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14. RADIATION

Radiation is the transfer of energy by electromagnetic waves, While the transfer of energy by conduction or convection requires of a material medium, radiation does not.

Example:

Ratio X/D= 0.5/0.5 =1

Y/D=1/0.5=2

Shape factor from the graph =F_{12}=0.285 (Fig. 18)

$$q_{12} = \sigma A_1 F_{12}(T_1^4 - T_2^4) = 5.669 * 10^{-8} * 0.5 * 1 * 0.285 * (1273^4 - 773^4) = 18330 \; W$$

Fig.18. Radiation shape factor for radiation between parallel rectangles