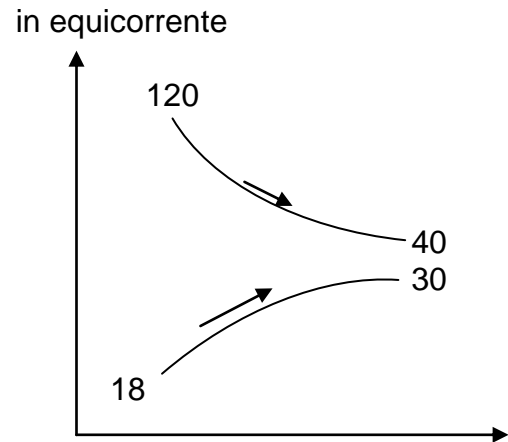
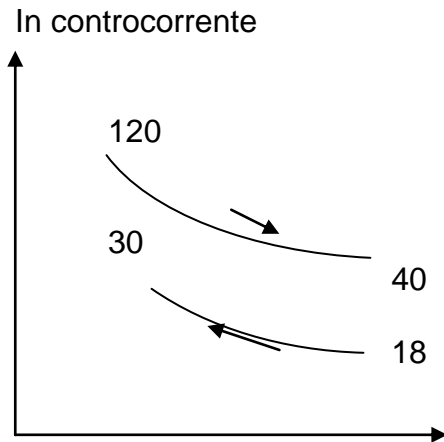


che è anche $= m * 1 * 12 =$

da cui:

$$m = \frac{12.000}{12} = 1000 \text{ Kg/h portata di acqua}$$



$$\Delta t_{mlc} = \frac{90 - 22}{\ln \frac{90}{22}} = 48.57$$

$$\Delta t_{mleq} = \frac{102 - 10}{\ln \frac{102}{10}} = 40$$

Pertanto in controcorrente e in equicorrente si ha :

$$Q = A_1 * U * \Delta t_{mlc} = A_2 * U * \Delta t_{mleq}$$

$$A_1 = \frac{12000}{300 * 48,5} = 0,82 \text{ m}^2 \quad A_2 = \frac{12000}{300 * 40} = 1 \text{ m}^2$$

$$S \text{ tubo} = \text{Diametro} * \pi * \text{altezza tubo} = 0,02 * 3,14 * 1 = 0,063 \text{ m}^2$$

$$n_1 = \frac{0,82}{0,063} = 13 \text{ tubi}$$

$$n_2 = \frac{1}{0,063} = (15,8) 16 \text{ tubi}$$

In controcorrente per lo scambio necessitano 13 tubi, in equicorrente 16.