

$$(1) \quad \underline{H}_A = \frac{P_A}{\rho g} + \frac{\alpha_A U_{dAB}^2}{2g} + \zeta_A$$

$$(2) \quad \underline{H}_B = \underline{H}_A - \frac{U_{dAB}^2}{2g} \sum_{AB} \left[\frac{\lambda_i L_i}{D_i} + \xi_i \right]$$

$$(3) \quad \underline{H}_E = \underline{H}_B - \frac{U_{d1}^2}{2g} \sum_{BE \text{ via } 1} \left[\frac{\lambda_i L_i}{D_i} + \xi_i \right]$$

$$(4) \quad \underline{H}_C = \underline{H}_B - \sum_{BC} \frac{\lambda_i L_i U_{dBC}^2}{D_i 2g}$$

$$(5) \quad \underline{H}_D = \underline{H}_C - \frac{U_{d2}^2}{2g} \sum_{CD \text{ via } 2} \left(\frac{\lambda_i L_i}{D_i} + \xi_i \right)$$

$$(6) \quad \underline{H}_D = \underline{H}_C - \frac{U_{dCD}^2}{2g} \sum_{CD} \left(\frac{\lambda_i L_i}{D_i} \right)$$

$$(7) \quad \underline{H}_E = \underline{H}_D - \frac{U_{dDE}^2}{2g} \sum_{DE} \left(\frac{\lambda_i L_i}{D_i} \right)$$

$$(8) \quad \underline{H}_F = \underline{H}_E - \frac{U_{dTF}^2}{2g} \sum_{EF} \left(\frac{\lambda_i L_i}{D_i} + \xi_i \right)$$

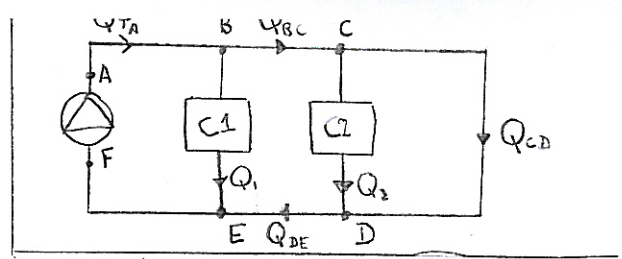
$$(9) \quad \Delta H_{pompe} = \underline{H}_F - \underline{H}_A = \frac{\Delta P_{pompe}}{\rho g} = \frac{P_A - P_F}{\rho g}$$

Données: $P_A; P_F; Q_A;$
 $\rho; D_i; \zeta_i; \xi_i;$

Les λ_i sont données par Colebrook :

Les ξ_i sont données par "Éléments divers" p 180 + connaissance de la conduite

Inconnues: $H_A; H_B; H_C; H_D; H_E; H_F; U_{d1}; U_{d2}; U_{dBC}; U_{dCD}; U_{dDE}; U_{TF}; U_{TA}$



$$Q_{TA} = Q_1 + Q_{BC}$$

$$Q_{BC} = Q_2 + Q_{CD}$$

$$Q_{DE} = Q_2 + Q_{CD}$$

$$Q_{TF} = Q_{DE} + Q_1$$

$$(10) \quad U_{dAB}^2 S_A = U_{d1}^2 S_1 + U_{dBC}^2 S_{BC}$$

$$(11) \quad U_{dBC}^2 S_{BC} = U_{d1}^2 S_2 + U_{dCD}^2 S_{CD}$$

$$(12) \quad U_{dDE}^2 S_{DE} = \dots$$

$$(13) \quad U_{dTF}^2 S_F = U_{dDE}^2 S_{DE} + U_{d1}^2 S_1$$