Solution 10

$$l_m = \frac{l_p}{15} \Rightarrow L_m = \frac{20}{15} = 1,33$$

le débit de modèle :

$$F_{rm} = F_{rp} \Rightarrow \frac{V_m^2}{g L_m} = \frac{V_p^2}{g L_p}$$

$$\frac{V_m^2}{V_p^2} = \frac{L_m}{L_p} \Rightarrow \frac{V_m}{V_p} = \sqrt{\frac{L_m}{L_p}}$$

$$\frac{Q_m}{Q_p} = \frac{V_m A_m}{V_p A_p} = \frac{V_m}{V_p} \left(\frac{L_m}{L_p}\right)^2$$

$$= \sqrt{\frac{L_m}{L_p}} \left(\frac{L_m}{L_p}\right)^2 = \left(\frac{L_m}{L_p}\right)^{5/2} = (k_G)^{5/2}$$

$$Q_m = (k_G)^{5/2} \cdot Q_p$$

$$= \left(\frac{1}{15}\right)^{5/2} \times 125 = 0,143 \ (m^3/s)$$

2/ la Dure

$$V = \frac{l}{t} \Rightarrow \frac{V_m}{V_p} = \frac{l_m / t_m}{l_p / t_p} = \frac{L_m}{L_p} \cdot \frac{1}{t_m} \cdot \frac{1}{\frac{1}{t_p}}$$

$$\Rightarrow \frac{V_m}{V_p} = \frac{l_m}{l_p} \cdot \frac{t_p}{t_m}$$

$$\sqrt{\frac{l_m}{l_p}} = \frac{L_m}{l_p} \cdot \frac{t_p}{t_m} \Rightarrow t_m = \frac{T_p \ L_m/L_p}{\sqrt{L_m/L_p}} = \frac{24\left(\frac{1}{15}\right)}{1/15} =$$

$$\boxed{6,2\ h}$$