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Homework on Heat Exchanger methods, Ch. 11 of Incropera 7th edition textbook

Problem	Modifications	Remarks	Answers
11.7	Change the mass flow rate of water from 400 kg/s to **500 kg/s**	Fouling effect	U_c=2563 W/m^2.K U_f=1991 W/m^2.K T_{wo}=26.6 ºC
11.13	Change U from 2000 W/m^{2}K to **1800 W/m^2.K. Calculate the heat exchanger effectiveness for each case**	Heat transfer area for different heat exchanger types	A_{PF}=3.43 m^2 A_{CF}=2.94 m^2 A_{shell}=3.15 m^2 A_{cross}=3.16 m^2
11.53 a,b	Change the water flow rate from 6.5 kg/s to **7 kg/s** and U from 200 W/m^{2}K to **180 W/m^2.K**	Shell and tube HX. Find outlet hot and cold temperatures	T_{co}=39.5 ºC, T_{ho}=60.2 ºC h_i=2436 W/m^{2}K
11.81 Incropera. 6th edition	Change the hot gases flow rate from 1.25 kg/s to **1.6 kg/s**.	Compact gas-liquid heat exchanger. Continuous fins	h_o=177.8 W/m^{2}K V=0.024 m^3 U_o=60 W/m^{2}K
11.83 Incropera. 6th edition	Change the gas flow rate from 1.5 kg/s to **1.2 kg/s**	Gas-liquid compact heat exchanger	h_o=155 W/m^2.K U_o=120 W/m^2.K T_{ho}=9.85 ºC