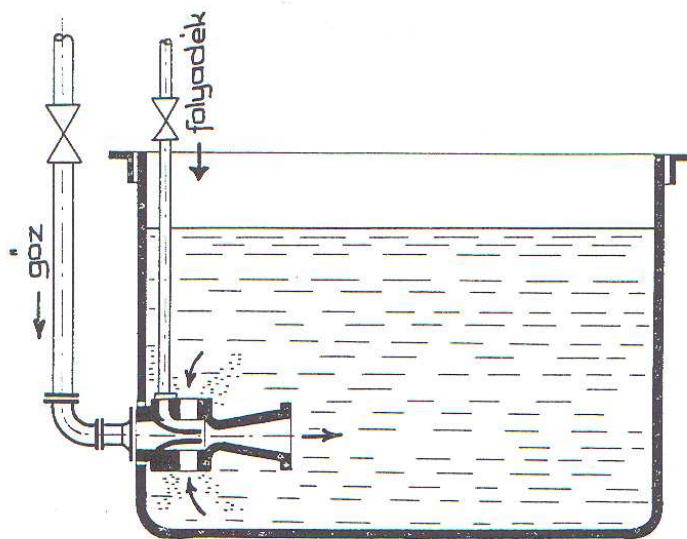
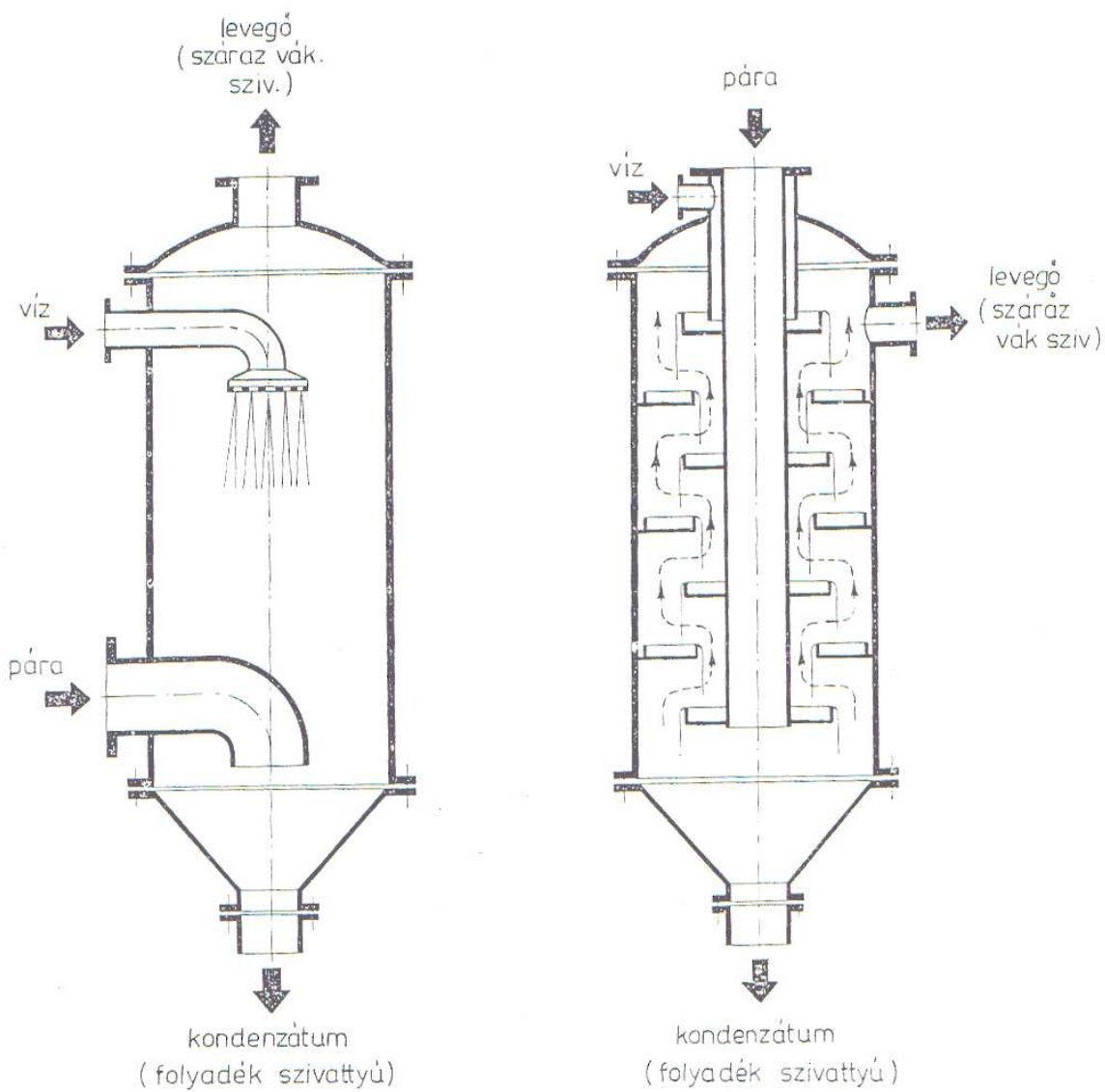


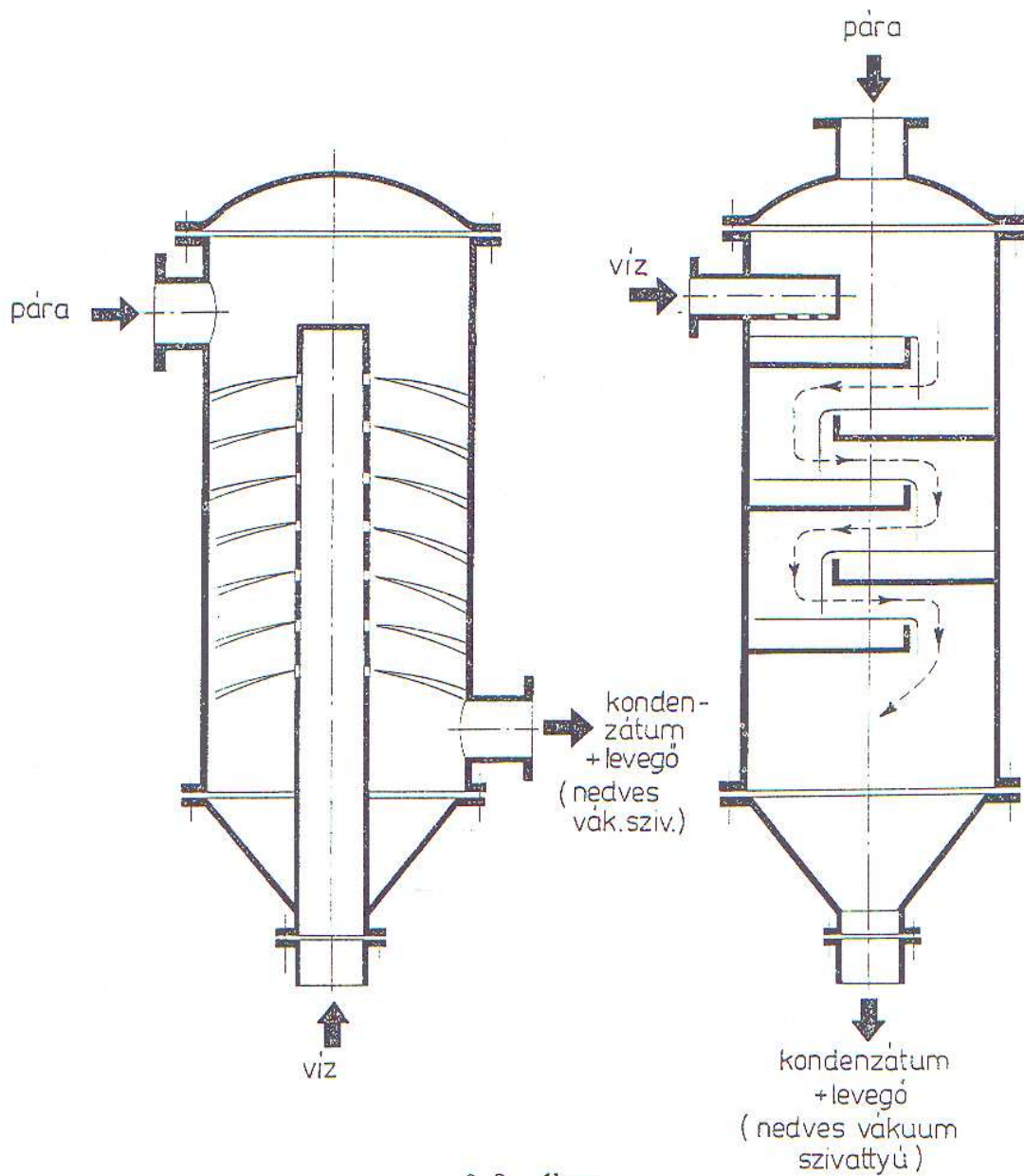
40. ábra
Víz és vízgőz entalpia diagramja i-t



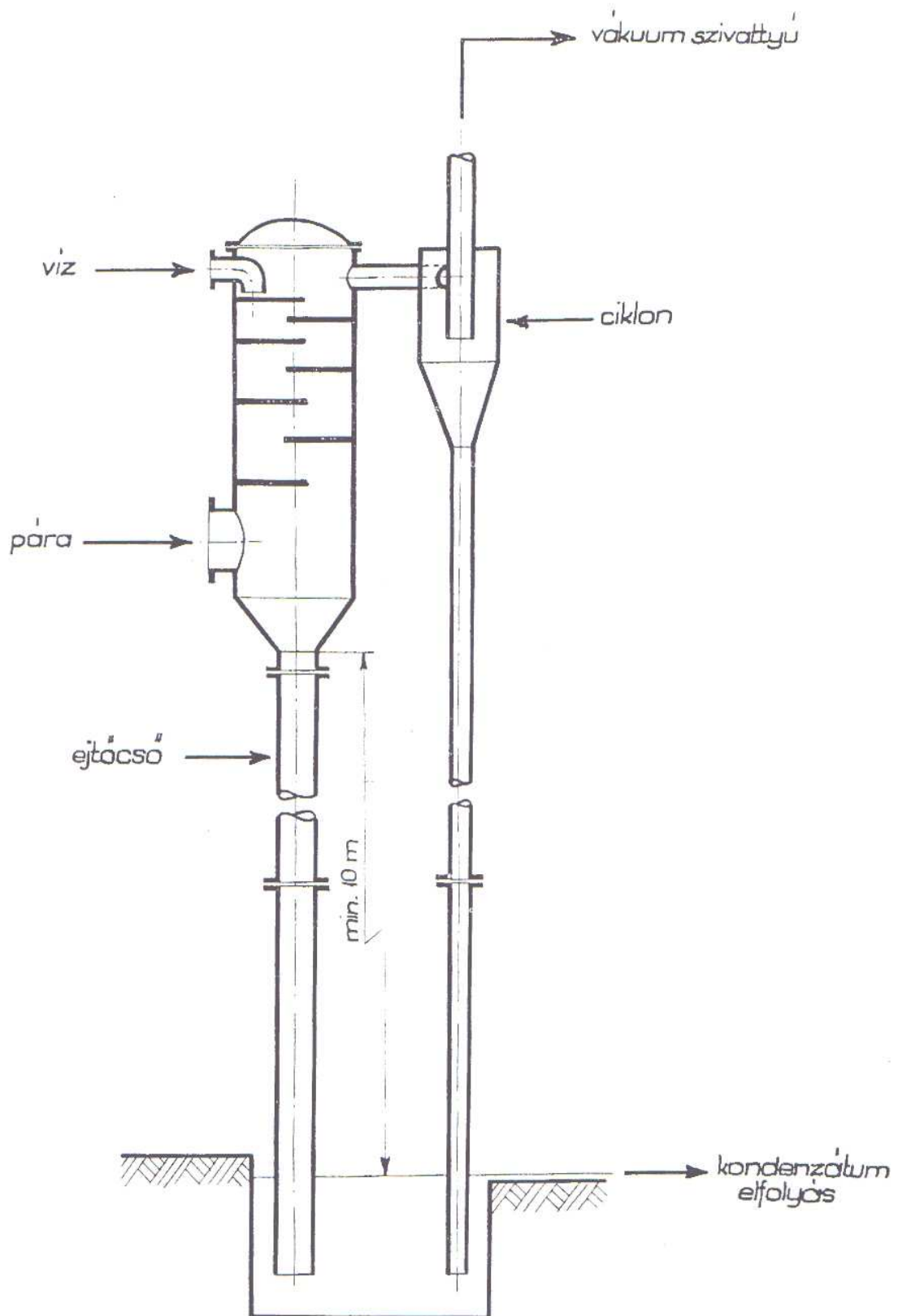
9.2. ábra
Zajtalan gőzsugár-melegítő



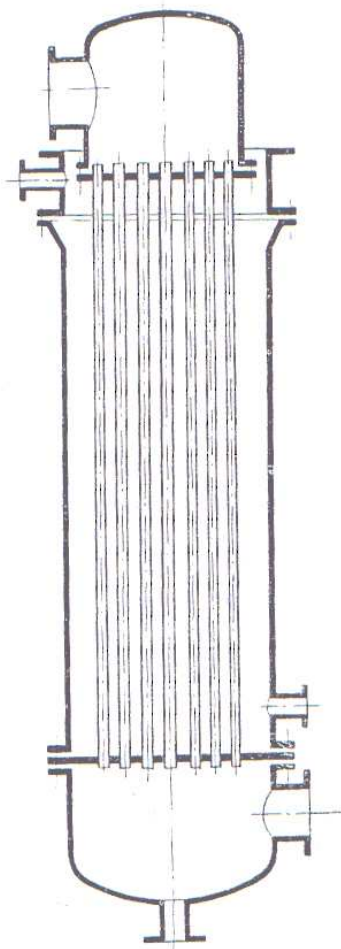
9.4. ábra
Ellenáramú keverő kondenzátor



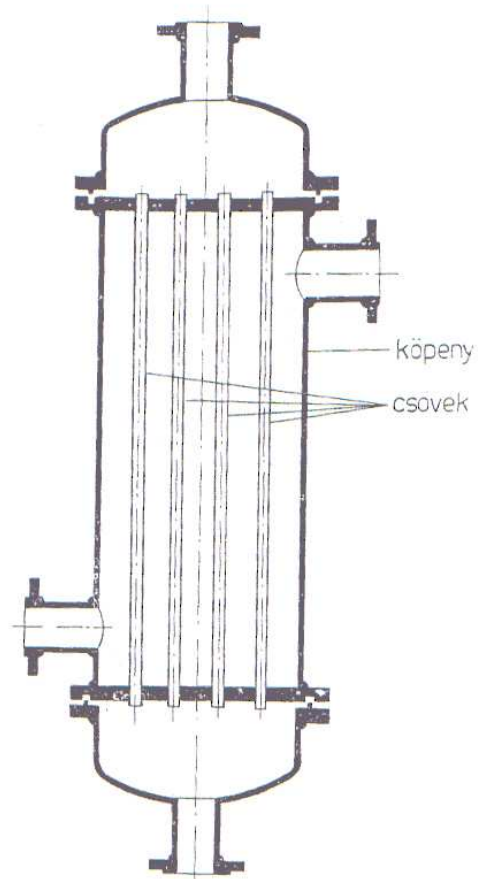
9.3. ábra
Egyenáramu keverő kondenzátorok



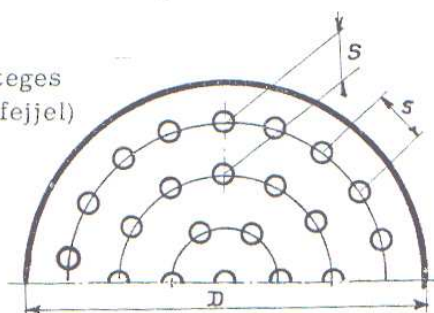
9.5. ábra
Ellenáramú barometrikus kondenzátor



9.12. ábra
Nytott köpenyű csőköteges
hőcserélő (Szabad uszófejjel)

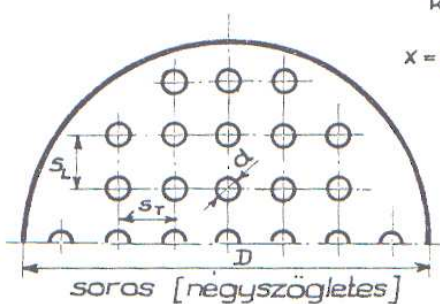


9.13. ábra
Zárt köpenyű csőköteges
hőcserélő



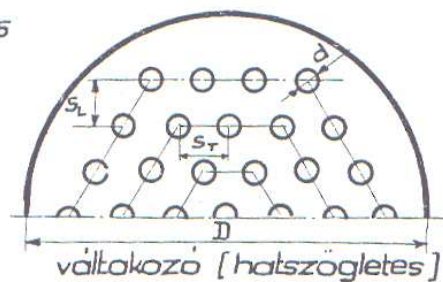
koncentrikus

$$x = \frac{s}{d} \approx 1,25$$



$$x_T = \frac{s_T}{d} \quad x_L = \frac{s_L}{d}$$

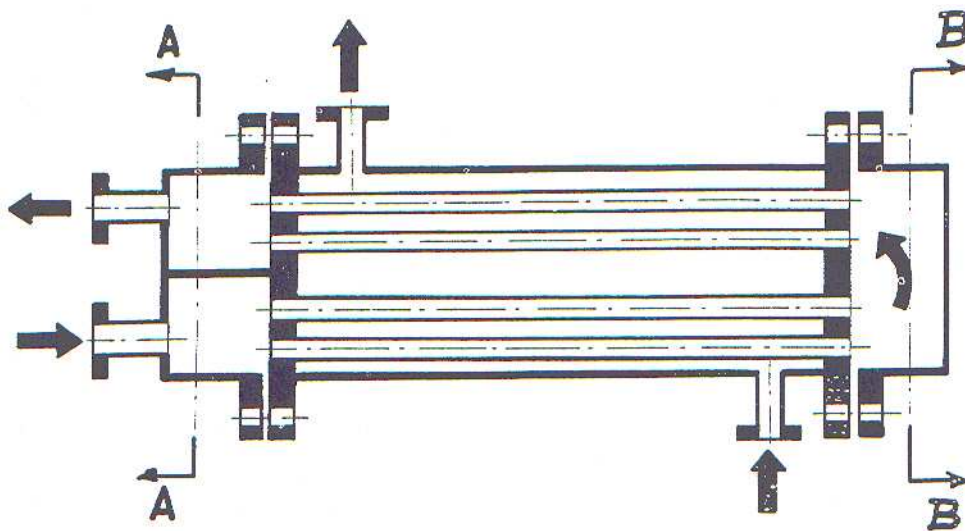
1,25-3 1,25-3



$$x_T = \frac{s_T}{d} \quad x_L = \frac{s_L}{d}$$

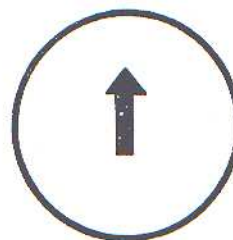
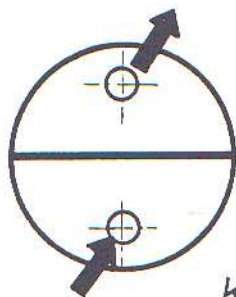
1,25-3 0,6-3

9.14. ábra
Csőköteg elrendezés

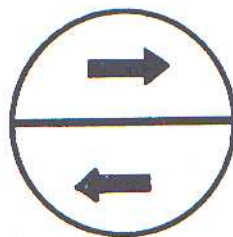
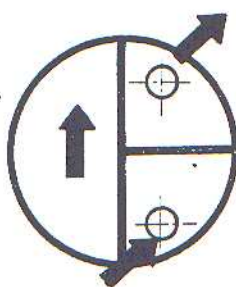


A-metszet

B-metszet

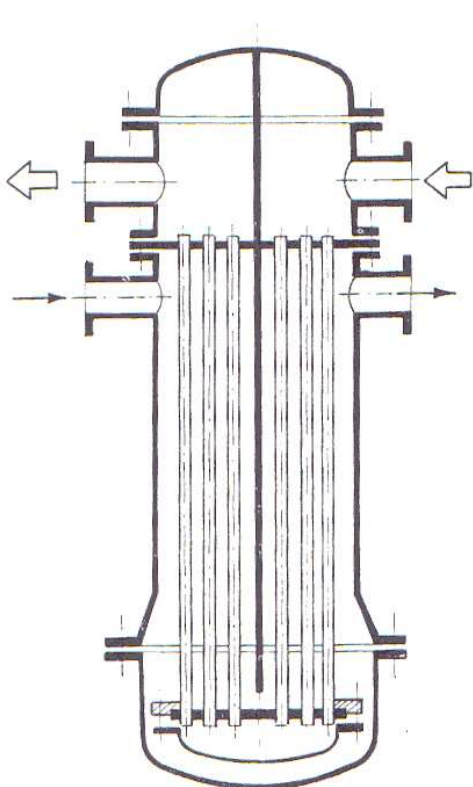


Kétszeres átömlés

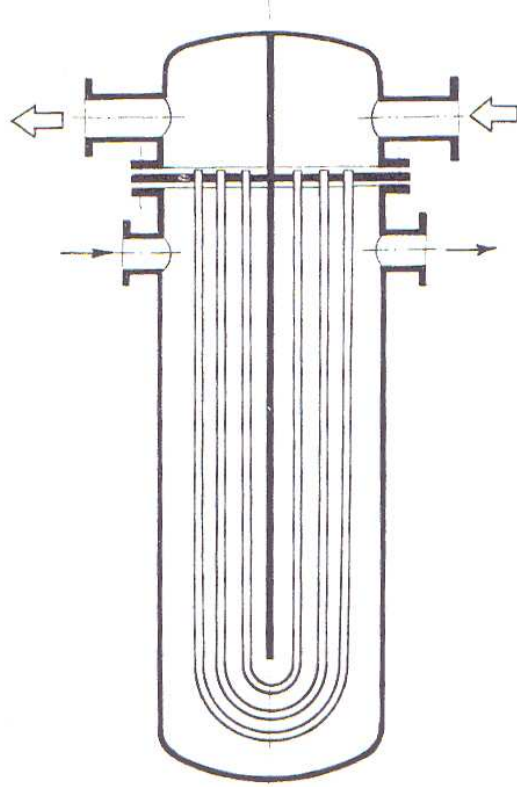


Négyszeres átömlés

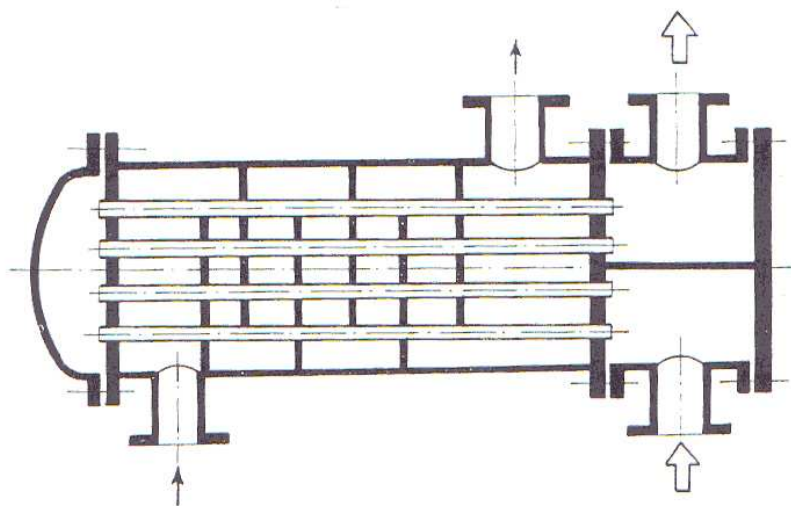
9.18. ábra
Többszörös átömlésű csőköteges hőcserélő



9.19. ábra
Kétszeres átömlésű szabad
uszófejes kivitel

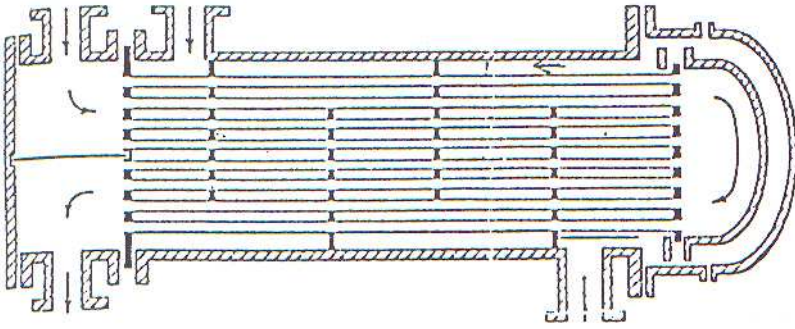


9.20. ábra
Hajtűcsöves hőcserélő
(Ellen- vagy egyenáram)



9.21. ábra
Keresztáramú csőköteges hőcserélő
(keresztirányú terelőlemezekkel)

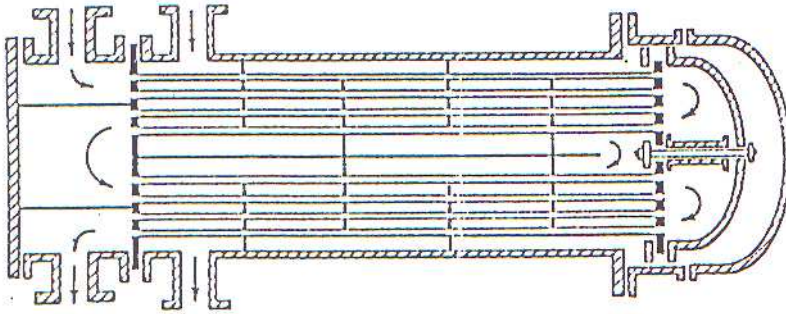
2



1-2 parallel-counterflow exchanger.

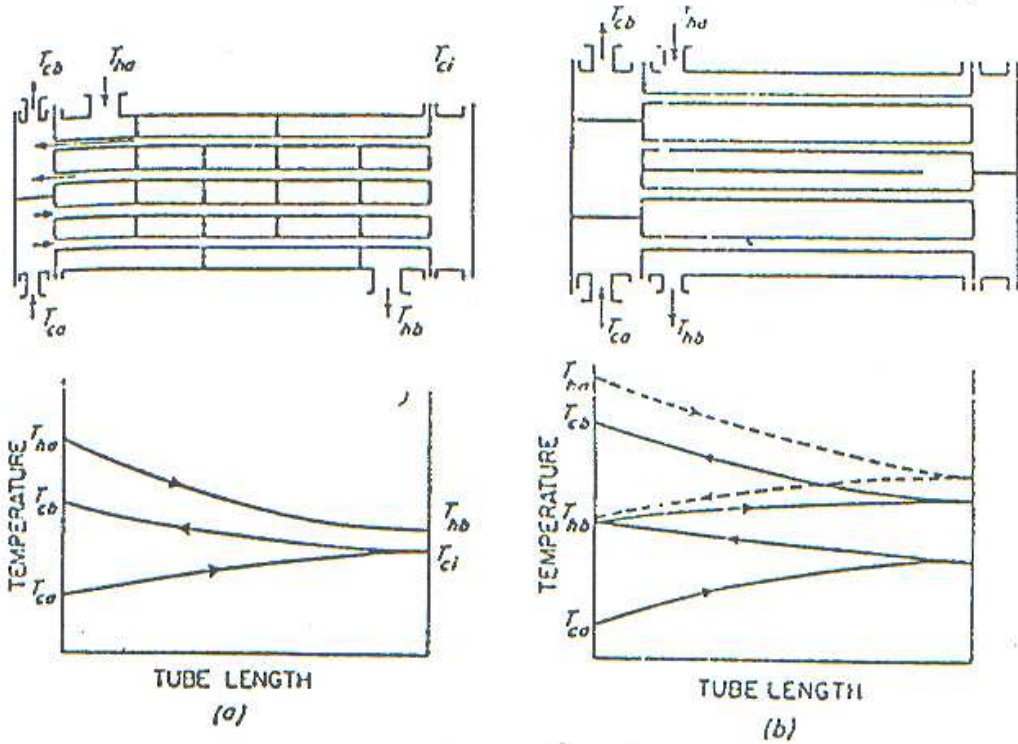
geom. factor
 $\Delta T_{\text{átl.}} = T_c \times \Delta T_{\text{ellen.}} \text{ egyé}$

3



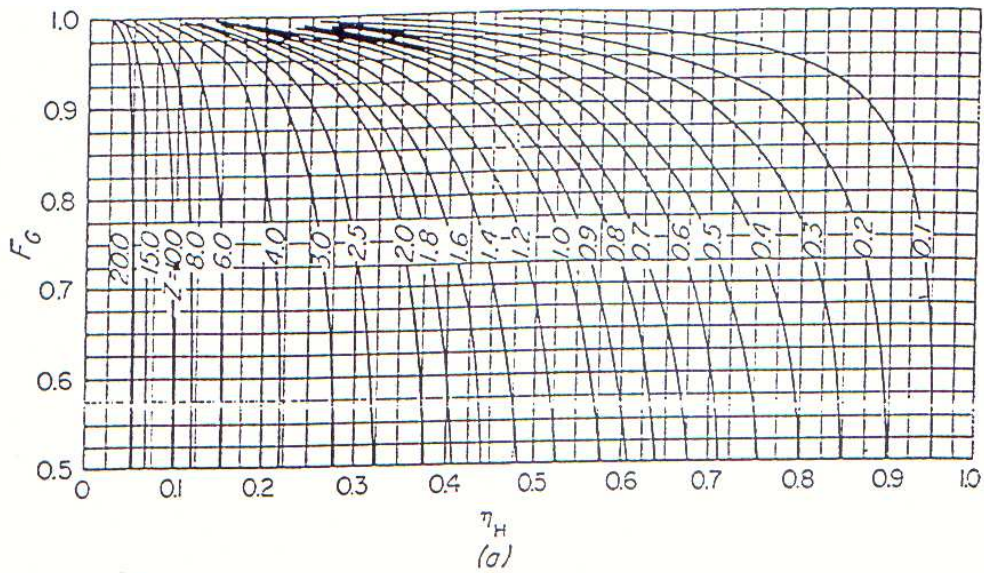
2-4 exchanger.

4

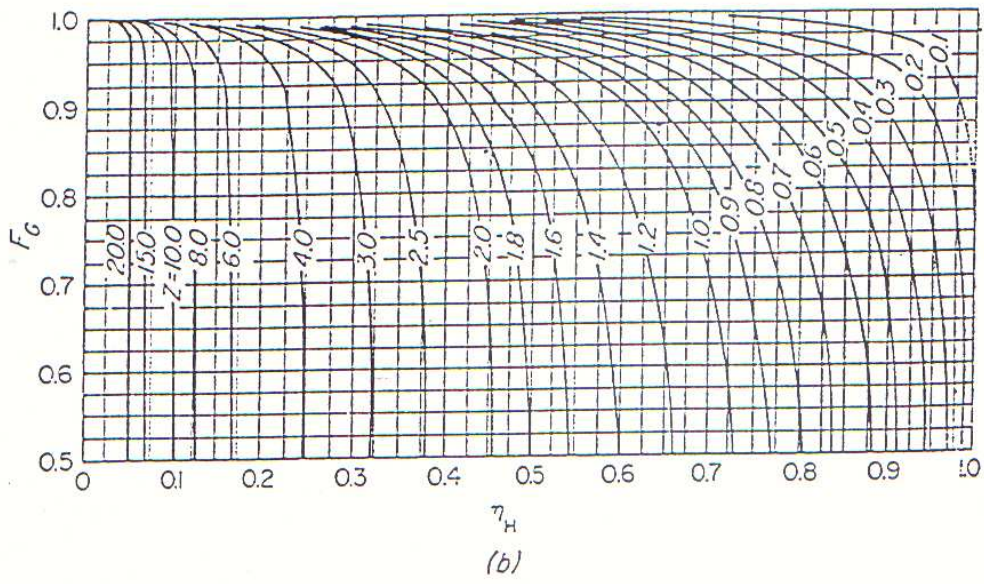


Temperature-length curves: (a) 1-2 exchanger; (b) 2-4 exchanger.

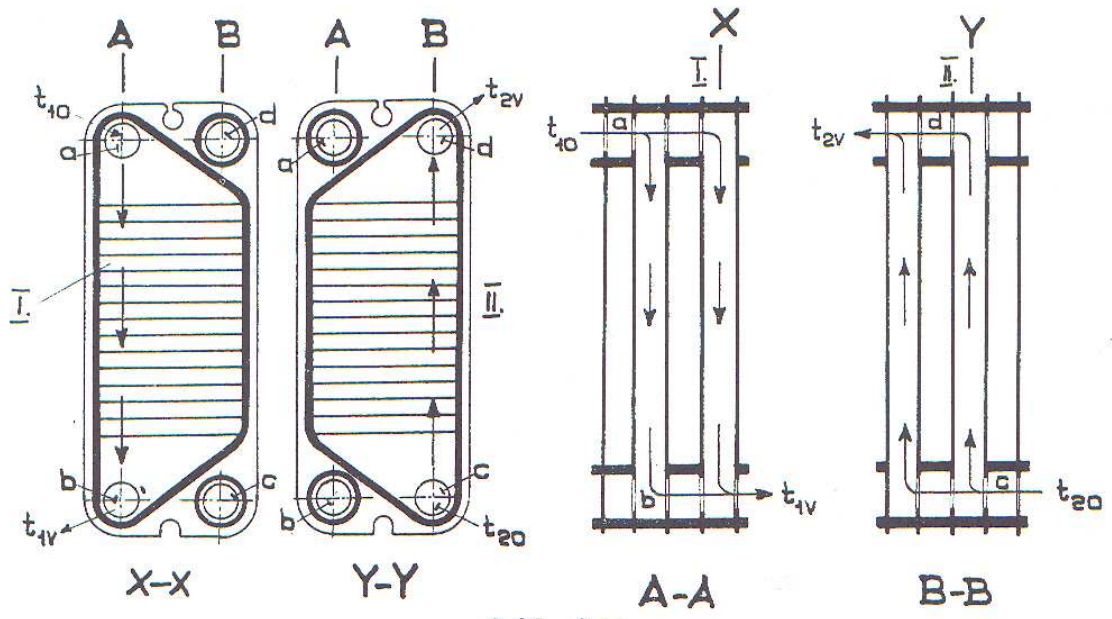
$$z \equiv p = \frac{T_{1be} - T_{1ki}}{T_{2ki} - T_{2be}} = \frac{T_{ha} - T_{hb}}{T_{cb} - T_{ca}}, \quad \eta_H = \frac{T_{2ki} - T_{2be}}{T_{1be} - T_{2be}} = \frac{T_{cb} - T_{ca}}{T_{ha} - T_{ca}}$$



1-2



2-4



9.26. ábra
Paralel-lemezes hőcserélő

Egyenáramú és ellenáramú hőcserélő összehasonlítása

