Table 2.2 Flow Pattern Transitions for Horizontal Two-Phase Flow Systems Based on Different Coordinate Parameters

Flow-Pattern Transition	Choe et al. (1978)	Weisman et al. (1979)	Taitel & Dukler (1976)
Stratified Smooth Stratified Wavy		$\left(\frac{\sigma}{g\,\text{Æ}\rho D^2}\right)^{0.2}\left(\frac{DG_g}{\mu_g}\right)^{0.45} = \theta\left(\frac{j_g}{j_f}\right)^{0.16}$	$\left[\frac{\rho_g j_g^2 j_f}{g\,\text{Æ}\rho\, v_f}\right]^{1/2} = f(x)$
Stratified	$\left[\frac{\rho_g j_g^2}{g D\,\text{Æ}\rho}\right]^{1/2} = 2.5\exp[-12(1-\alpha)] + 0.03\alpha$	$\left[\frac{j_g^2}{g\,\text{Æ}\rho}\right]^{1/2} = 0.25\left(\frac{j_g}{j_f}\right)^{1.1}$	
Intermittent			$\left[\frac{\rho_g j_g^2}{g\,\text{Æ}\rho D}\right]^{1/2} = f(x)$
Stratified Wavy Annular	$G_g = 1.3\,G_f^{0.285}\left(\frac{D}{D_r}\right)^{0.38}$	$1.9\left(\frac{j_g}{j_f}\right)^{0.18} = \left[\frac{j_g \rho_g^{1/2}}{(g\,\text{Æ}\rho\ o)}\right]^{0.2}\left(\frac{j_g^2}{gD}\right)^{0.18}$	
Intermittent Annular	D_r = 30.5 mm (Standard Pipe Size)		
Dispersed Annular	$G = 10^7$ kg/hr m^2	$\left[\frac{(dp/dx)_{fs}}{g\,\text{Æ}\rho}\right]^{1.2}\left(\frac{\sigma}{g^2\,\text{Æ}\rho D}\right)^{-0.25} = 9.7$	
Dispersed - Intermittent			$\left[\frac{(dp/dx)_{fo}}{g\,\text{Æ}\rho}\right]^{1.2} = f(X)$
			X = 1.6