

MECHANICAL DATA OF EXCHANGER

EFFECTIVE SURFACE AREA / SHELL (APPROX.)		736.0 m ²		WEIGHT		Kg.		NO OF TUBES : 1621	
SIZE-1625x6000		SHELL PER UNIT-ONE		No. OF		UNIT-ONE		TUBE BUNDLE	
OPERATING		UNIT		SHELLSIDE		TUBE SIDE		EXCHANGER (EMPTY)	
PRESSURE		kgf/cm ² g		1.42		4.30		EXCHANGER (FULL OF WATER)	
TEMPERATURE IN/OUT		°C		90.0/40.0		33.0/38.0		PITCH	
HEAT EXCHANGED		MM Kcal/hr		3.6290 x 1.10				LAYOUT	

DESIGN DATA

	UNIT	SHELLSIDE	TUBE SIDE		SHELL SIDE	SHELL COVER	CHANNEL	FL. HD. DOME
DESIGN PRESSURE	kgf/cm ² g	5.80	7.50	HEAT TREATMENT	--	--	--	YES
DESIGN TEMPERATURE	°C	120.0	65.0	RADIOGRAPHY	SPOT	SPOT	SPOT	--
TEST PRESS. (HYDRO)	kgf/cm ² g	7.5	9.8	JOINT EFFICIENCY	0.85	0.85	0.85	0.85
PNEUMATIC TEST PRESS.	kgf/cm ² g	--	--	TOLERANCE	TEMA CLASS R & EIL STD. 7-15-0019. REV. 3			
CORROSION ALLOWANCE	mm	3.0	3.0	CODE	ASME SEC. VIII DIV.1 2007			
NO. OF PASSES	Nos.	ONE	FOUR	INSPECTION	TEMA CLASS-R 8th 2007 EDITION			
FLUID (CIRCULATED)		CHARGE GAS	COOLING WATER	TYPE	EIL			
INSULATION THK.	mm	25 (IS)	--	POSITION	AJ21S			
MDWT	°C	1	1		HORIZONTAL			

CONSTRUCTION

113-EE-201

DESIGN DATA

1	ITEM NO	113-EE-202	
2	CODES & STANDARD	ASME SEC VIII DIV. 1 EDITION 2007 ADD.2008 TEMA CLASS-R ED-2007	
3	TYPE OF EXCHANGER	AJ215 (H)	
4	SIZE	1225 x 6000	
5	SURFACE AREA/SHELL	m ² 513	
6	SHELLS/UNIT	ONE	
7	NO. OF UNITS	ONE	
8	DUTY/UNIT	MMKcal/hr 2.8060x1.10	
		SHELL SIDE	TUBE SIDE
9	FLUID CIRCULATED	CHARGE GAS	COOLING WATER
10	NO. OF PASSES	DIVIDED FLOW	TWO
11	WORKING PRESSURE	kgf/cm ² g 3.72	4.30
12	WORKING TEMPERATURE (IN/OUT)	°C 90.0/40.0	33.0/38.0
13	DESIGN PRESSURE	kgf/cm ² g 9.0	7.50
14	DESIGN TEMPERATURE	°C 120.0	65.0
15	HYDRAULIC TEST PRESSURE	kgf/cm ² g 11.7	9.8
16	INSULATION THICKNESS (BY OTHERS)	mm 25 (IS)	-
17	CORROSION ALLOWANCE	mm 3.0	3.0
18	POST WELD HEAT TREATMENT	NIL	NIL
19	POST FORMING HEAT TREATMENT	SEE TABLE	NIL
20	RADIOGRAPHY	SPOT	SPOT
21	JOINT EFFICIENCY	0.85	0.85
22	MINIMUM DESIGN METAL TEMPERATURE	°C 1	1
23	BUNDLE WEIGHT	△ Kg. ~12000	
24	EMPTY WEIGHT	△ Kg. ~22000	
25	FULL OF WATER WEIGHT	△ Kg. ~29000	
26	INSPECTION	EIL	

DESIGN DATA			CONSTRUCTION NOTES	
Design Pressure	kgf/cm ² (g)	<u>SHELL SIDE</u> 24.0	<u>TUBE SIDE</u> 18.5	Const. code ASME SECT.VIII DIV-1, ED.2007+
Working Pressure	kgf/cm ² (g)	16.61	4.30	TEMA CLASS-R 9th ED.2007
Design temperature	°C	120.0	65.0	Post forming Heat treatment NORM. OF DISH & CROWN
Working temperature	(IN/OUT) °C	89.9/40.0	33.0/38.0	Post Weld Heat treatment NIL
Hydrotest pressure (TEMP ≥ 20 °C)	kgf/cm ² (g)	31.2	24.0	Painting/Cleaning REF. NOTE-
Corrosion Allowance	mm	3.0	3.0	Inspection By EIL
Joint efficiency		0.85	0.85	Insulation (Shell/Tube) ∇ mm (IS) 25/NIL (BY OTHERS)
Radiography		SPOT	SPOT	Surface Area/Shell (sq.m) 387.0
Fluid Circulated		CHARGE GAS	COOLING WATER	Duty/Unit (MM.Kcal/hr.) 2.5630 x 1.10
No. of Passes		ONE	TWO	Wt. Bundle kg ∇ ~8250
Min. Design Metal Temp.	°C	1		Wt. Empty kg ∇ ~18000
* Shells/Unit		ONE	ONE	Wt. Full of water kg ∇ ~25000
* No of Unit		ONE	ONE	Size of Exchanger 1090 I/D x 6000 LENGTH
				Type of Exchanger AES (H)

113-EE-204

113-EE-205

DESIGN DATA

CONSTRUCTION CODE

ASME SECTION VIII DIVISION 1, 2007 EDITION + TEMA CLASS 'R' EDITION 2007

TYPE : AES (HORIZONTAL)

DESCRIPTION	UNIT	SHELL SIDE	TUBE SIDE
FLUID		CHARGE GAS	COOLING WATER
No. OF PASSES		ONE	TWO
DESIGN PRESSURE	kgf/sq.cm g	39.40	35.60
WORKING PRESSURE	kgf/sq.cm g	35.59	4.30
DESIGN TEMPERATURE	°C	120.0	65.0
WORKING TEMPERATURE (IN/OUT)	°C	89.8/40.0	33.0/32.0
CORROSION ALLOWANCE	mm	3.0	3.0
RADIOGRAPHY		SPOT(NOTE:25)	SPOT
JOINT EFFICIENCY		0.85	0.85
HEAT TREATMENT		D'END ONLY (REFER NOTE-5a)	D'END ONLY (REFER NOTE-5a)
POST WELD HEAT TREATMENT		NIL	YES (REF.Note:5b)
INSULATION (not in UHE'S Scope)	mm	25 (IS)	NIL
SURFACE AREA	sq.m		326.0
DUTY	MM Kcal/hr		2.28x1.10
MINIMUM DESIGN METAL TEMPERATURE	°C		1°
INSPECTION			EIL
WEIGHT	TUBE BUNDLE	Kg	~7435
	DRY ASSEMBLY	Kg	~18900
	FULL OF WATER	Kg	~25115

TEST DATA

DESCRIPTION	UNIT	SHELL SIDE	TUBE SIDE
HYDRO TEST PRESSURE	kg/sq.cm g	51.2	46.3
MEDIUM			WATER
DURATION	minutes		60
TEMPERATURE	°C		AMBIENT
AXIS			HORIZONTAL

SIZE 725mm ID x 6000 mm Lg

TYPE FLOATING TUBE SHEET [AJ21S(H)]

CODE ASME SEC VIII DIV 1 2007 EDN & TEMA CLASS 'R' 2007 EDN

TOTAL EMPTY WEIGHT IN Kg 7933

WEIGHT WITH FULL WATER IN Kg 9206

WEIGHT OF TUBE BUNDLE Kg 3955

EQUIPMENT TAG NO 113-EE-210

DESIGN DATA

DESCRIPTION	SHELL SIDE	TUBE SIDE
OPERATING PRESSURE	Kgf/cm ² 7.58	4.30
OPERATING TEMPERATURE IN/OUT	°C 45.0/40.0	33.0/38.0
DESIGN PRESSURE	Kgf/cm ² 13.90	10.70
DESIGN TEMPERATURE	°C 120.0	65.0
HYDRO TEST PRESSURE	Kgf/cm ² 18.1	13.9
MINIMUM METAL TEMPERATURE DURING HYDRO TEST	°C 20	
FLUID CIRCULATED		
NUMBER OF PASSES	CHARGE GAS	COOLING WATER
POST WELD HEAT TREATMENT	DIVIDED FLOW	SIX
JOINT EFFICIENCY	NIL	NIL
RADIOGRAPHY	0.85	0.85
CORROSION ALLOWANCE	SPOT	SPOT
INSULATION	mm 3.0	3.0
MDMT	NIL	NIL
PAINING	°C 1	1
DUTY/UNIT	REFER NOTE-25	
EFFECTIVE AREA PROVIDED	MMKcal/hr	
U-STAMP MARKING REQUIRED	m ² 122	
NATIONAL BOARD REGISTRATION	(YES/NO) NO	
IBR REGISTRATION REQUIRED	(YES/NO) NO	
	(YES/NO) NO	NO