

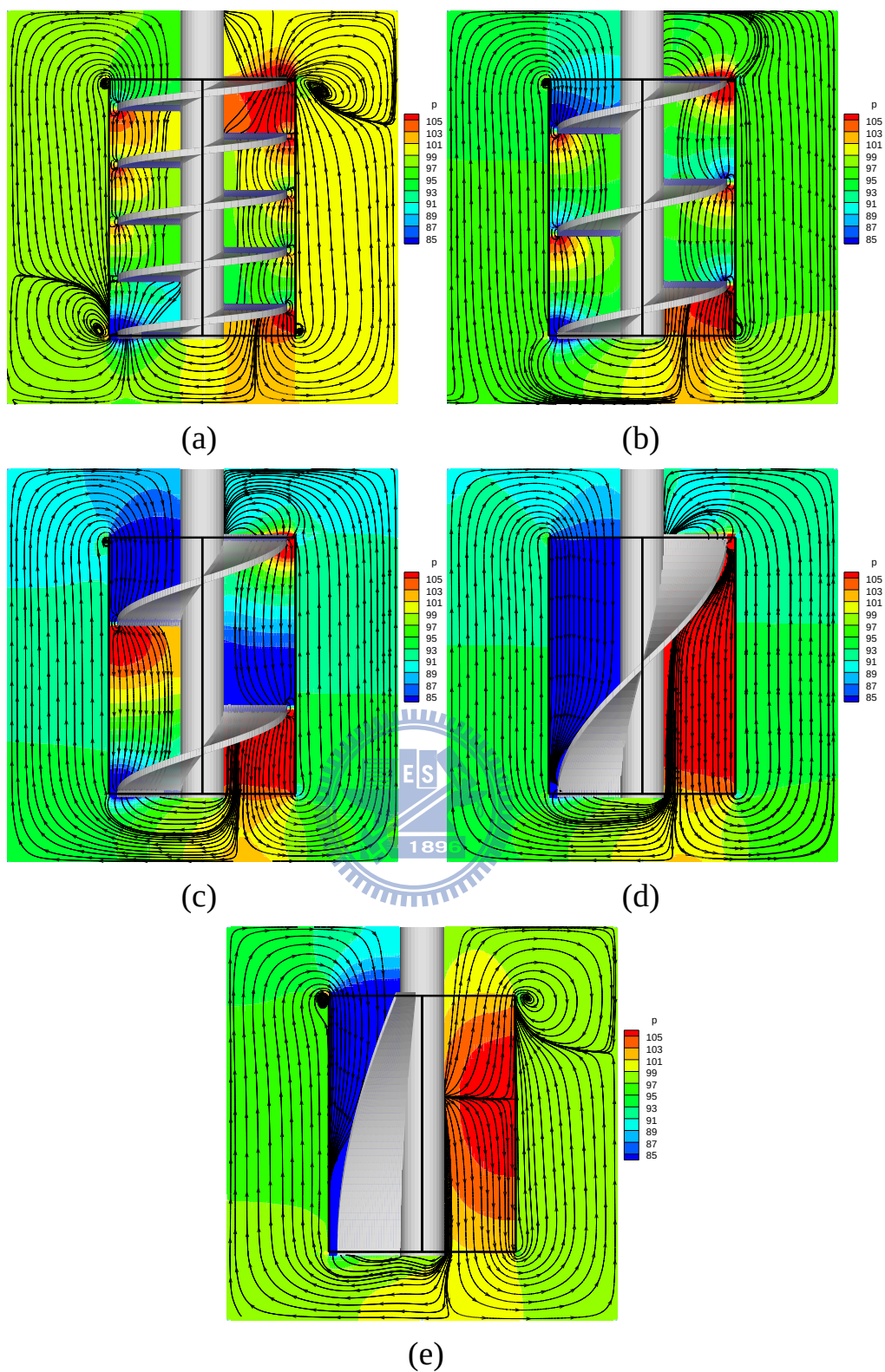


圖 4.20 不同 S/d 值的螺桿攪拌器流場的流線與壓力分佈：(a) $S=0.33d$ ；
(b) $S=0.6d$ ；(c) $S=1.0d$ ；(d) $S=3.0d$ ；(e) $S=7.5d$

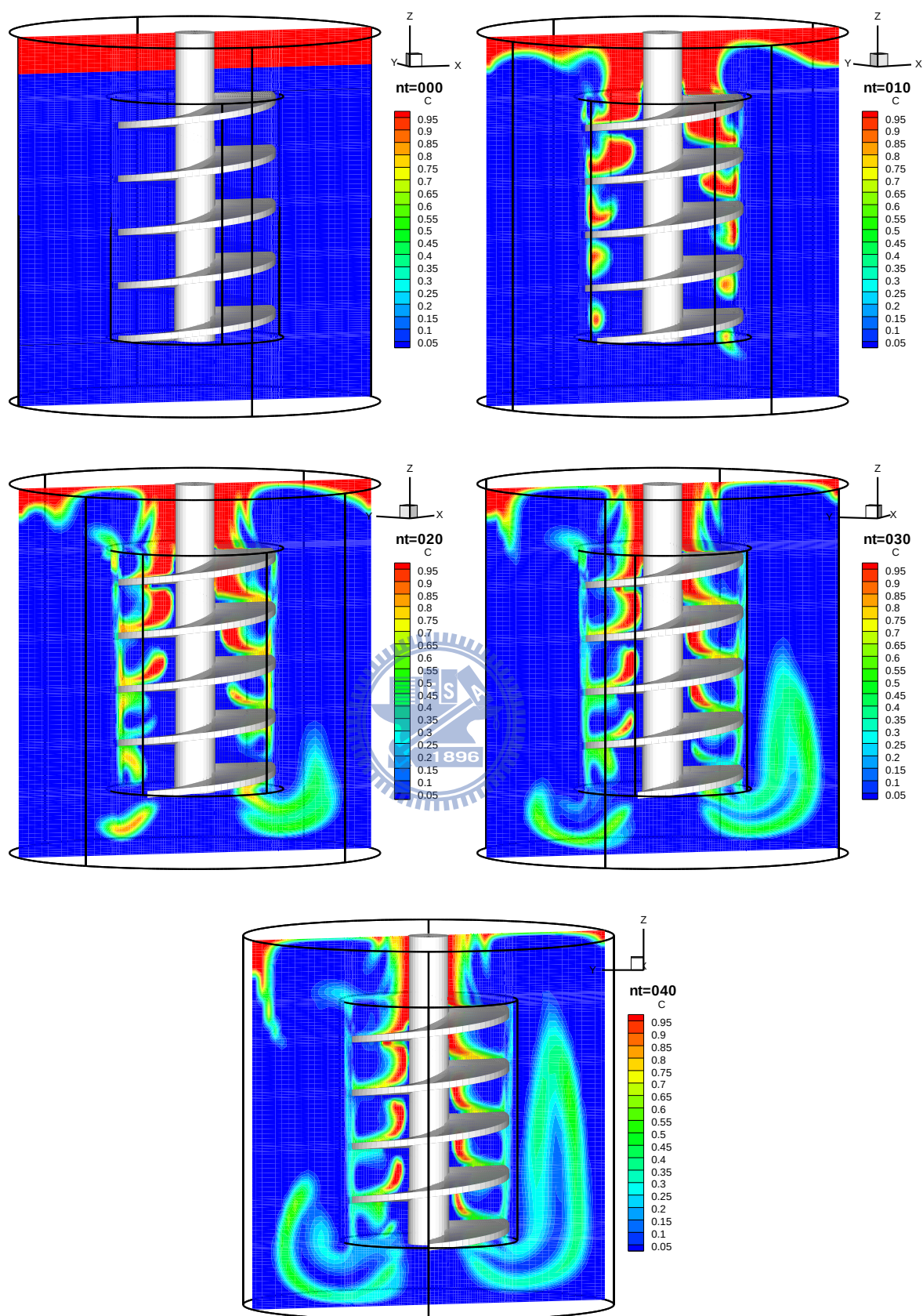


圖 4. 21 $S=0.33d$ 時螺桿攪拌器混合過程

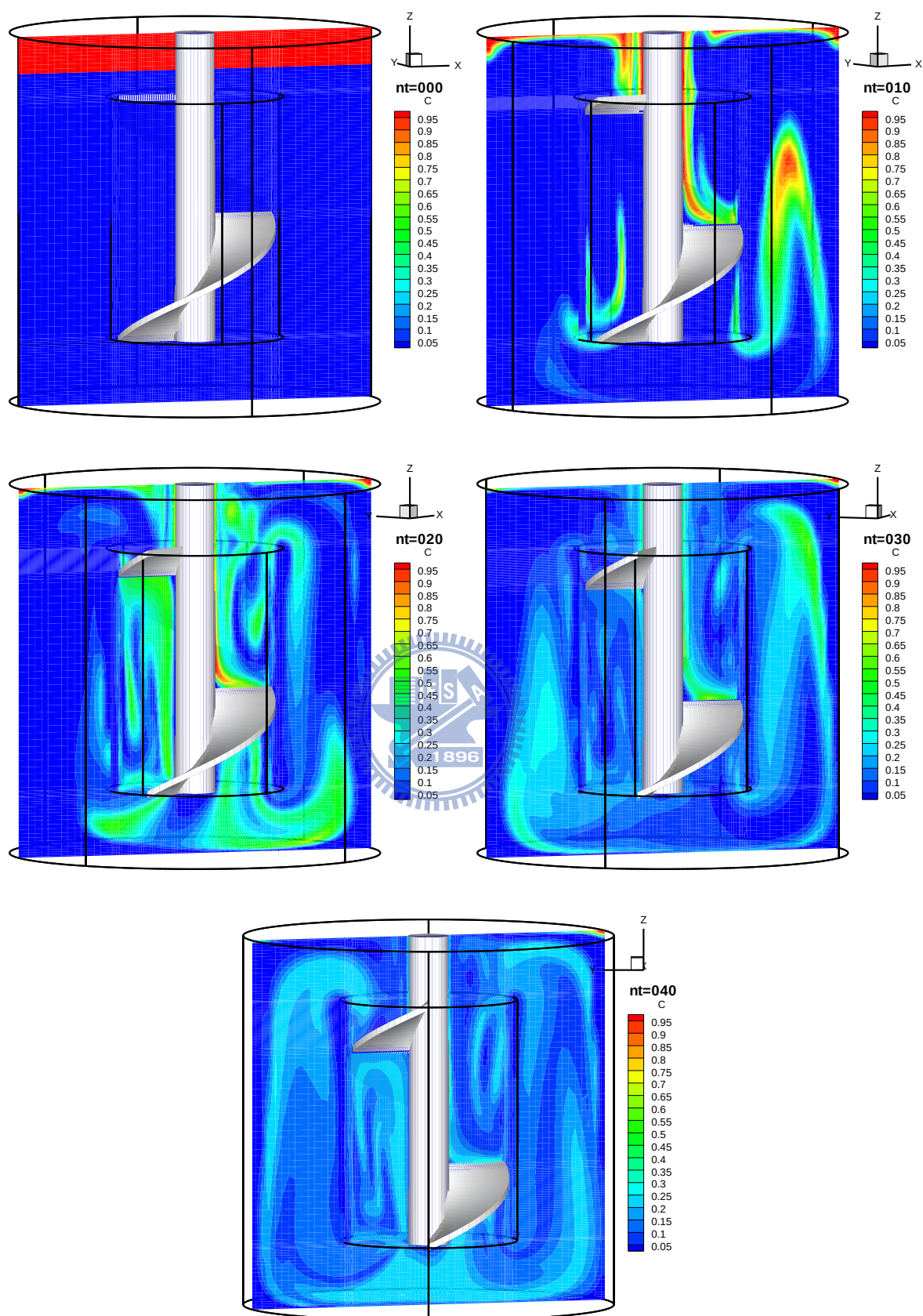


圖 4. $22S=1.5d$ 時螺桿攪拌器混合過程

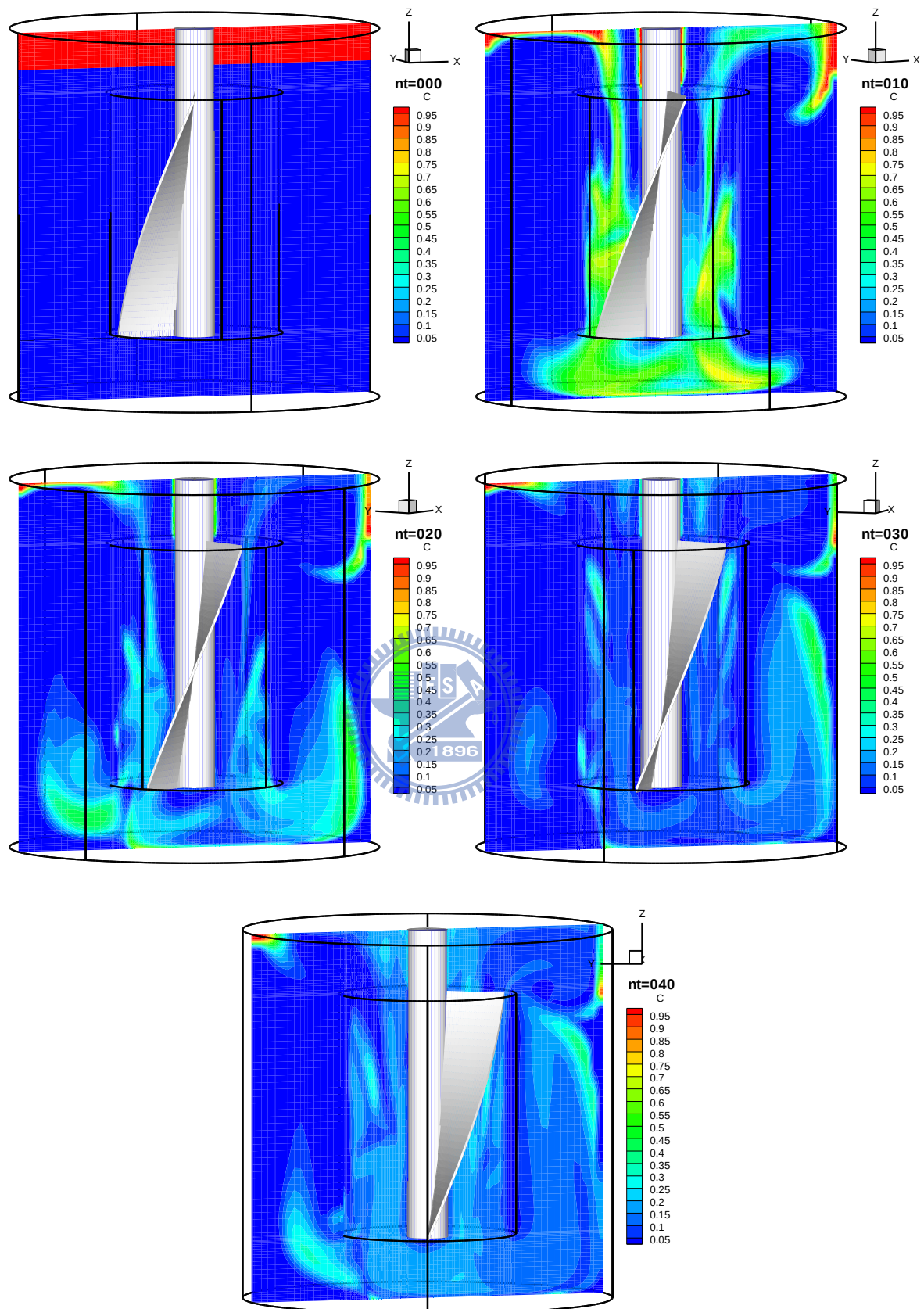
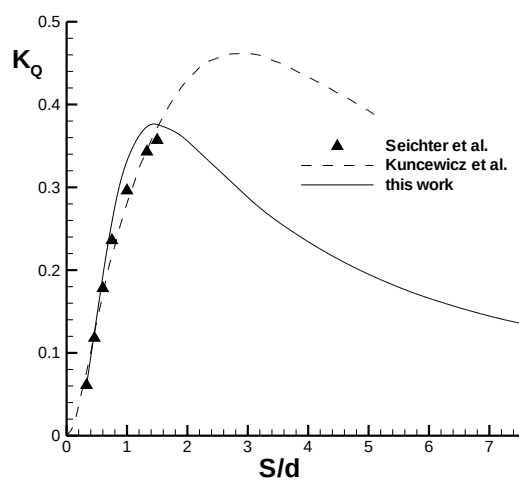
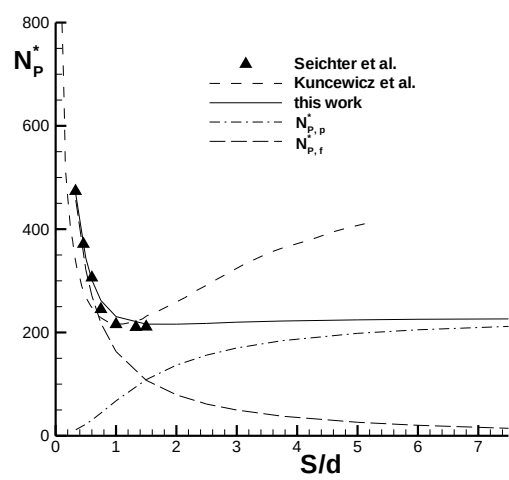


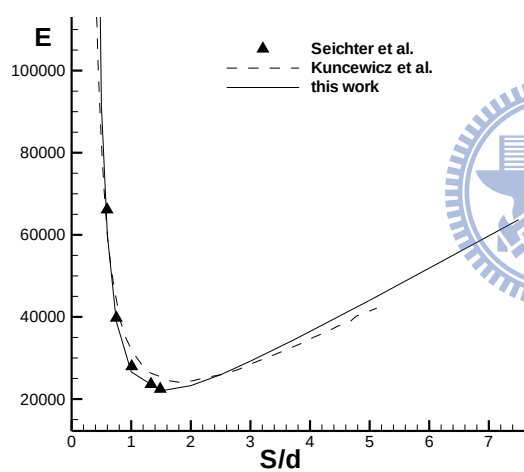
圖 4. 23 $S=7.5d$ 時螺桿攪拌器混合過程



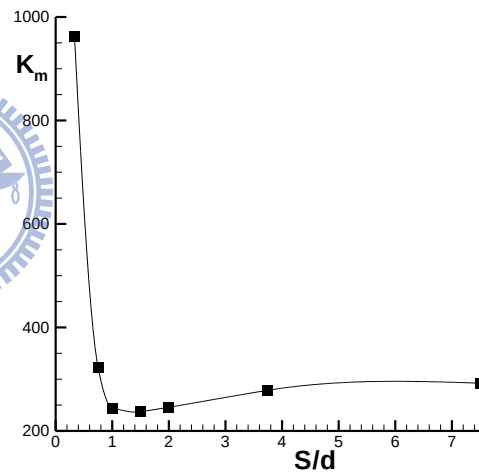
(a)



(b)



(c)



(d)

圖 4.24 螺桿攪拌器性能參數：(a)循環數；(b)功率數；(c)能量數；(d)混合時間數隨螺距與葉片直徑比 S/d 的變化

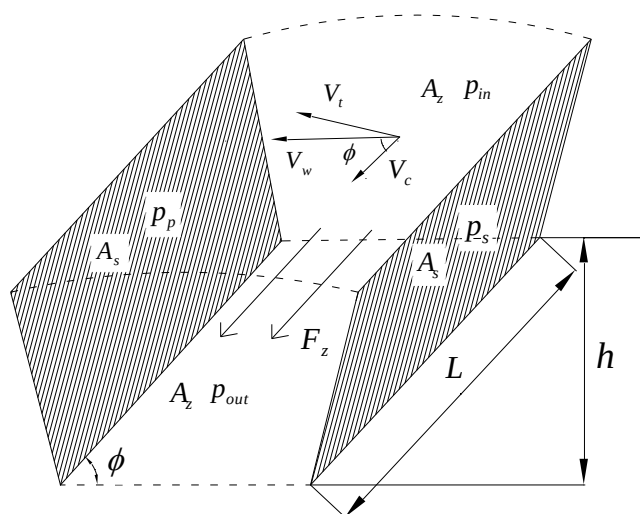


圖 4.25 螺桿攪拌器葉片流道與受力分佈示意圖



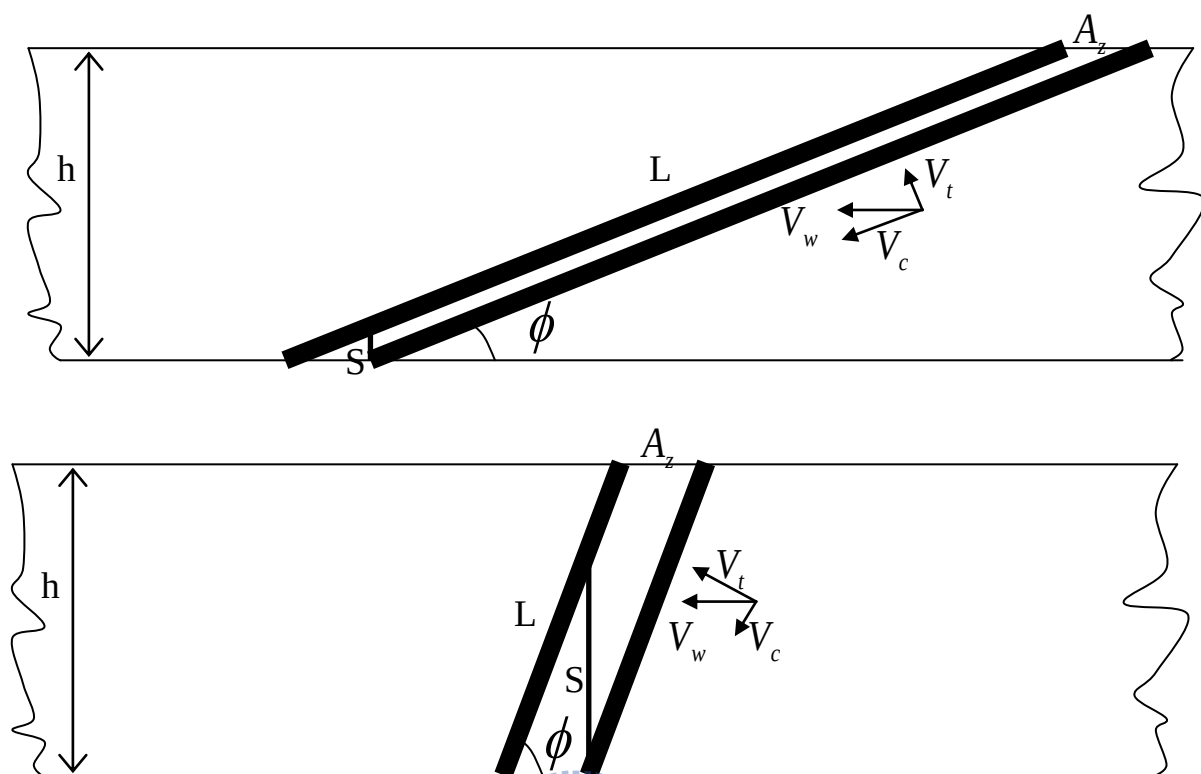


圖 4.26 螺距與流道角度對螺桿攪拌器流量大小與受力情形的影響



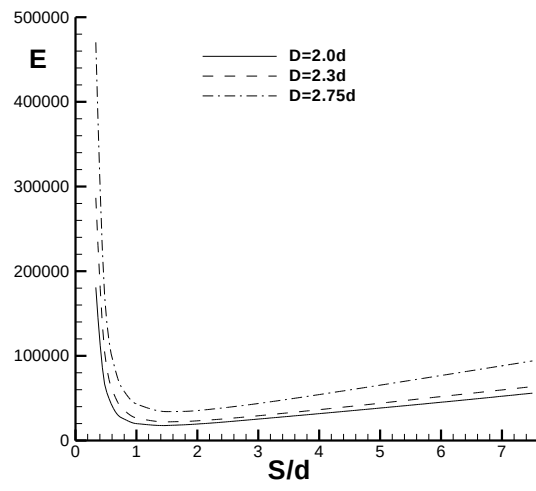
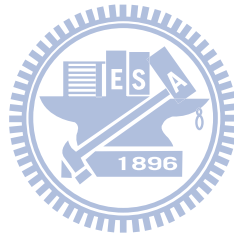


圖 4.27 螺桿攪拌器性能最佳化



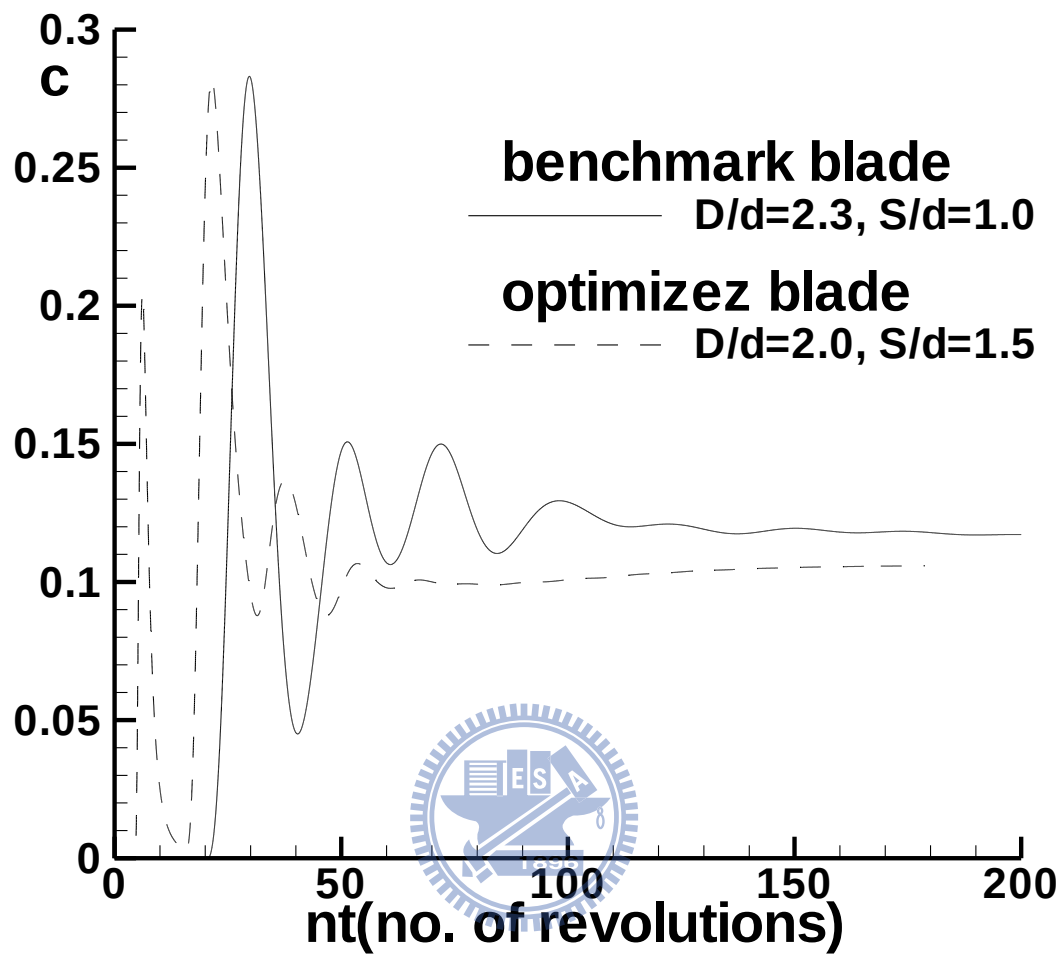


圖 4.28 基準尺寸與最佳尺寸螺桿攪拌器液體混合過程中濃度隨旋轉圈數的
變化

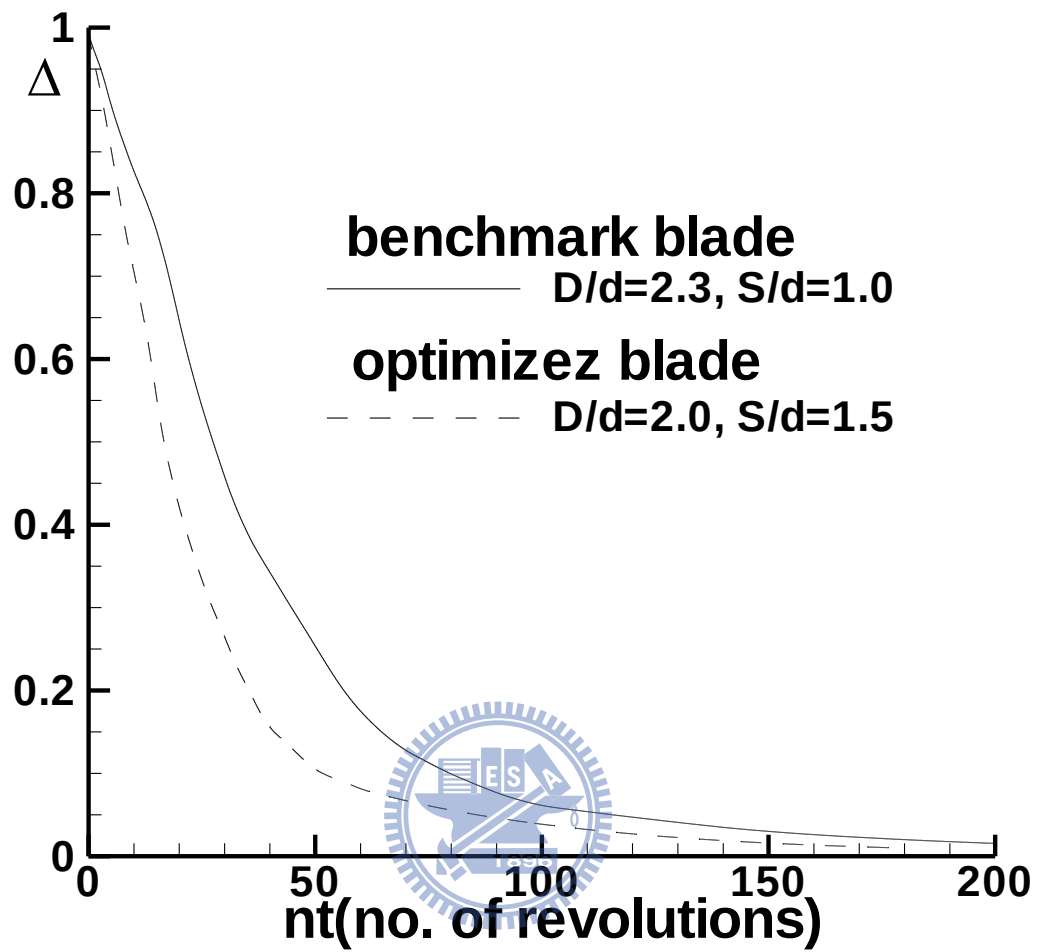


圖 4.29 基準尺寸與最佳尺寸螺桿攪拌器液體混合過程中偏差度隨旋轉圈數的變化

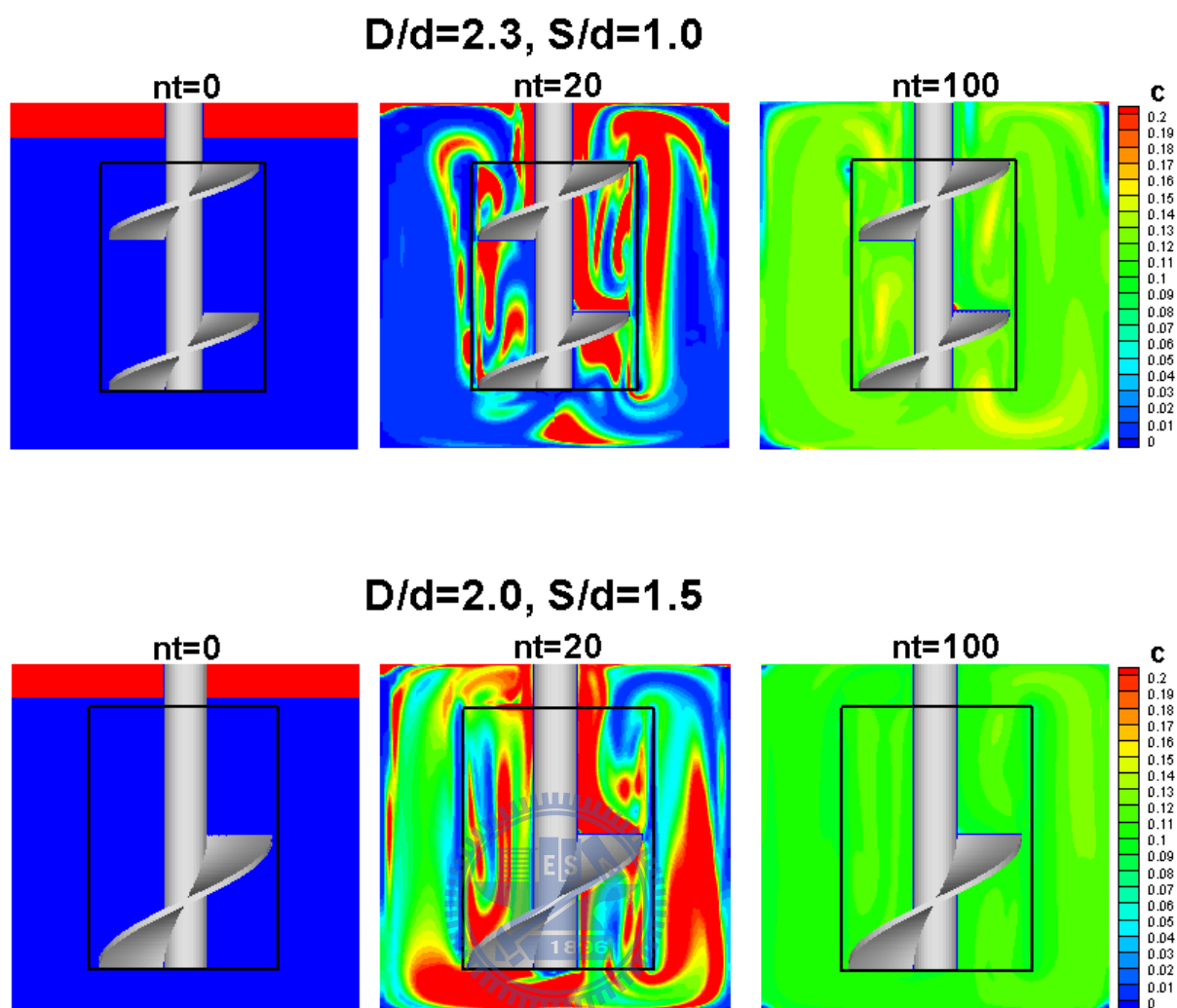


圖 4.30 基準尺寸與最佳尺寸螺桿攪拌器液體混合過程中濃度分佈變化

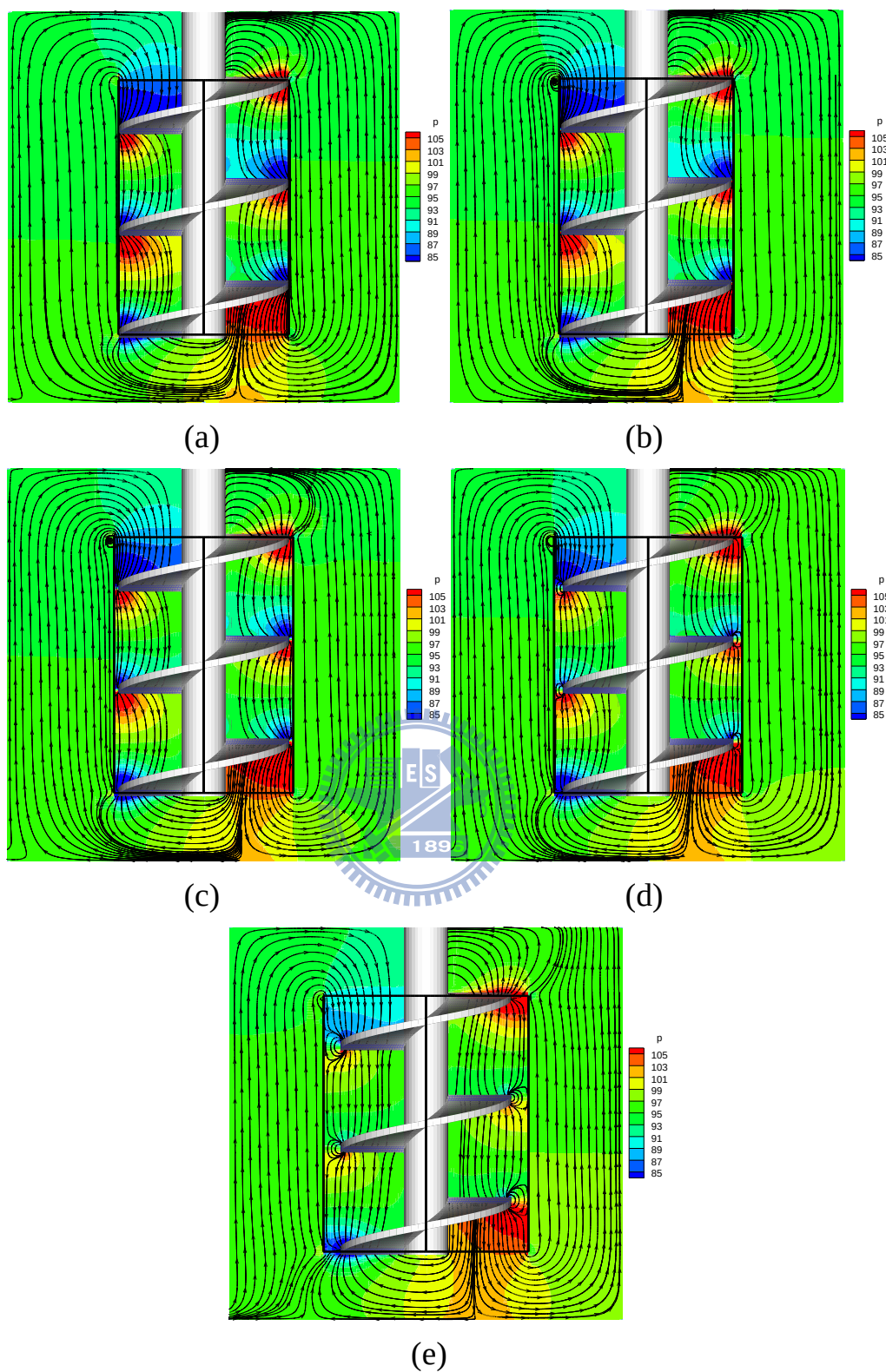


圖 4.31 不同 C/d 值的螺桿攪拌器流場的流線與壓力分佈：(a) $C=0.001d$ ；(b) $C=0.01d$ ；(c) $C=0.025d$ ；(d) $C=0.05d$ ；(e) $C=0.1d$

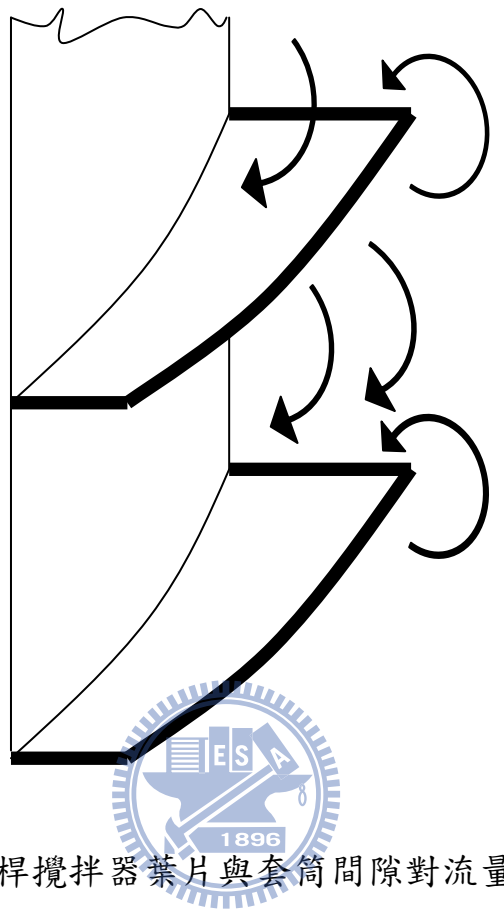
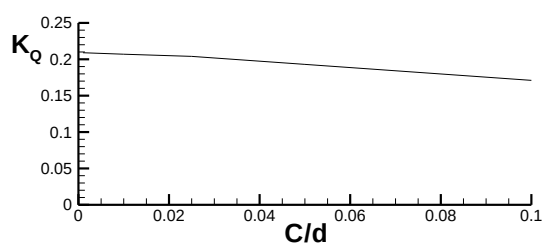
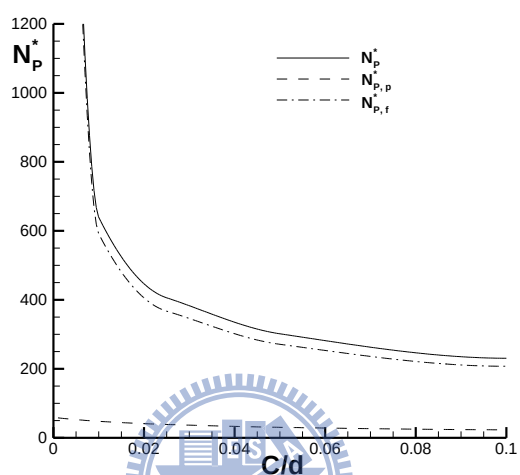


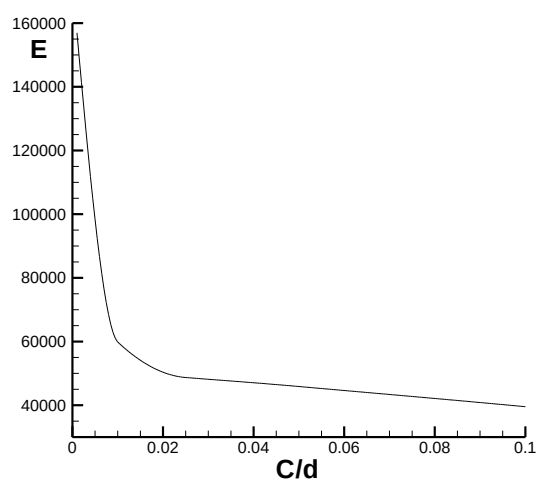
圖 4.32 螺桿攪拌器葉片與套筒間隙對流量大小的影響



(a)



(b)



(c)

圖 4.33 螺桿攪拌器性能參數：(a)循環數；(b)功率數；(c)能量數隨間隙與葉片直徑比 C/d 的變化

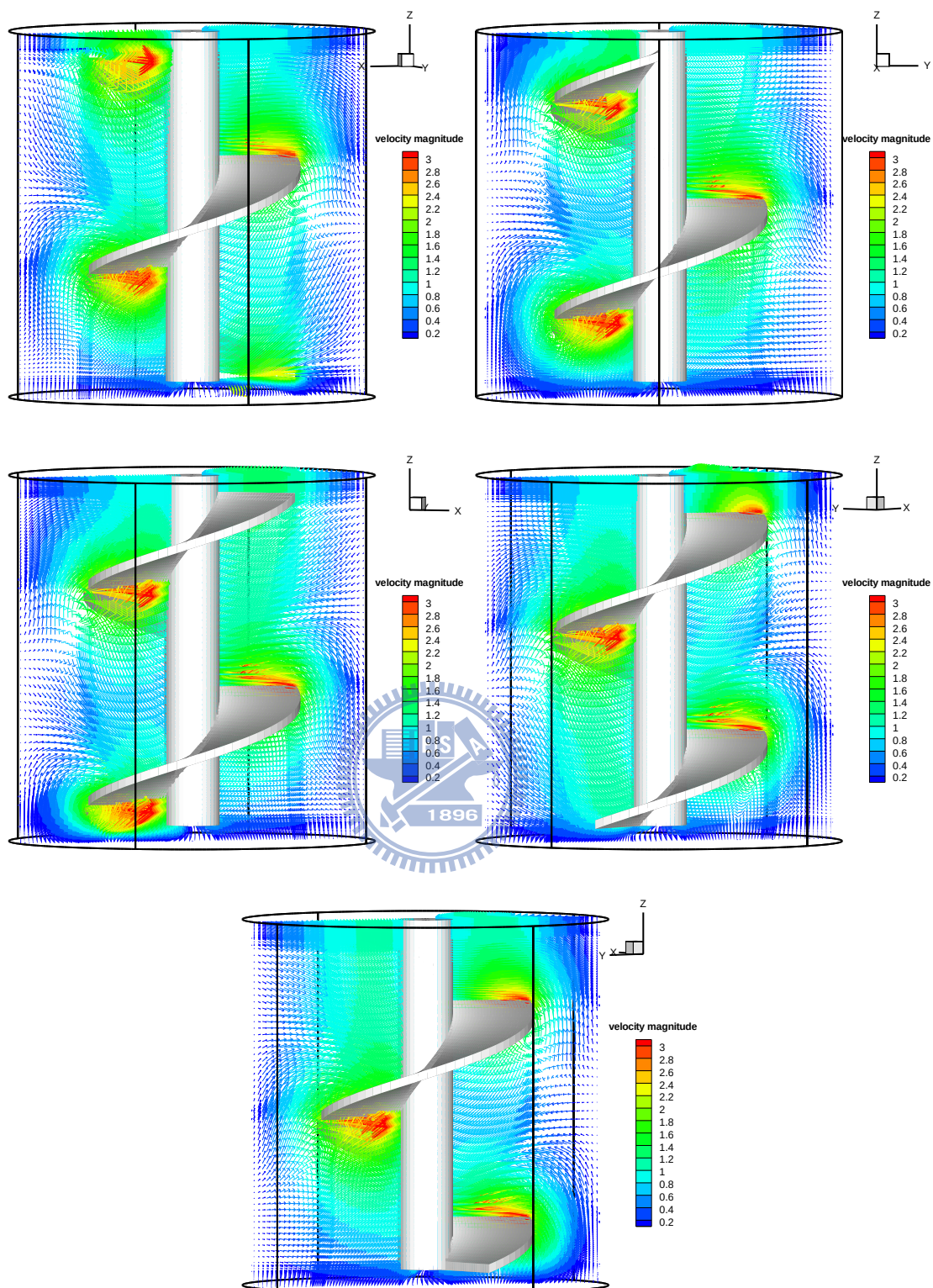


圖 4.34 無套筒螺桿攪拌器 $D=1.69d$ 時在不同圓周方向位置的速度場

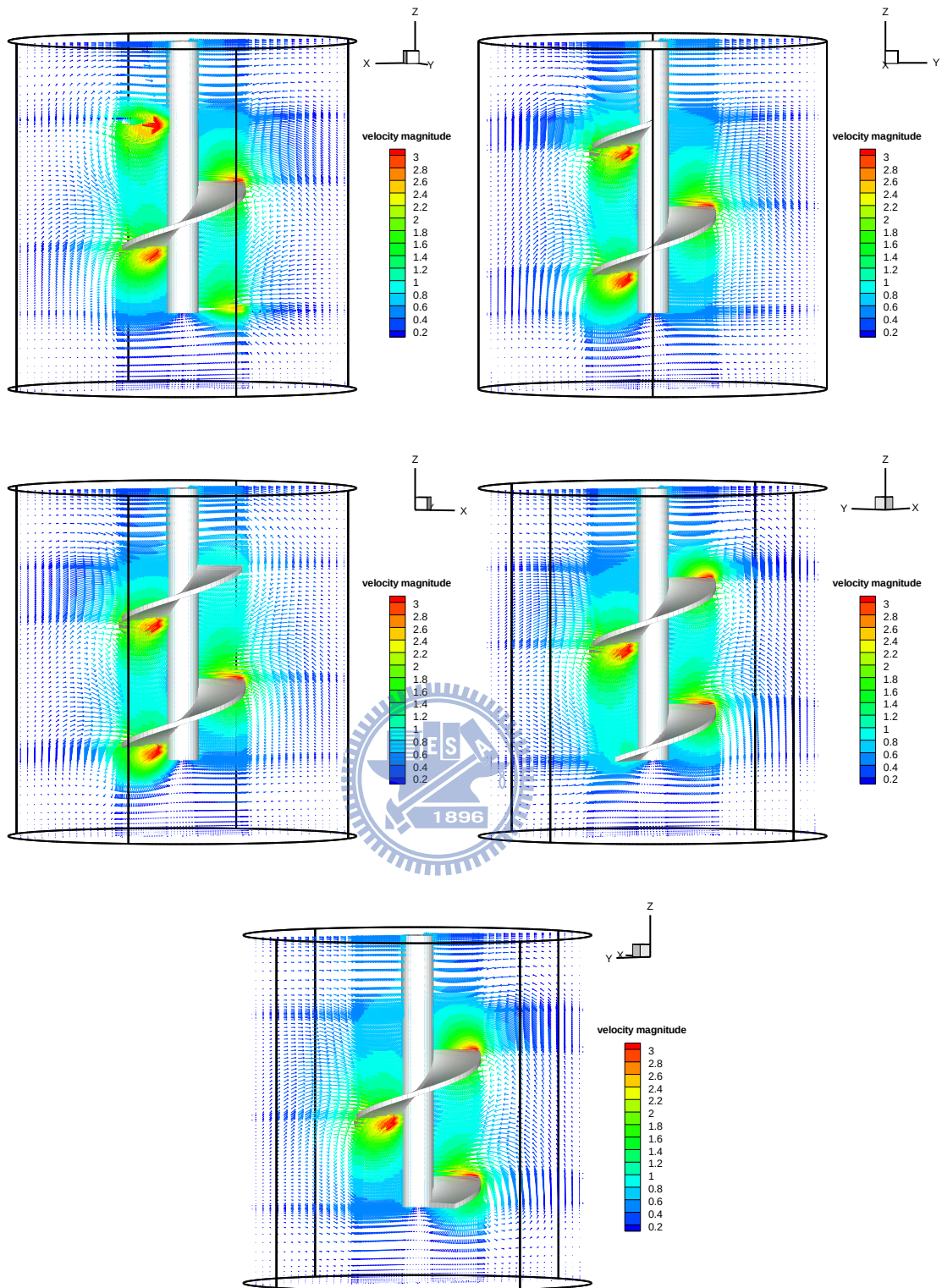


圖 4.35 無套筒螺桿攪拌器 $D=2.75d$ 時在不同圓周方向位置的速度場

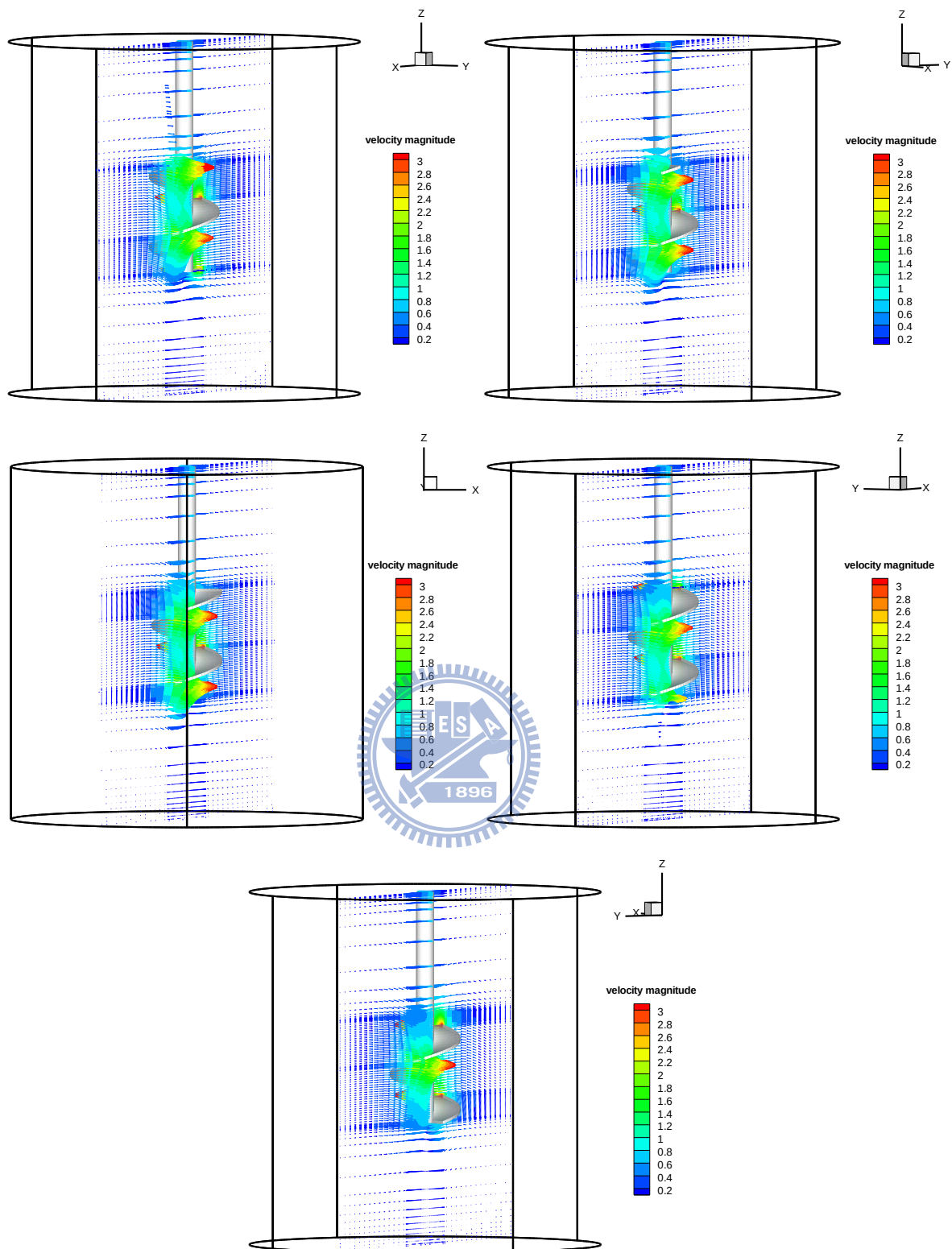


圖 4.36 無套筒螺桿攪拌器 $D=5.0d$ 時在不同圓周方向位置的速度場

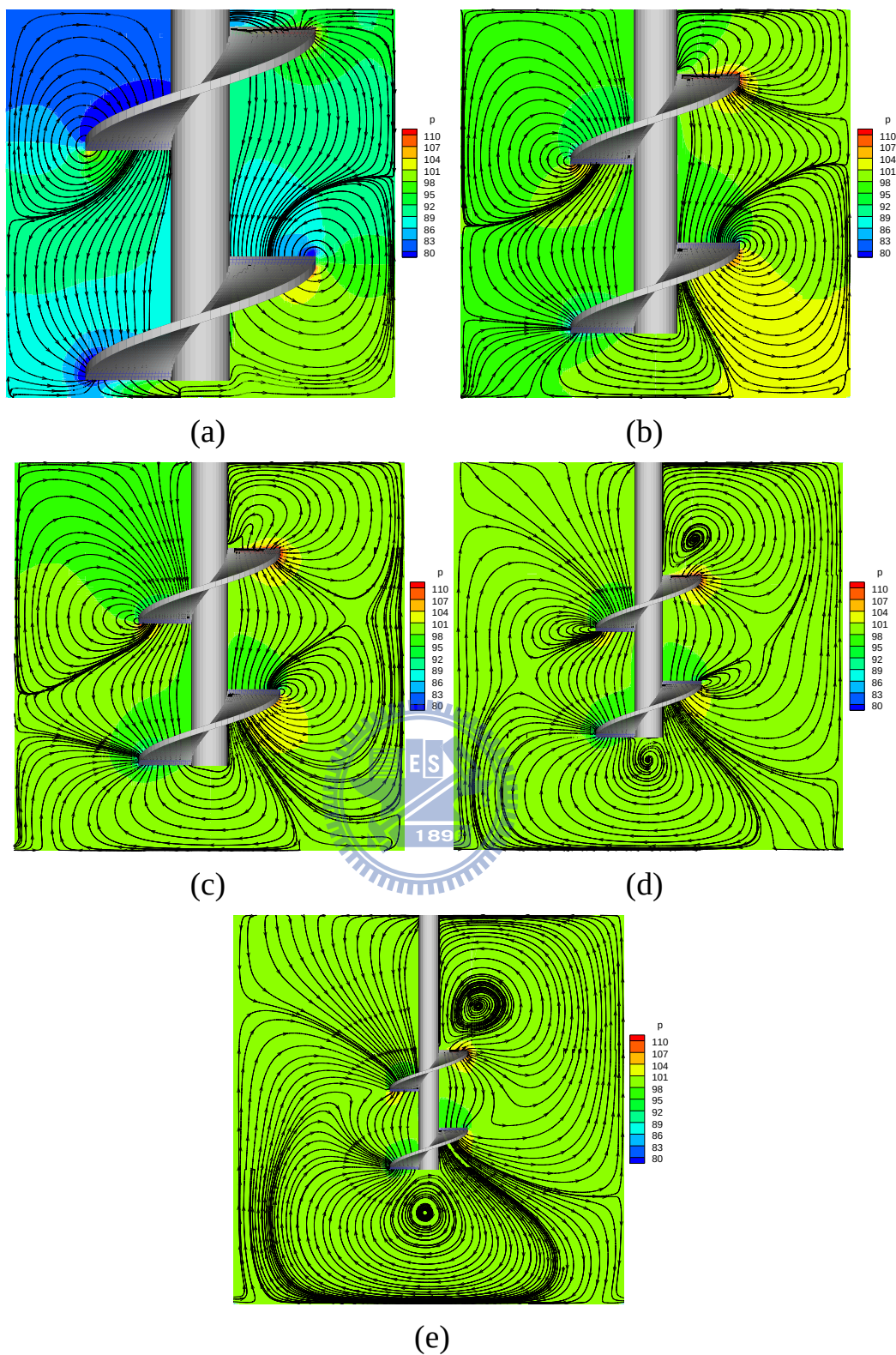
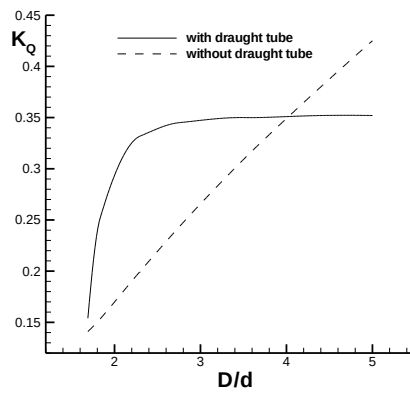
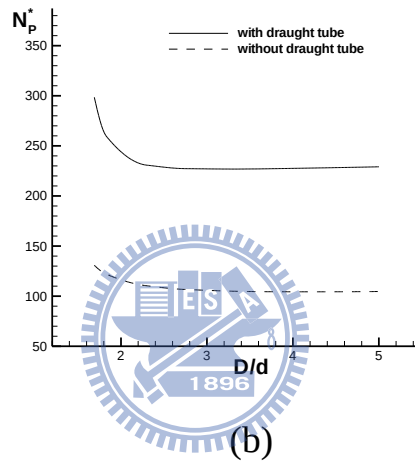


圖 4.37 不同 D/d 值的無套筒螺桿攪拌器流場的流線與壓力分佈：

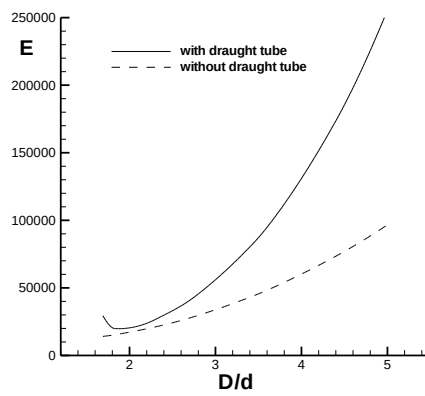
(a) $D=1.69d$; (b) $D=2.3d$; (c) $D=2.75d$; (d) $D=3.67d$; (e) $D=5.0d$



(a)



(b)



(c)

圖 4.38 有套筒與無套筒螺桿攪拌器性能參數：(a)循環數；(b)功率數；(c)

能量數隨槽直徑與葉片直徑比 D/d 的變化

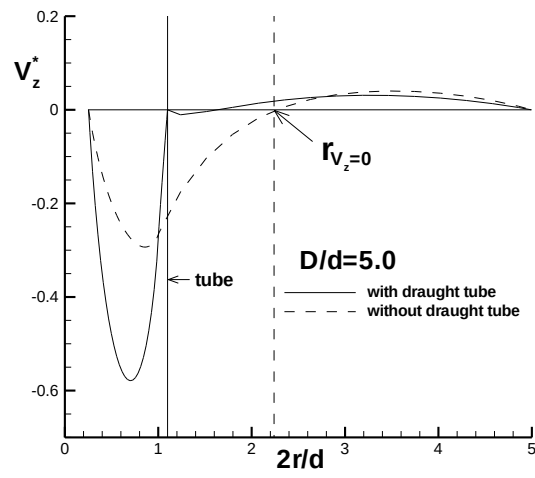
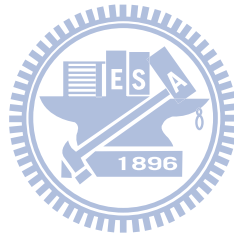


圖 4.39 有套筒與無套筒螺桿攪拌器流體軸向速度的徑向分佈



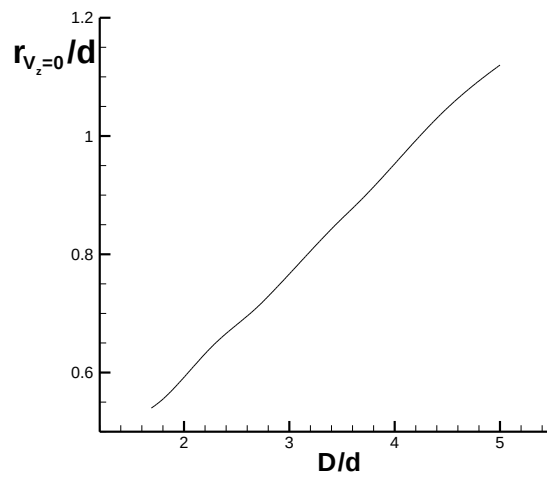
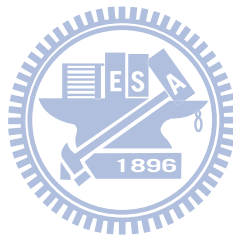
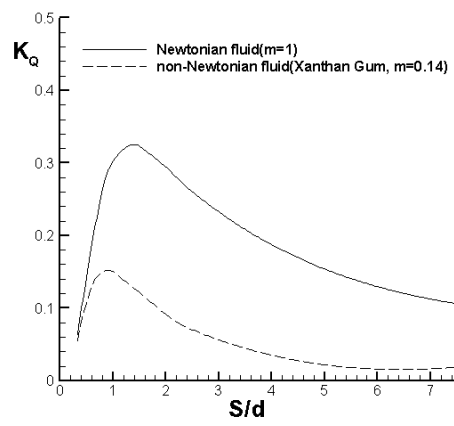
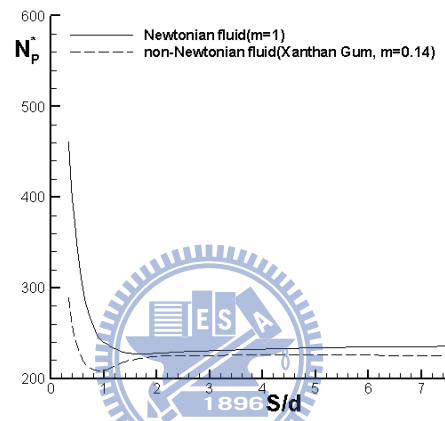


圖 4.40 無套筒螺桿攪拌器流體循環中心隨槽直徑與葉片直徑比 D/d 的變化

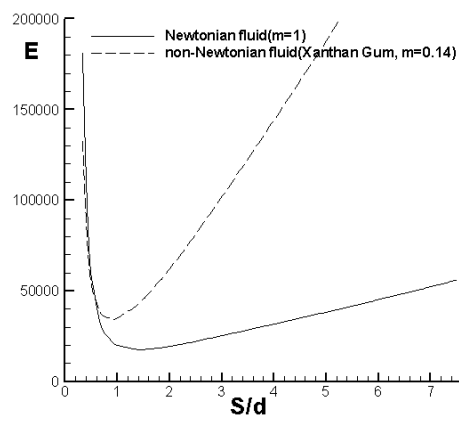




(a)



(b)



(c)

圖 4.41 流體流變學性質對攪拌器性能的影響

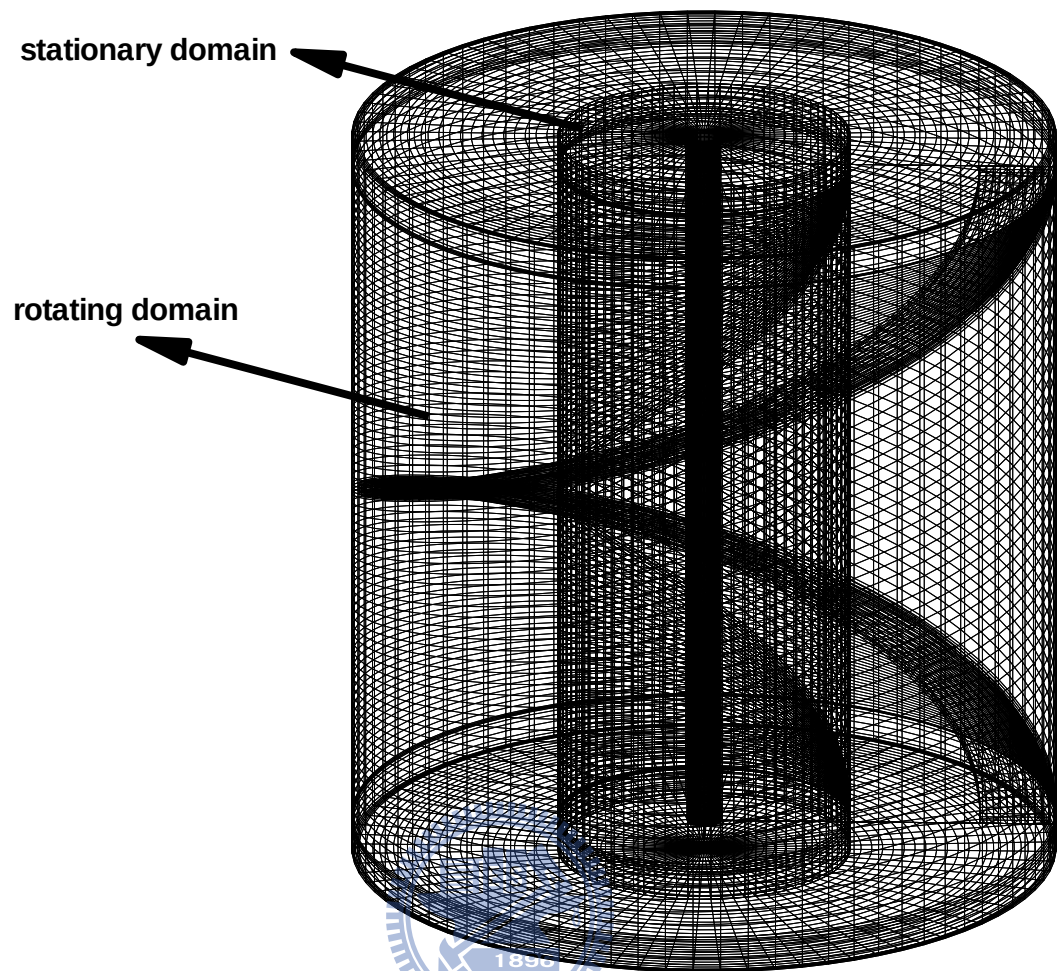


圖 4.42 螺帶攪拌器計算網格

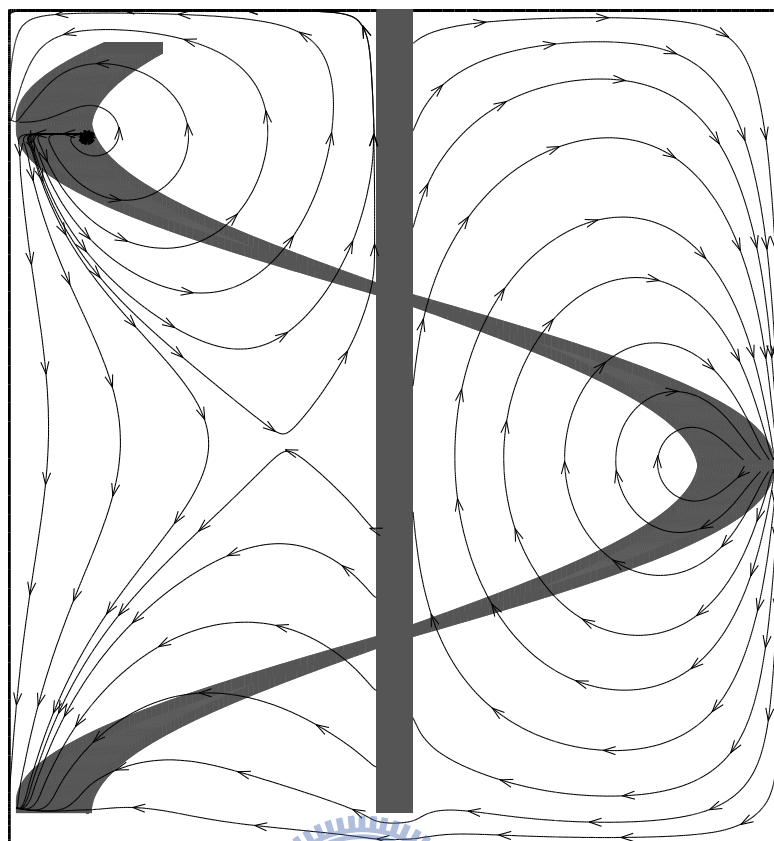
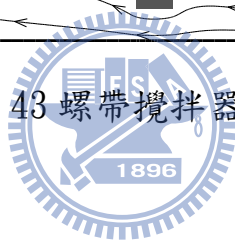


圖 4.43 螺帶攪拌器流場結構



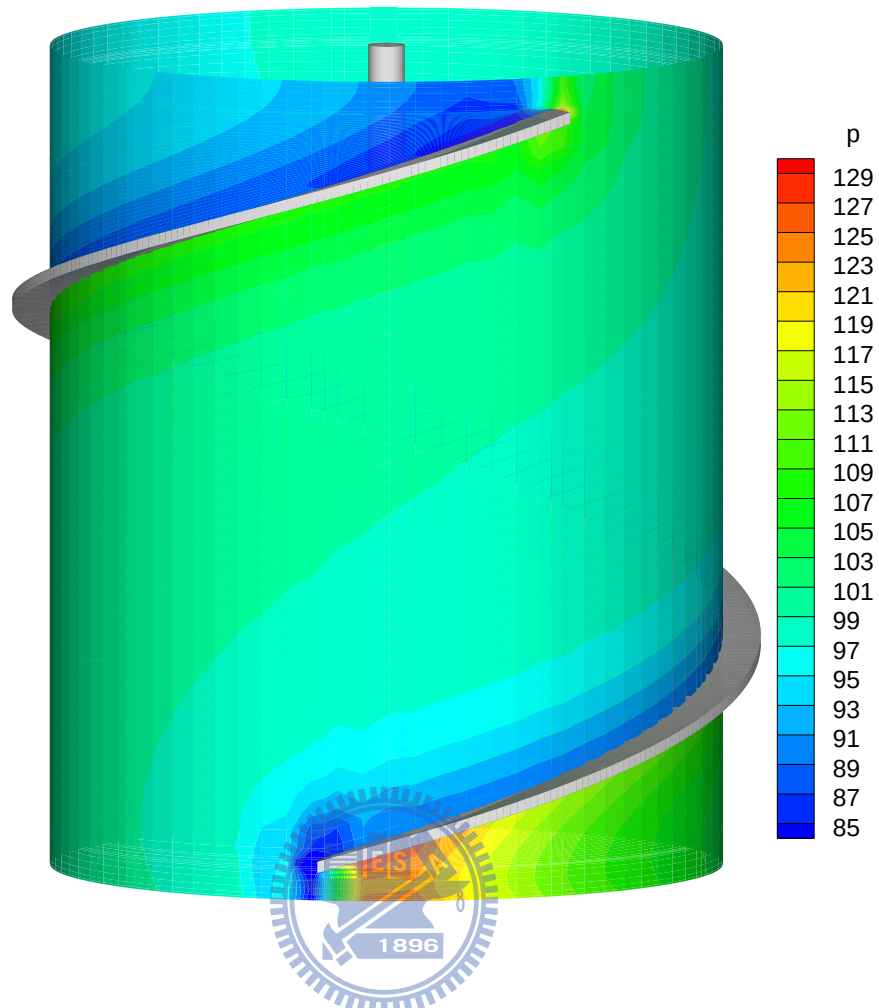


圖 4.44 螺帶攪拌器 $r=0.45d$ 圓柱面上的壓力分佈

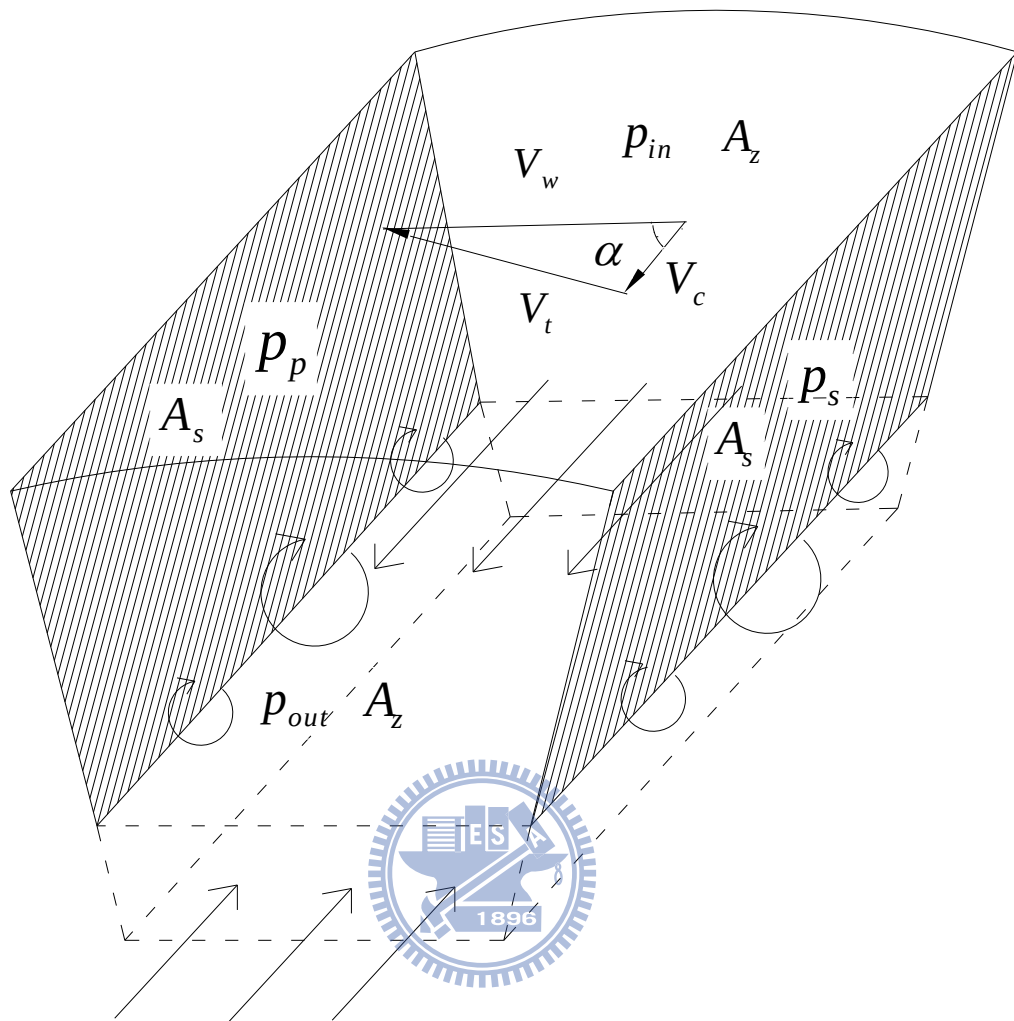


圖 4.45 螺帶攪拌器流道示意圖

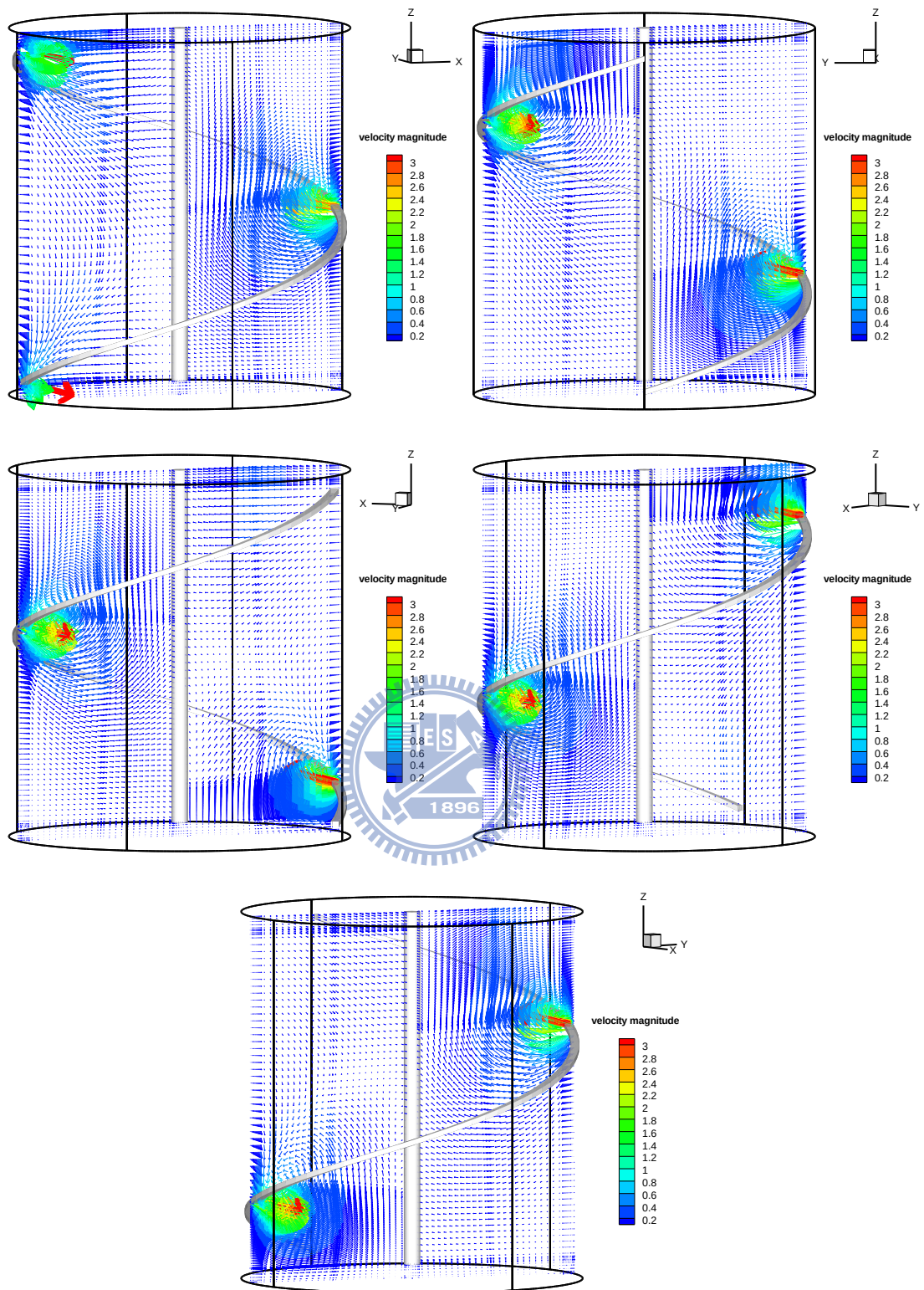


圖 4. 46 螺帶攪拌器 $W=0.025d$ 時在不同圓周方向位置的速度場(動畫截圖)

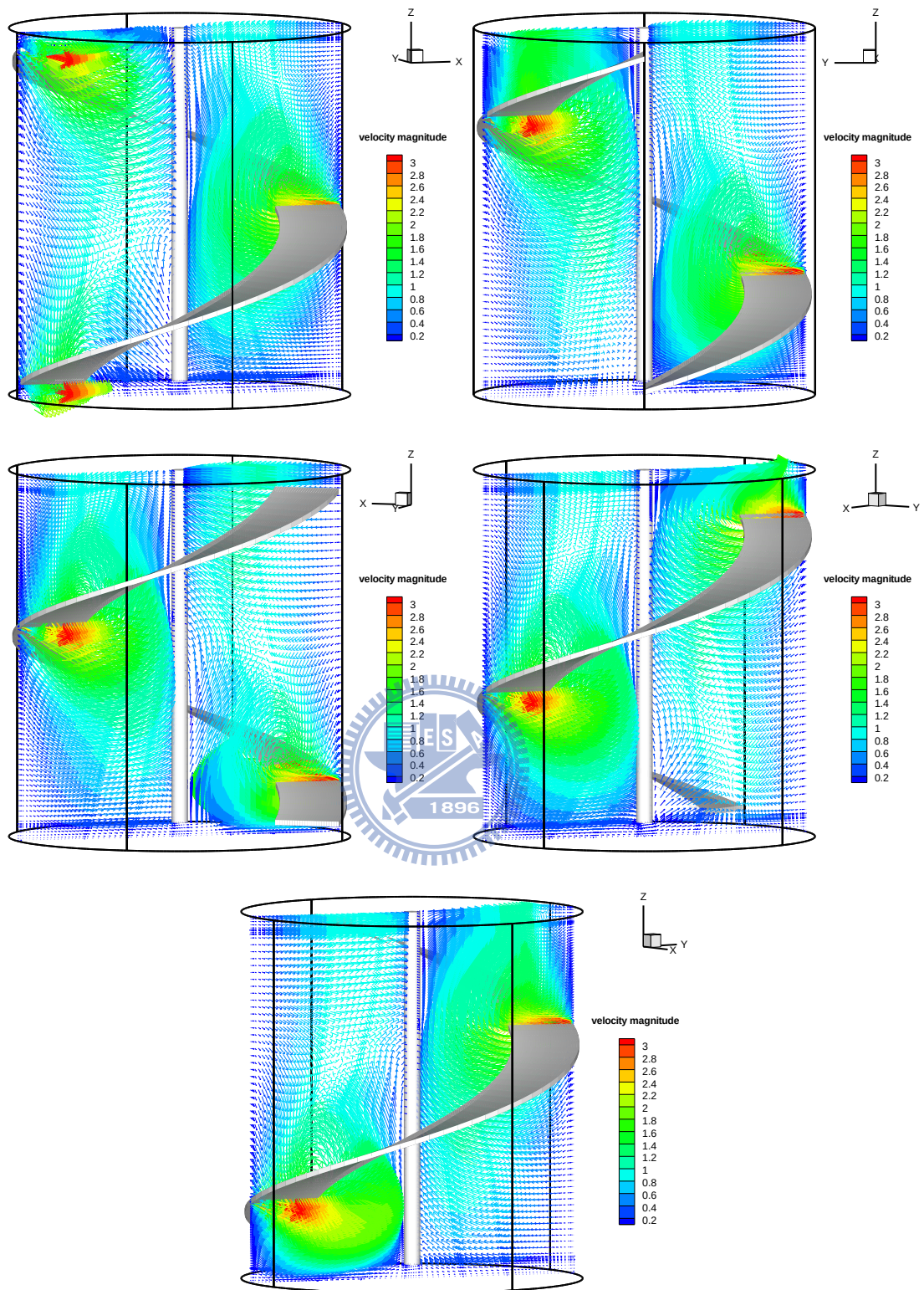


圖 4.47 螺帶攪拌器 $W=0.2d$ 時在不同圓周方向位置的速度場(動畫截圖)