

HEAT EXCHANGER SPECIFICATION SHEET

1	Project	Jeddah South Thermal Power Plant Stage-I	Contract No.	31121106/00	
2	Client	Saudi Electricity Company (SEC)	Doc. No.	SS - S&T - 100	
3	Contractor	Hyundai Heavy Industries Co., Ltd.	Case :	Design	
4	Code/Standard	ASME / TEMA	ASME Stamp	Yes	Revision A B C
5	Service of Unit	CCW H/E	No. of Units	8	set(s)
6	Size	Shell 1600 ID x 9500 Length, Eff. Type	A E L	Horizontal	Connected In ***
7	Surface/Unit, Eff. / Gross	1403 / 1426 m ²	Shells/Unit	1	Surface/Shell 1403 / 1426 m ²
8	PERFORMANCE OF ONE UNIT				
9	Fluid Allocation	Shell Side		Tube Side	
10	Fluid Name	CCW		Sea Water	
11	Fluid Quantity, Total	kg/h	3,619,004		3,793,000
12	Vapor (In/Out)		0	0	0
13	Liquid		0	0	3,793,000
14	Steam		0	0	0
15	Water		3,619,004	3,619,004	0
16	Temperature (In/Out)	°C	45.4	39.5	34
17	Density	kg/m ³	990.3	992.3	1,025
18	Viscosity	Cp	0.592	0.659	0.783
19	Molecular Weight		18.0152		***
20	Specific Heat	kJ/kg. °C	4.177	4.177	3.996
21	Thermal Conductivity	W/m. °C	0.636	0.628	0.619
22	Latent Heat / Enthalpy, Inlet / Outlet	kJ/kg	2,066	191	166
23	Inlet Pressure	bar.a	7		1.5
24	Velocity, i / m / o	m/sec	0.94		2.10
25	Pressure Drop, Allow./Calc.	bar	0.5	0.36	0.5
26	Fouling Resistance (Min.)	m ² . °C/W	- N/A -		
27	Heat Duty	21,300,000 kcal/h	24,767 kW	MTD	5.56 °C
28	H. T. Rate, Cal'd	3337.4 W/m ² . °C	H. T. Area, Req.	1,334.8 m ²	Cleanliness Fac. 89.9 %
29	H. T. Rate, Service	3175.5 W/m ² . °C	H. T. Area, Act.	1,402.9 m ²	H. T. Area Margin 5.1 %
30	CONSTRUCTION OF ONE SHELL				Sketch (Bundle/Nozzle Orientation)
31		Shell Side		Tube Side	
32	Design / Test Pressure	bar.g	10	15	10 & F/V
33	Design Temperature	°C	60		40
34	No. Passes per Shell		1		1
35	Corrosion Allowance	mm	3		0
36	Connections Size & Rating	In	28"	Flanged	32"
37		Out	28"	Flanged	32"
38		In / Out	150 lb		150 lb
39	Tube No.	2960	STR's	OD 15.88 mm	Thk, Min. 0.7 mm
40	Tube Type	Plain		Length, Eff.	9,500 mm
41	Shell	SA 516-70	ID 1600	Thk 13 mm	Shell Cover ***
42	Channel	SA 516-70 *1)	ID 1600	Thk 17 mm	Channel Cover SA 266 2
43	Tubesheet	- Stationary SA 266 2 *2)			Tubesheet - Floating ***
44	Floating Head Cover	***			Impingement Protection ***
45	Baffles-Cross	SA 285-C	Type Segmental	NTIW	% Cut, Diam 26
46	Baffles-Long	***			Spacing : c/c 3000 Inlet 3250 mm
47	Supports-Tube	***	U-bend	***	Seal Type ***
48	Bypass Seal Arrangement	***			Tube-Tubesheet Joint Expanded+Seal W.
49	Expansion Joint	***			Type ***
50	pv ² -Inlet Nozzle	7,910	Bundle Entrance		Bundle Exit
51	Gaskets-Shell Side	Non-asbestos			kg/m.sec ²
52	-Floating Head	***			Tube Side Non-asbestos
53	Code Requirements	ASME			TEMA Class R
54	Weight/Shell	25,021	Filled with Water		Bundle 10,071 kg
55	Notes				
56	*1) Rubber lined.	Minimum	3 mm		
57	*2) B 265 1 cladded.	Minimum	5 mm		
58	*3) Support plates / Baffle space	:	Four(4)		
59	*4)				
60	*5)				