$$\left(\frac{dp}{dl}\right)_{Reibung} = \xi_g \cdot \frac{x^2 \cdot \dot{m}^2}{2 \cdot d \cdot \rho_g}$$

$$\cdot \left(\frac{1}{1 - \left(1 - \left(1,857 + 0,815 \cdot \log\left(\left(\frac{\dot{m} \cdot x}{\rho_g \cdot a_g}\right)^2 \cdot \left(1 + 4575 \cdot \frac{\rho_g^2}{\rho_l^2}\right)\right)\right)\right) \cdot \gamma_F} \right. \tag{36}$$

$$\left. - \frac{1}{\left(1,857 + 0,815 \cdot \log\left(\left(\frac{\dot{m} \cdot x}{\rho_g \cdot a_g}\right)^2 \cdot \left(1 + 4575 \cdot \frac{\rho_g^2}{\rho_l^2}\right)\right)\right) \cdot \gamma_E} \right)^2$$

with

$$\frac{1}{\sqrt{\xi_g}} = 2 \cdot \log\left(\frac{\dot{m} \cdot x \cdot d}{\eta_g} \cdot \sqrt{\xi_g}\right) - 0,8 \tag{37}$$