

Duas correntes de água, corrente 1 (15 lbm/s de líquido 14,7 psia e 193,2 °F) e corrente 2 (10 lbm/s nas condições de 14,7 psia e 800 °F), são misturadas em um trocador de calor de contato direto, produzindo uma corrente 3. A corrente 3 passa por um compressor (com eficiência de compressão de 70%) e produz uma corrente 4 a 80 psia. Encontre as propriedades termodinâmicas (T, P, H e S) das correntes e calcule a potência elétrica envolvida no processo.

TABLE C.4. SUPERHEATED STEAM ENGLISH UNITS (Continued)

ABS PRESS PSIA		SAT		TEMPERATURE, DEG F						
(SAT TEMP)		WATER	STEAM	600	700	800	900	1000	1100	1200
1 (101.74)	V	0.0161	333.60	631.1	690.7	750.3	809.9	869.5	929.0	988.6
	U	69.73	1044.1	1219.3	1256.7	1294.9	1334.0	1374.0	1414.9	1456.7
	H	69.73	1105.8	1336.1	1384.5	1433.7	1483.8	1534.9	1586.8	1639.7
	S	0.1326	1.9781	2.2708	2.3144	2.3551	2.3934	2.4296	2.4640	2.4969
5 (162.24)	V	0.0164	73.532	126.1	136.1	150.0	161.9	173.9	185.8	197.7
	U	130.18	1063.1	1219.2	1256.6	1294.8	1333.9	1373.9	1414.8	1456.7
	H	130.20	1131.1	1335.9	1384.3	1433.6	1483.7	1534.7	1586.7	1639.6
	S	0.2349	1.8443	2.0932	2.1369	2.1776	2.2159	2.2521	2.2866	2.3194
10 (193.21)	V	0.0166	36.420	63.03	69.00	74.96	80.94	86.91	92.87	98.84
	U	161.23	1072.3	1218.9	1256.4	1294.6	1333.7	1373.8	1414.7	1456.6
	H	161.26	1143.3	1335.6	1384.0	1433.4	1483.5	1534.6	1586.6	1639.5
	S	0.2836	1.7879	2.0166	2.0603	2.1011	2.1394	2.1757	2.2101	2.2430
14.696 (212.00)	V	0.0167	26.799	42.66	46.93	51.00	55.06	59.13	63.19	67.25
	U	180.12	1077.6	1218.7	1256.2	1294.5	1333.6	1373.7	1414.6	1456.5
	H	180.17	1150.5	1335.2	1383.6	1433.2	1483.4	1534.5	1586.5	1639.4
	S	0.3121	1.7568	1.9739	2.0177	2.0585	2.0969	2.1331	2.1676	2.2005
15 (213.03)	V	0.0167	26.290	41.99	45.98	49.96	53.95	57.93	61.90	65.88
	U	181.16	1077.9	1218.7	1256.2	1294.5	1333.6	1373.7	1414.6	1456.5
	H	181.21	1150.9	1335.2	1383.8	1433.2	1483.4	1534.5	1586.5	1639.4
	S	0.3137	1.7552	1.9717	2.0155	2.0563	2.0946	2.1309	2.1653	2.1982

TABLE C.4. SUPERHEATED STEAM ENGLISH UNITS (Continued)

ABS PRESS PSIA		SAT		TEMPERATURE, DEG F						
		WATER	STEAM	340	360	380	400	420	440	500
(SAT TEMP)										
80 (312.04)	V	0.0176	5.471	5.715	5.885	6.063	6.248	6.431	6.622	7.018
	U	281.89	1102.1	1114.0	1122.3	1130.4	1138.4	1146.3	1154.1	1177.4
	H	282.16	1183.1	1198.6	1209.4	1220.0	1230.5	1240.8	1251.1	1281.3
	S	0.4534	1.6208	1.6405	1.6539	1.6667	1.6790	1.6909	1.7028	1.7349
85 (316.26)	V	0.0176	5.167	5.364	5.525	5.684	5.840	5.998	6.223	6.597
	U	286.24	1102.9	1113.1	1121.5	1129.7	1137.8	1145.8	1157.6	1177.0
	H	286.62	1184.2	1197.5	1208.4	1219.1	1229.7	1240.1	1255.5	1280.8
	S	0.4590	1.6159	1.6328	1.6463	1.6592	1.6716	1.6836	1.7008	1.7279
90 (320.42)	V	0.0177	4.896	5.051	5.205	5.356	5.505	5.652	5.869	6.223
	U	290.40	1103.7	1112.3	1120.8	1129.1	1137.2	1145.3	1162.2	1176.7