Aspen Exchanger Design and Rating She File: C:\Users\neetsaki\Desktop\course design2\exhcanger.EDR Shell & Tube V10

TEMA Sheet

Heat Exchanger Specification Sheet

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1	Company:										
2	Location:										
3	Service of Unit: Our Reference:										
4	Item No.: Your Reference:										
5			ob No.:	erice.							
6	Size: 152 - 1828.8	mm		pe: BEM	Horizonta	al		Connected in	: 1 parallel	1 series	
7	Surf/unit(eff.)	3.4	m²						<u> </u>	3.4 m ²	
8	Cari, ariit(Cii.)	Surf/unit(eff.) 3.4 m² Shells/unit 1 Surf/shell(eff.) 3.4 m² PERFORMANCE OF ONE UNIT									
9	Fluid allocation			i Eiti	I		ell Side		Tube	Side	
10	Fluid name					0.10.11 0.120					
11	Fluid quantity, Total kg/s				<u> </u>	0.347			1.9762		
12	Vapor (In/Out)			kg/		0	1	0	0	0	
13	Liquid			kg/s	_	0.347		0.347	1.9762	1.9762	
14	Noncondensable kg/s					0		0	0	0	
15	Ng/o				-						
	Temperature (In/Out) °C				2 7	78.82		42.43	25	30.12	
17	Bubble / Dew point °C					/		1	1	/	
18	Density Vapor/Liquid kg/m³				3	/ 742.87 / 748.8		/ 748.86	/ 993.96	/ 990.49	
19	Viscosity			mPa-		/ 0.4247 / 0.471		/ 0.471	/ 0.9125	/ 0.8459	
20	Molecular wt, Vap										
21	Molecular wt, NC										
22	Specific heat			kJ/(kg-K	i)	/ 3.297		/ 3.242	/ 4.12	/ 4.133	
23	Thermal conductivity			W/(m-K		/ 0.1582		/ 0.1595	/ 0.6063	/ 0.5502	
24	Latent heat			kJ/kg	g						
25	Pressure (abs)			ba	r ·	1.04	1	.02626	1	0.92188	
26	Velocity (Mean/Max)			m/s	s	0.05 / 0.06			0.87	/ 0.87	
27	Pressure drop, allow./c	alc.		ba	r 0.	.1104	0	.01374	0.20684	0.07812	
28	Fouling resistance (mir	า)		m²-K/V	٧		0		0	0 Ao based	
29	Heat exchanged	42.7		kW	•			MTD (cor	rected) 29.53	°C	
30	Transfer rate, Service	423.2			Dirty	524.9		Cla	ean 524.9	W/(m²-K)	
00	CONSTRUCTION OF ONE SHELL Sketch								an 524.9	VV/(III⁻- \ \)	
31	,		NSTRU	CTION OF ONE		524.9		CIE		` '	
			NSTRU	CTION OF ONE Shell	SHELL	524.9	Tube S			` '	
31 32	Design/Vacuum/test pr	COI	bar		SHELL	3.4473				` '	
31 32 33 34	Design/Vacuum/test pr Design temperature	essure		Shell	Side /		88 / 65.5	Side /		` '	
31 32 33 34 35	Design/Vacuum/test pr Design temperature Number passes per sh	essure	bar	Shell 3.44738 / 115.	SHELL Side /		88 / 65.5 2	Side /		` '	
31 32 33 34 35 36	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance	col	bar	Shell 3.44738 / 115. 1	Side /		65.5 2 0	Side / 6		` '	
31 32 33 34 35 36 37	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections	essure ell	bar °C	Shell 3.44738 / 115. 1 0 1 19.05	SHELL Side / .56	3.4473	65.5 2 0 31.75	Side / 6		` '	
31 32 33 34 35 36 37 38	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating	essure ell In Out	bar °C mm	Shell 3.44738 / 115. 1	SHELL Side / .56	3.4473	65.5 2 0	Side / 6		` '	
31 32 33 34 35 36 37 38 39	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal	essure ell In Out Intermediate	bar °C mm mm	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05	SHELL Side / 566	3.4473	65.5 2 0 31.75 31.75	Side / 6 - / - / - / - / - / - / - / - / - /	Ske	etch	
31 32 33 34 35 36 37 38 39	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44	essure ell In Out Intermediate	bar °C mm mm	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24	SHELL Side / 566	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75	Side / 66 / - / - / - / - mm Pitc	Ske	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain	ressure lell In Out Intermediate OD: 14 Ti	bar °C mm mm	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None	SHELL Side / .56	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8	Side / 66 / - / - / - / - mm Pitc #/m	Ske	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304	ressure lell In Out Intermediate OD: 14 Ti ID	bar °C mm mm	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24	SHELL Side / .56	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8 #:	Side	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet	ressure ln Out Intermediate OD: 14 Ti ID SS 304	bar °C mm mm	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8 #: mm She	Side / 6 / - / - mm Pitc #/m Il cover	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary	eessure ln Out Intermediate OD: 14 Ti ID SS 304 SS 304	bar °C mm mm	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None	SHELL Side / .56	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8 #: mm She Cha	Side / 6 / - / - mm Pitc #/m Il cover unnel cover esheet-floatin	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover	ressure ln Out Intermediate OD: 14 Ti ID SS 304	bar °C mm mm ks. Aver	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .566	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tub-	Side / 6 / - / - / - mm Pitc #/m Il cover unnel cover esheet-floatingement pro	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304	eessure ln Out Intermediate OD: 14 Ti ID SS 304 SS 304	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .566	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tub-	Side / 6 / - / - / - mm Pitc #/m Il cover unnel cover esheet-floatir ingement pro	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long -	ressure ell In Out Intermediate OD: 14 Ti ID SS 304 SS 304 -	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .566	3.4473 1 1 1 1 Length: 18	65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tub-	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatingement pro 8 Ho	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube	eessure ln Out Intermediate OD: 14 Ti ID SS 304 SS 304	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .566 /	3.4473 1 1 1 Length: 18 Fir	65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tube Impi	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho	n: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal	ressure ln Out Intermediate OD: 14 Ti ID SS 304 SS 304 - U-bend	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / 56 / - / - mm I 3.28 mental	3.4473 1 1 1 Length: 18 Fir Cut(%d)	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint	ressure lell In Out Intermediate OD: 14 Ti ID SS 304 SS 304 - U-bend	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - / - mm I 3.28 mental	3.4473 1 1 1 Length: 18 Fir	65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tube Impi	Side / 6 / - / - mm Pitci #/m Il cover unnel cover esheet-floatiningement pro 8 Ho Type ixpanded only	h: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle	ressure ln Out Intermediate OD: 14 Ti ID SS 304 SS 304 - U-bend	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - / - mm I 3.28 mental Tube-tube	3.4473 1 1 1 Length: 18 Fir Cut(%d)	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover unnel cover esheet-floatir ingement pro 8 Ho Type ixpanded only	h: 18 mm Material:SS 304	Tube pattern:30	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle Gaskets - Shell side	ressure lell In Out Intermediate OD: 14 Ti ID SS 304 SS 304 - U-bend - 1369 -	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - / - mm I 3.28 mental	3.4473 1 1 1 Length: 18 Fir Cut(%d)	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover unnel cover esheet-floatir ingement pro 8 Ho Type ixpanded only	h: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle Gaskets - Shell side Floating head	ressure lell In Out Intermediate OD: 14 Ti ID SS 304 SS 304 - U-bend - 1369 - d -	bar °C mm mm ks. Aver Insert: 162.74	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - / - mm I 3.28 mental Tube-tube	3.4473 1 1 1 Length: 18 Fir Cut(%d)	65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tube Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho Type Expanded only Bundle exit Flat Me	h: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 50 51 52 53 54	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle Gaskets - Shell side Floating head Code requirements	eessure lell In Out Intermediate OD: 14 Ti SS 304 SS 304 - U-bend - 1369 - d - ASME Coo	bar °C mm mm ks. Aver lnsert: 162.74 Type	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - mm I 3.28 mental Tube-tube trance 1 Tube si	3.4473 1 1 1 Length: 18 Fir Cut(%d) esheet joint Type N ide	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho Type Expanded only Bundle exit Flat Me	n: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle Gaskets - Shell side Floating head Code requirements Weight/Shell	ressure lell In Out Intermediate OD: 14 Ti ID SS 304 SS 304 - U-bend - 1369 - d -	bar °C mm mm ks. Aver lnsert: 162.74 Type	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - mm I 3.28 mental Tube-tube trance 1 Tube si	3.4473 1 1 1 Length: 18 Fir Cut(%d)	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho Type Expanded only Bundle exit Flat Me	h: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle Gaskets - Shell side Floating head Code requirements	eessure lell In Out Intermediate OD: 14 Ti SS 304 SS 304 - U-bend - 1369 - d - ASME Coo	bar °C mm mm ks. Aver lnsert: 162.74 Type	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - mm I 3.28 mental Tube-tube trance 1 Tube si	3.4473 1 1 1 Length: 18 Fir Cut(%d) esheet joint Type N ide	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho Type Expanded only Bundle exit Flat Me	n: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	Design/Vacuum/test pr Design temperature Number passes per sh Corrosion allowance Connections Size/Rating Nominal Tube #: 44 Tube type: Plain Shell SS 304 Channel or bonnet Tubesheet-stationary Floating head cover Baffle-cross SS 304 Baffle-long - Supports-tube Bypass seal Expansion joint RhoV2-Inlet nozzle Gaskets - Shell side Floating head Code requirements Weight/Shell	eessure lell In Out Intermediate OD: 14 Ti SS 304 SS 304 - U-bend - 1369 - d - ASME Coo	bar °C mm mm ks. Aver lnsert: 162.74 Type	Shell 3.44738 / 115. 1 0 1 19.05 1 19.05 1 age 1.24 None OD 168	SHELL Side / .56 / - mm I 3.28 mental Tube-tube trance 1 Tube si	3.4473 1 1 1 Length: 18 Fir Cut(%d) esheet joint Type N ide	38 / 65.5 2 0 31.75 31.75 328.8 #: mm She Cha Tubo Impi 41.	Side / 6 / - / - / - mm Pitc #/m Il cover Innel cover esheet-floatir ingement pro 8 Ho Type Expanded only Bundle exit Flat Me	n: 18 mm Material:SS 304	Tube pattern:30 .05 mm 2 mm	