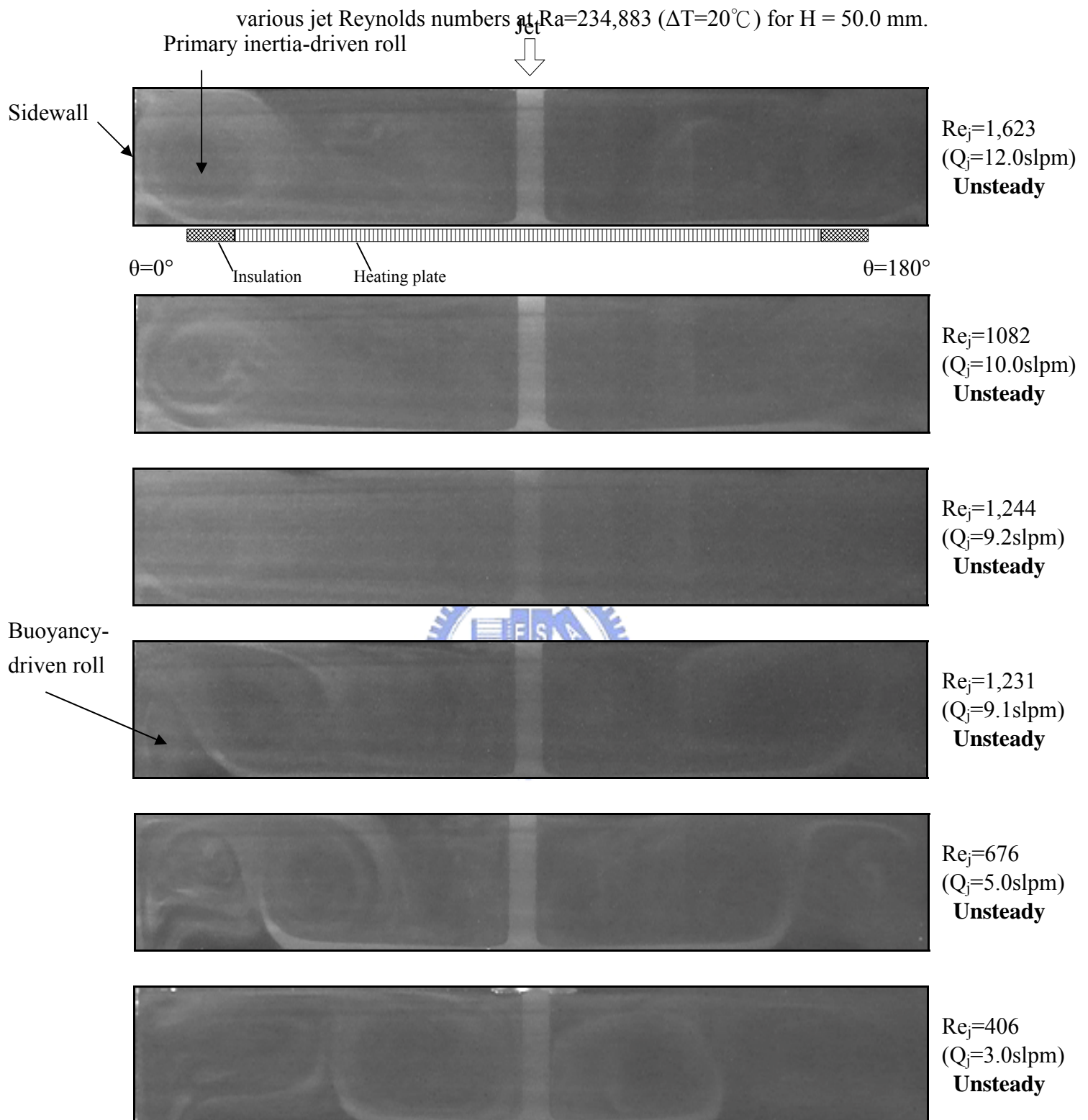


Fig. 4.52 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for

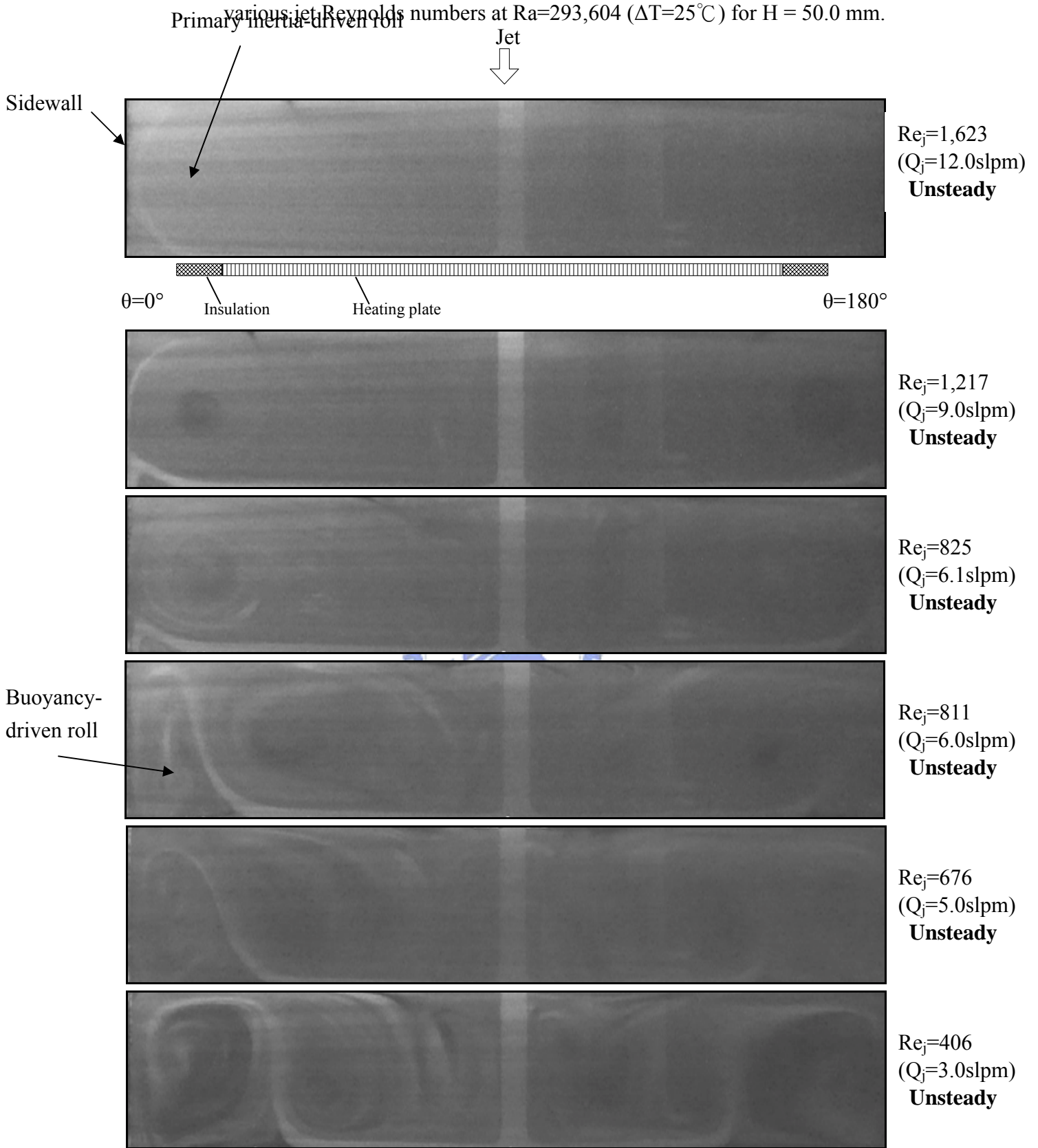


Fig. 4.53 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for

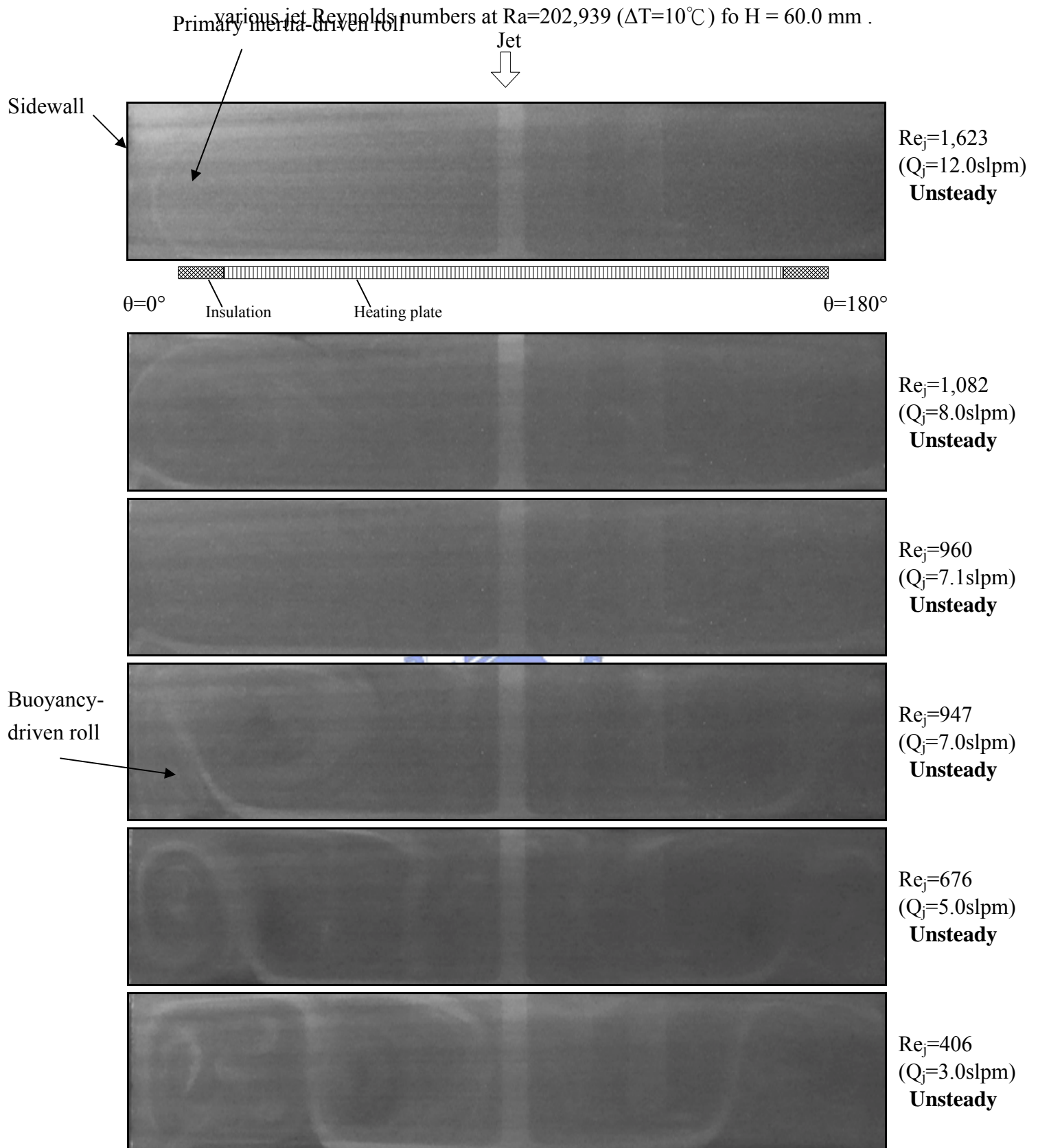


Fig. 4.54 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for

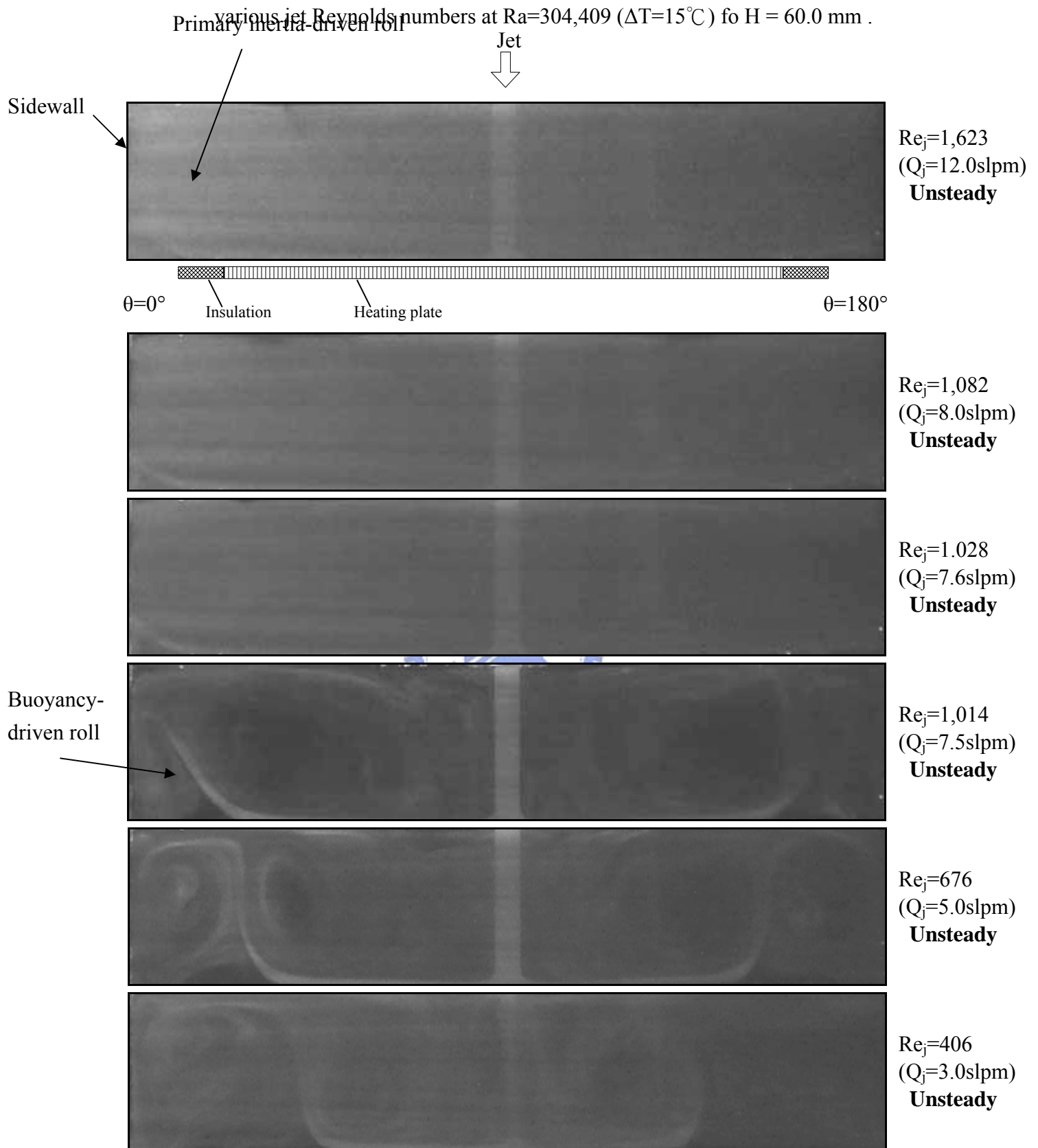


Fig. 4.55 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for

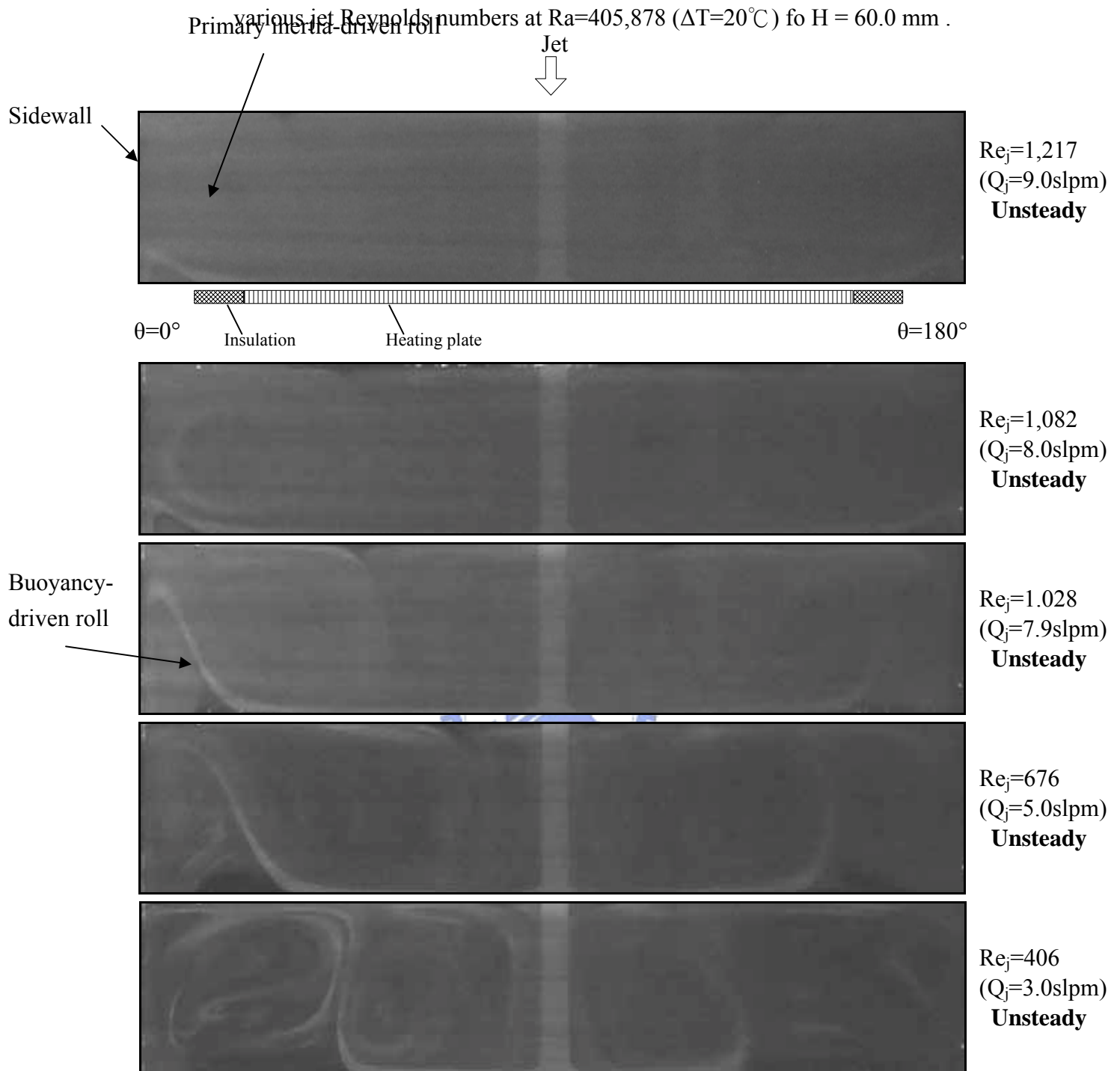


Fig. 4.56 Unsteady side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° for various jet Reynolds numbers at $Ra=507,348$ ($\Delta T=25^\circ C$) fo $H = 60.0$ mm .

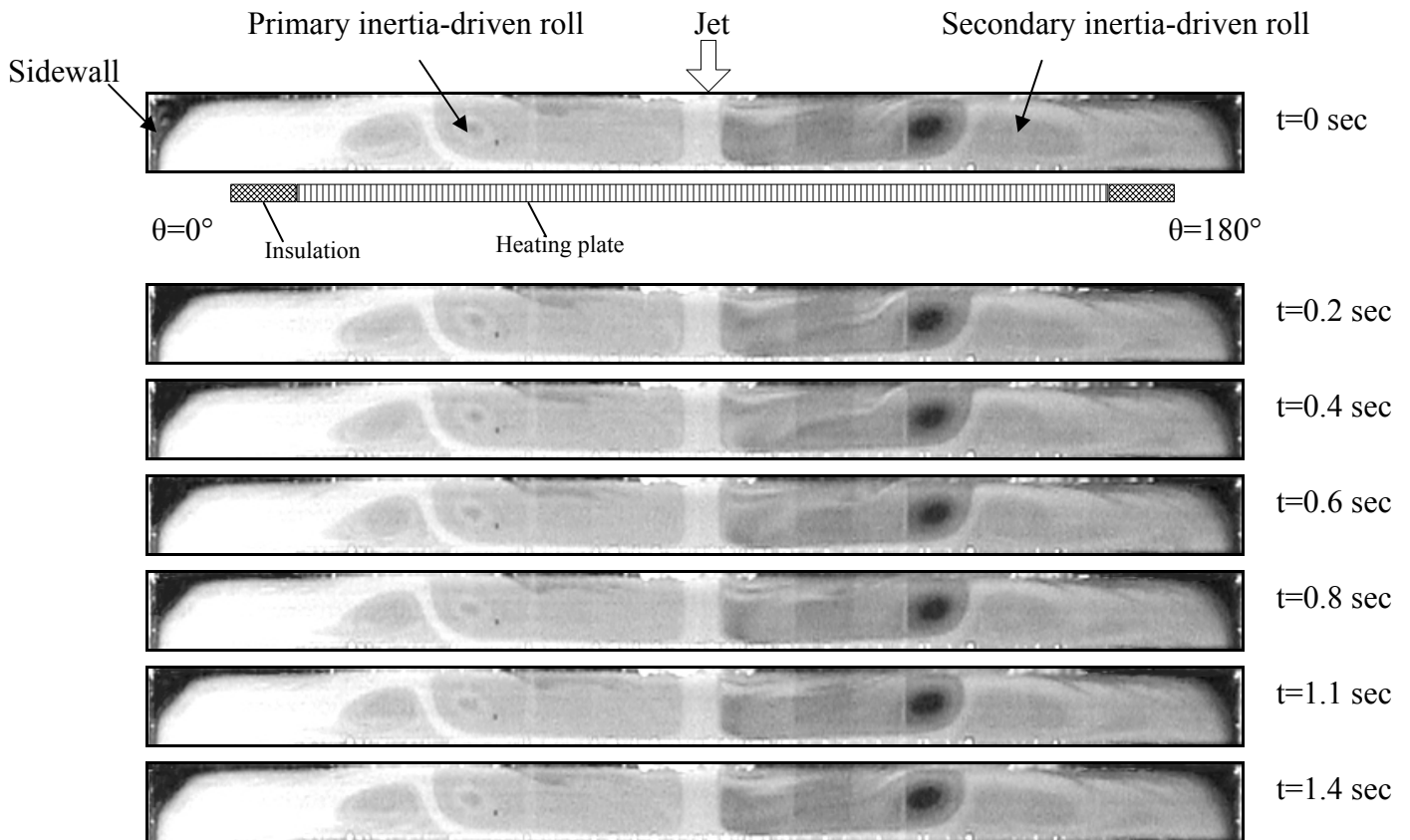


Fig. 4.57 Time-periodic vortex flow for $H = 20.0$ mm and $Ra = 0$ ($\Delta T = 0^\circ\text{C}$) at $Re_j = 839$ ($Q_j = 6.2$ slpm) illustrated by side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° at selected time instants in a typical periodic cycle ($t_p = 1.45$ sec).

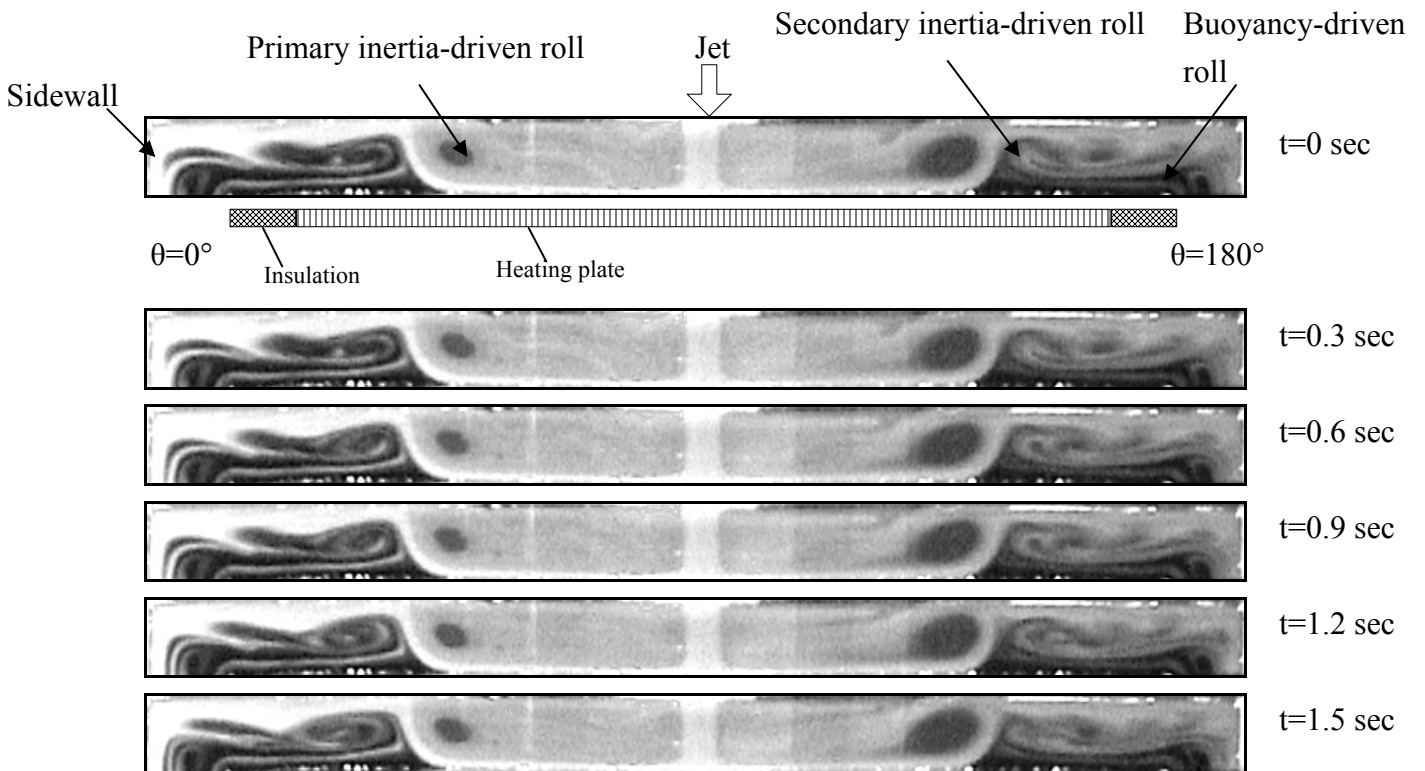


Fig. 4.58 Time-periodic vortex flow for $H = 20.0$ mm and $Ra = 18,790$ ($\Delta T = 25^\circ\text{C}$) at $Re_j = 1,028$ ($Q_j = 7.6$ slpm) illustrated by side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° at selected time instants in a typical periodic cycle ($t_p = 1.58$ sec).

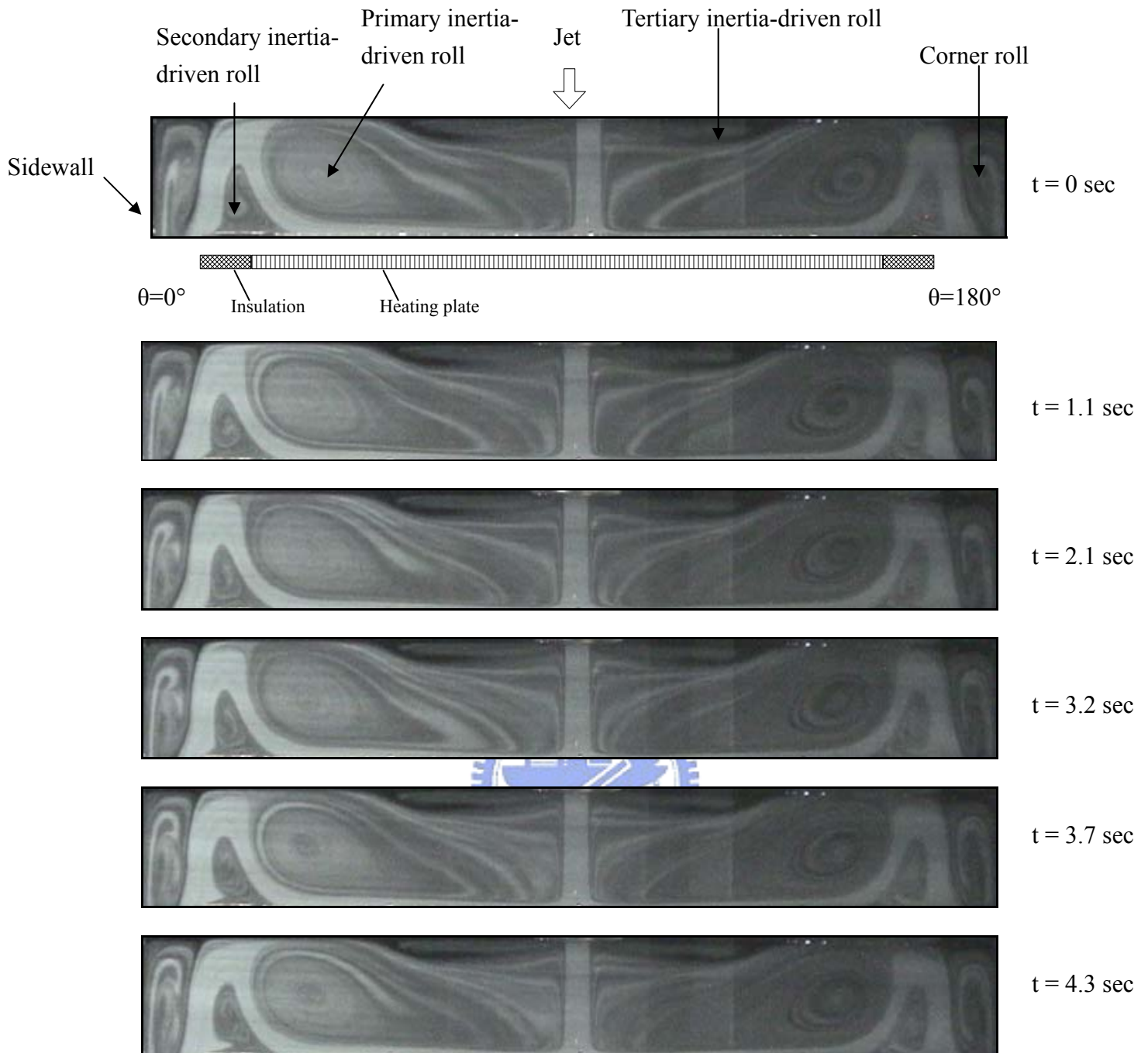


Fig. 4.59 Time-periodic vortex flow for $H = 40.0$ mm and $Ra = 0$ ($\Delta T = 0^\circ\text{C}$) at $Re_j = 676$ ($Q_j = 5.0$ slpm) illustrated by side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° at selected time instants in a typical periodic cycle ($t_p = 4.3$ sec).

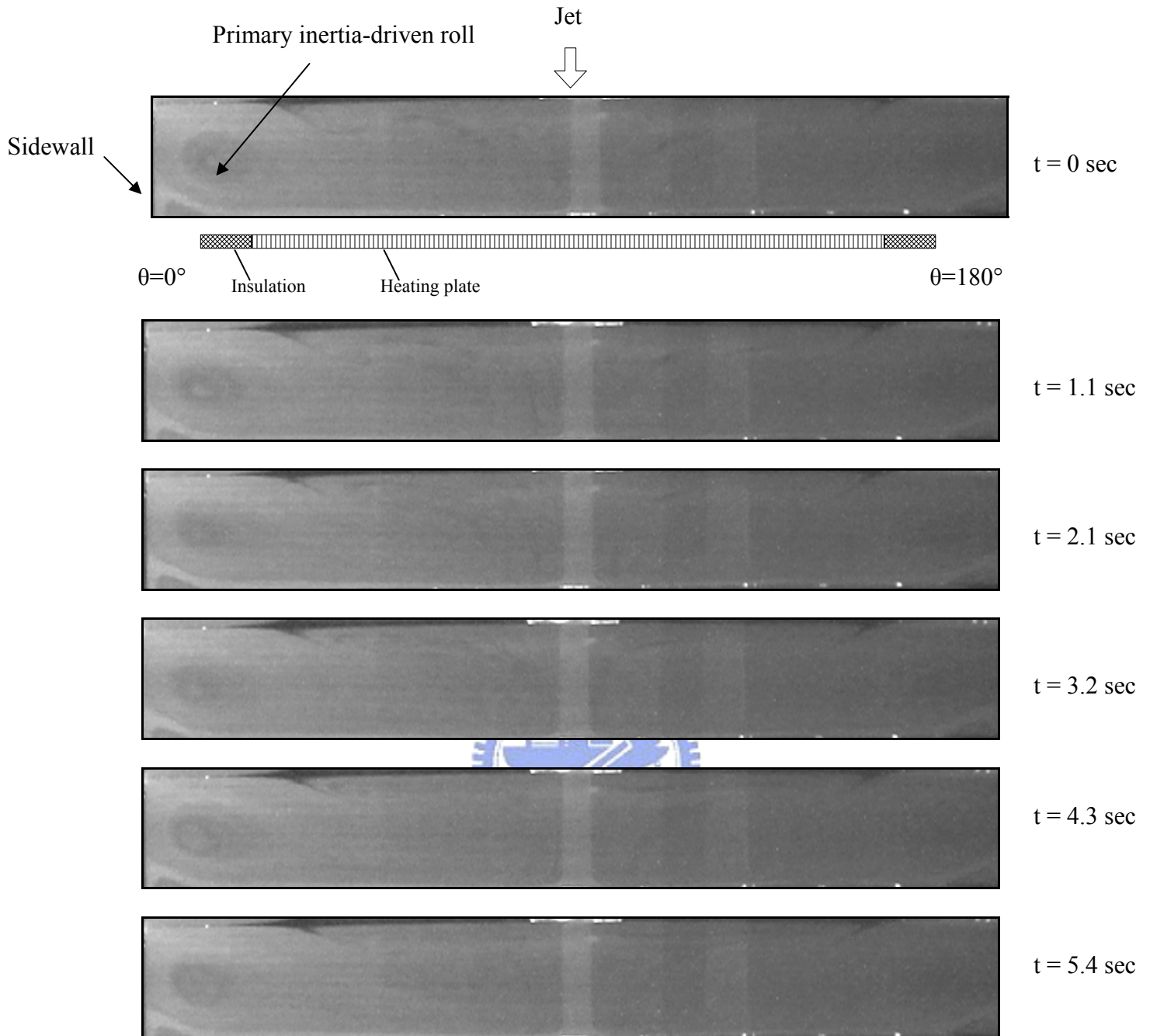


Fig. 4.60 Nonperiodic vortex flow for $H = 40.0 \text{ mm}$ and $Ra = 60,130$ ($\Delta T = 10^\circ\text{C}$) at $Re_j = 1,352$ ($Q_j = 10.0 \text{ slpm}$) illustrated by side view flow photos taken at the cross plane $\theta = 0^\circ$ & 180° at selected time instants.

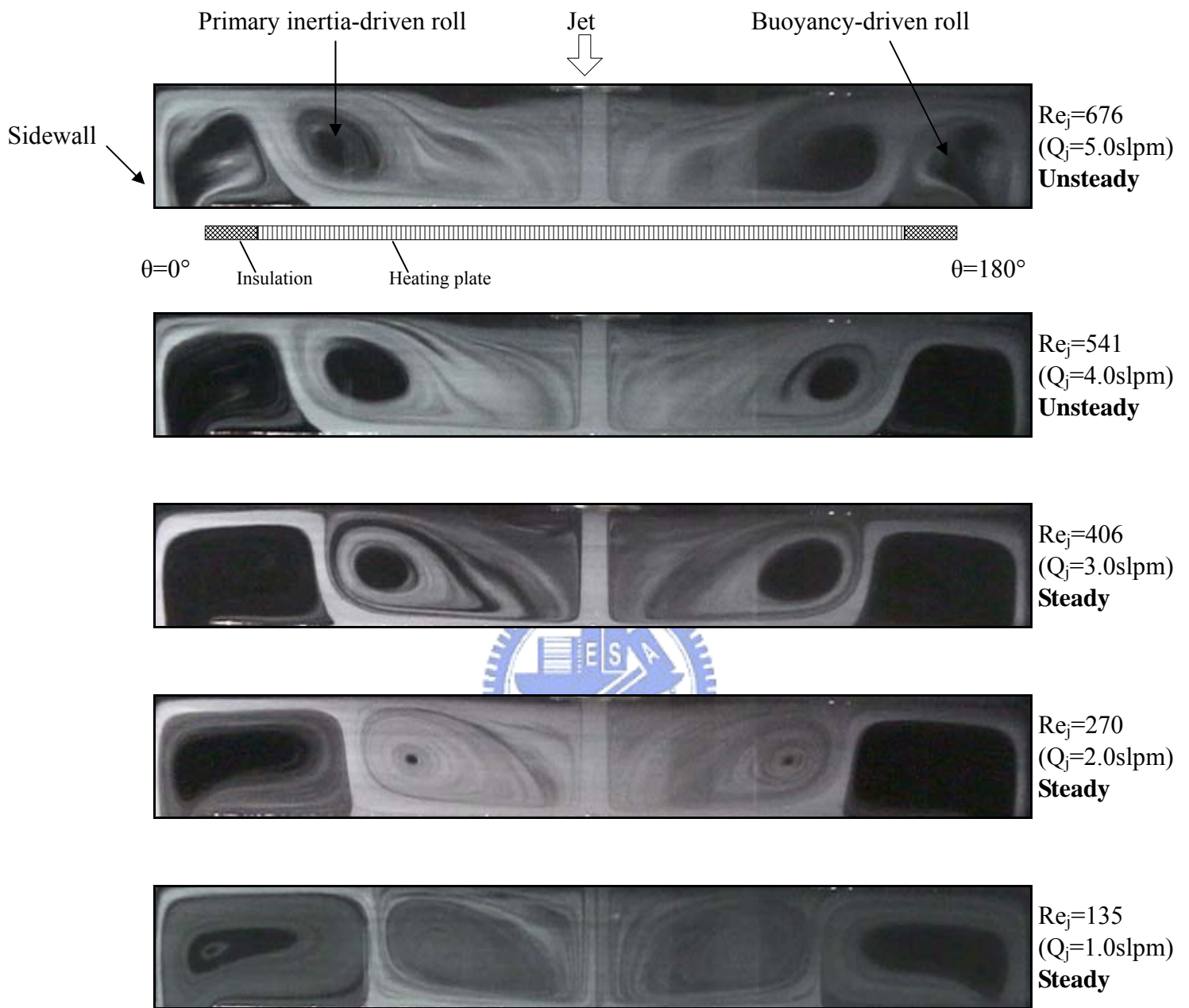


Fig. 4.61 Side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=30,065$ ($\Delta T=5^\circ\text{C}$) and $H = 40.0$ mm.

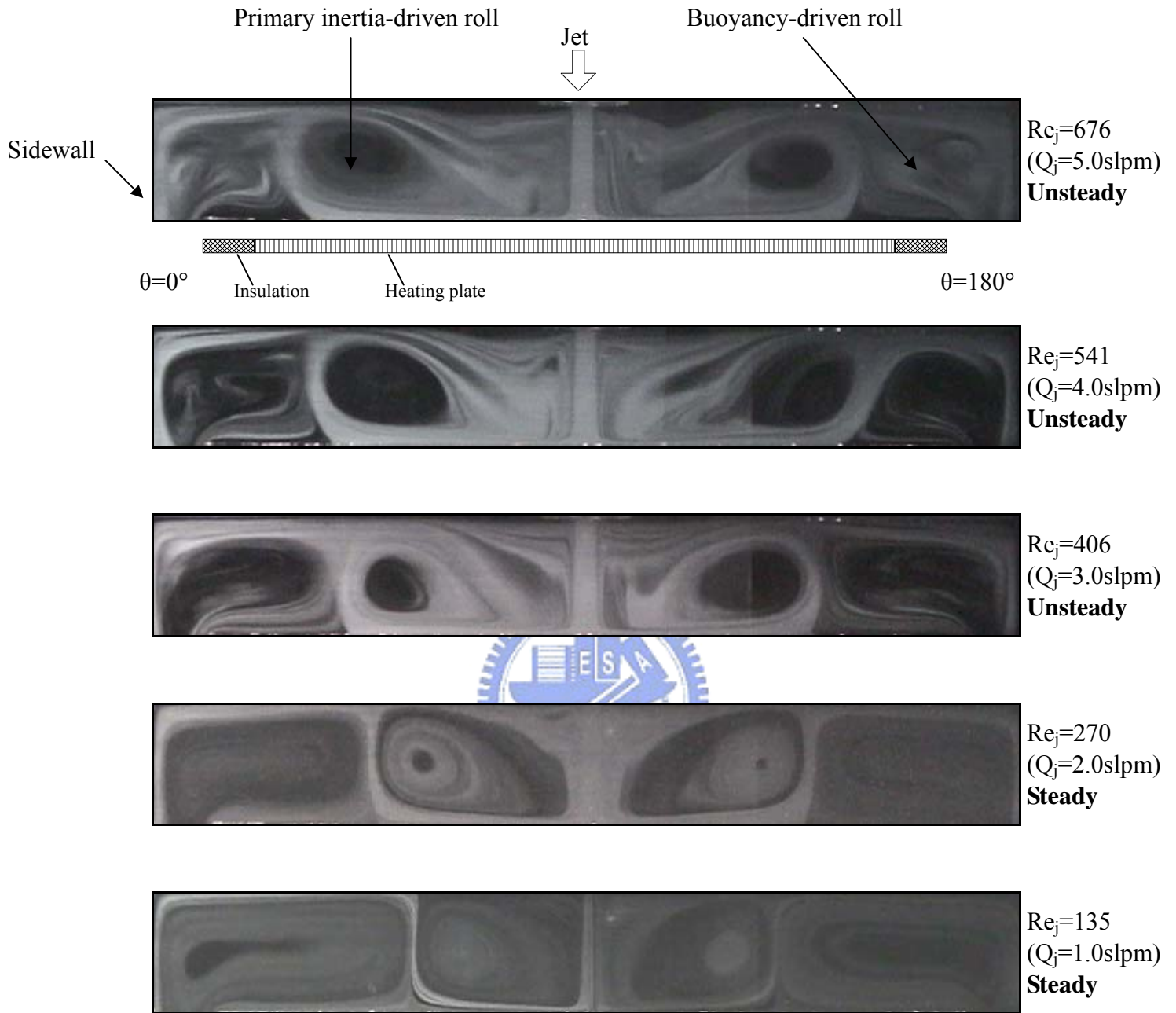


Fig. 4.62 Side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=60,130$ ($\Delta T=10^\circ\text{C}$) and $H=40.0$ mm.

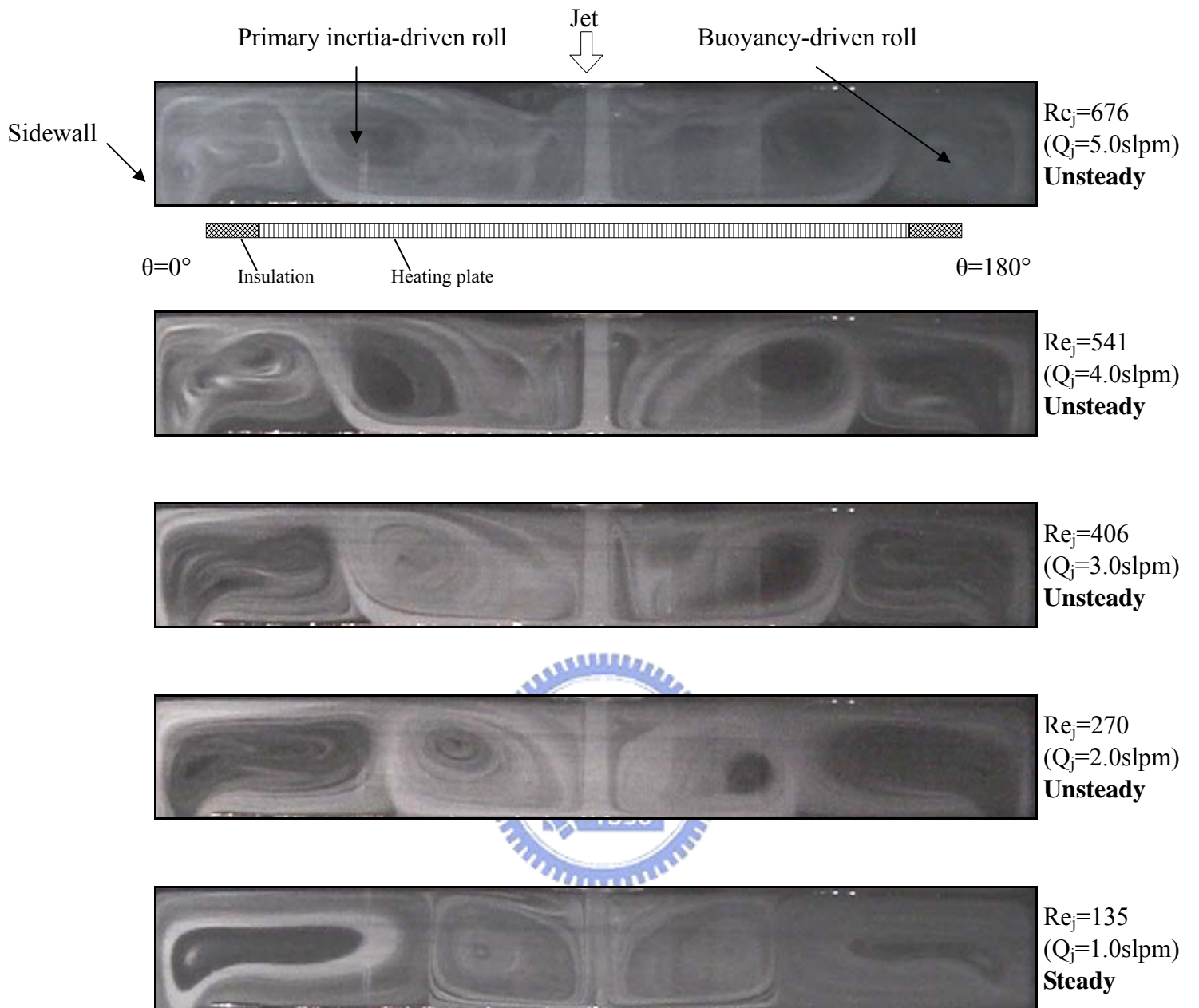


Fig. 4.63 Side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=90,195$ ($\Delta T=15^\circ\text{C}$) and $H = 40.0$ mm.

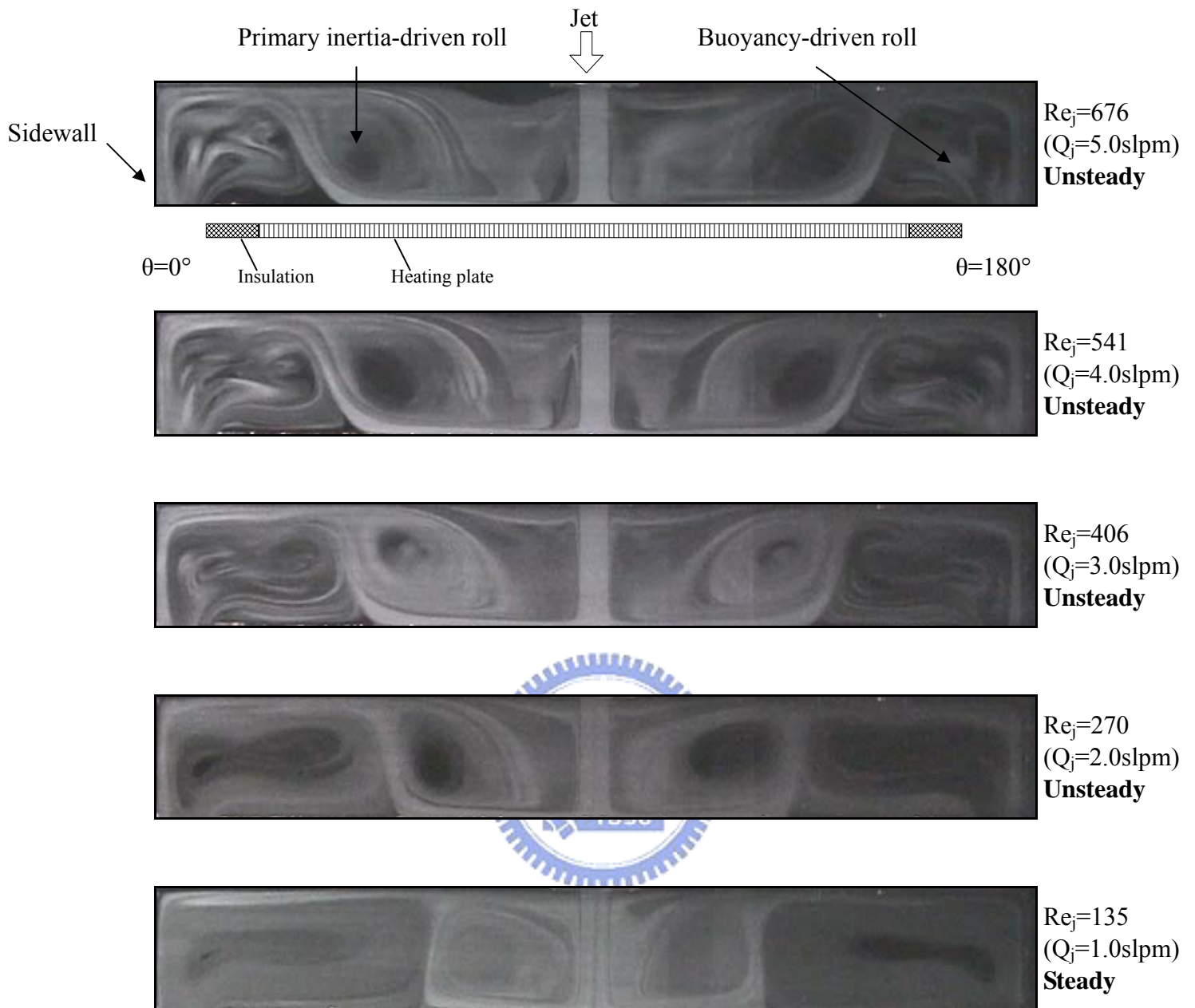


Fig. 4.64 Side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=120,320$ ($\Delta T=20^\circ\text{C}$) and $H = 40.0$ mm

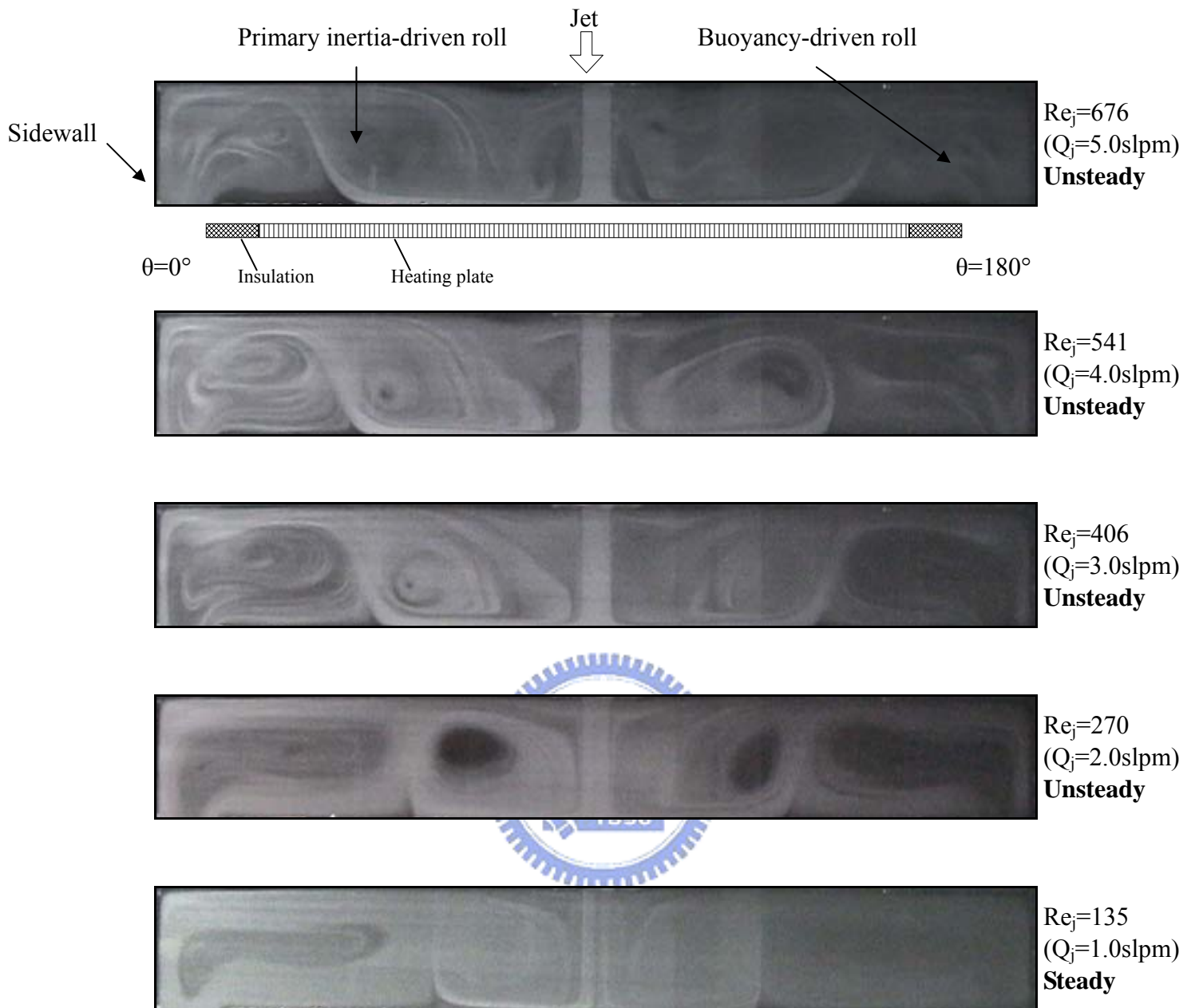


Fig. 4.65 Side view flow photos taken at the cross plane $\theta=0^\circ$ & 180° for various jet Reynolds numbers at $Ra=150,325$ ($\Delta T=25^\circ\text{C}$) and $H = 40.0$ mm.