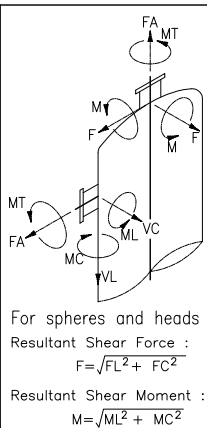
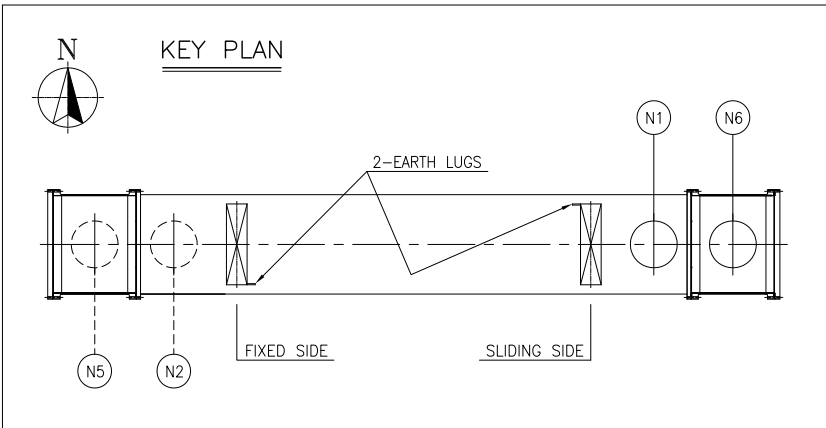
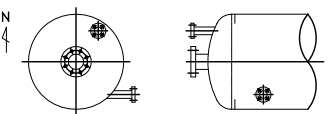


GENERAL NOTES

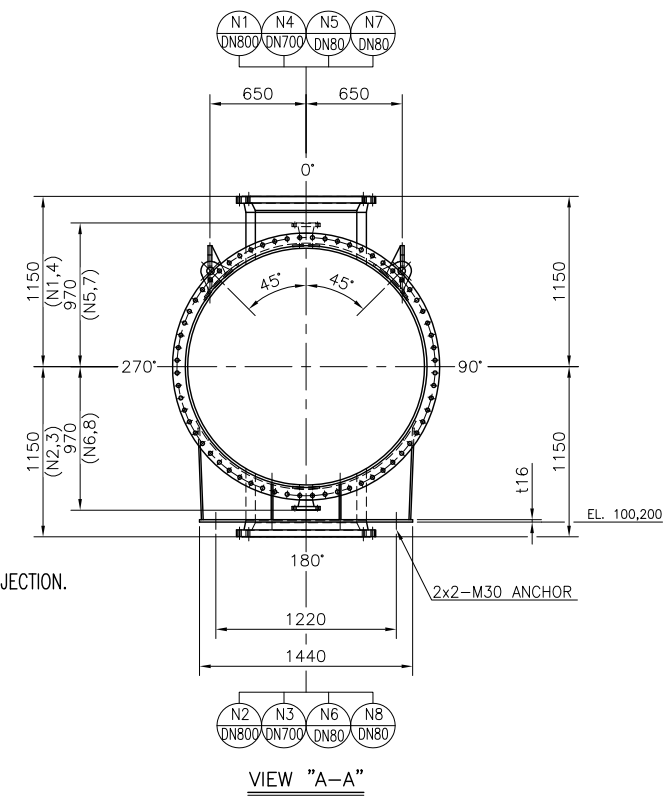
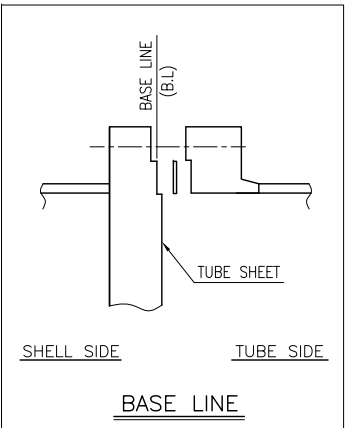
- ALL DIMENSIONS ARE IN mm, UNLESS OTHERWISE NOTED.
- BOLT HOLES OF NOZZLE FLANGE SHALL STRADDLE CENTER-LINE OF VESSEL, PLANT NORTH FOR NOZZLES ON HEAD AS FOLLOWS.
- ALL WELDS SHALL BE CONTINUOUS, UNLESS OTHERWISE NOTED.
- UNLESS OTHERWISE NOTED, ALL SHARP EDGES SHALL BE GROUND SMOOTHLY. (APPROX. R0.5)
- BASE LINE (B.L) INDICATES THE GASKET CONTACT SURFACE OF TUBESHEET.
- GASKET MATERIAL
 - GIRTH FLANGE : SPIRAL WOUND GASKET WITH INNER RING TYPE
 - HOOP : 304 S.S (14.5) - FILLER : NON-ASBESTOS
 - INNER RING : 304 S.S (t3)
 - PASS PARTITION PART : DOUBLE JACKETED (304 S.S) NON-ASBESTOS FILLED (14.5)
 - NOZZLE FLANGE : SPIRAL WOUND GASKET WITH INNER/OUTER RING TYPE
 - HOOP : 304 S.S (14.5) - FILLER : NON-ASBESTOS
 - INNER RING : 304 S.S (t3) - OUTER RING : 304 S.S (t3)
- CORROSION ALLOWANCE FOR RUBBER LINING & Ti CLAD PARTS : 0 mm
- PAINT SPEC : AS PER APPROVED PAINTING PROCEDURE.



MIN. ALLOWABLE NOZZLE LOAD

NOZZLE NO. (SIZE)	FORCES (KN)				MOMENT (KNm)			
	FL	FA	FC	F	MC	MT	ML	M
N1	41.6	41.6	31.2	-	66.6	99.8	88.5	-
N2	41.6	41.6	31.2	-	66.6	99.8	88.5	-
N3	41.6	41.6	31.2	-	66.6	99.8	88.5	-
N4	41.6	41.6	31.2	-	66.6	99.8	88.5	-

For spheres and heads
Resultant Shear Force : $F = \sqrt{FL^2 + FC^2}$
Resultant Shear Moment : $M = \sqrt{ML^2 + MC^2}$



PLEASE CONFIRM. & HOLD

- NOZZLE LOCATION & ORIENTATION, PROJECTION.
- INSULATION THICKNESS.
- NATIONAL BOARD REQUIREMENT.
- M.D.M.T

DESIGN DATA

CODE : ASME SEC. VIII DIV.1 2010 ED+2011 ADD. & TEMA "R"

EFFECTIVE SURFACE AREA/SHELL : 1403 m² TYPE : AEL

NO. OF SHELLS : EIGHTH(8) UNIT STAMP : YES N/B : YES

	SHELL SIDE	TUBE SIDE
FLUID	CCW	SEA WATER
DESIGN PRESSURE (BAR.G)	10	10 / F.V
DESIGN TEMP. (°C)	60	40
M.A.W.P (BAR.G)	13.45	10.92
HYDRO. TEST PRESS. (BAR.G)	17.49	15
RADIOGRAPHED (S/H)	SPOT / -	SPOT / -
JOINT EFFICIENCY (S/H)	0.85 / -	0.85 / -
CORR. ALLOWANCE (mm)	3	3 (NOTE 7.)
STRESS RELIEVING	NO	NO
NO. OF PASS	1 (ONE)	1 (ONE)
P. W. H. T.	NO	NO
M. D. M. T. (°C)	-1	-1
INSULATION (mm)	NO	NO
WIND LOAD / SEISMIC LOAD	UBC-1997	
TUBE TO TUBE SHEET JOINT	EXPANDING + TWO GROOVES	
WEIGHT (KG)	BUNDLE	EMPTY
	OPERATING	FULL WATER
	-	25,012 47,951 47,894

MATERIAL LIST

SHELL SIDE	CHANNEL SIDE	BUNDLE
SHELL	SHELL	SHELL
SA516-70	SA516-70+RUBBER LINING	SA516-70+RUBBER LINING
SHELL FLANGE / COVER	CHANNEL FLANGE / COVER	CHANNEL FLANGE / COVER
-	SA266-2+RUBBER LINING	SA266-2+RUBBER LINING
FLANGE / BLIND	FLANGE / BLIND	FLANGE / BLIND
SA105	SA105+RUBBER LINING	SA105+RUBBER LINING
NECK PLATE	NECK PLATE	NECK PLATE
SA516-70	SA516-70+RUBBER LINING	SA516-70+RUBBER LINING
NOZZLE	NOZZLE	NOZZLE
NECK PIPE	NECK PIPE	NECK PIPE
SA106-B	SA106-B+RUBBER LINING	SA106-B+RUBBER LINING
REINF. PAD	REINF. PAD	REINF. PAD
SA516-70	SA516-70	SA516-70
FITTING	FITTING	FITTING
-	-	-
EXTERNAL ATTACHMENTS	EXTERNAL ATTACHMENTS	EXTERNAL ATTACHMENTS
SA516-70	SA516-70	SA516-70
INTERNAL ATTACHMENTS	INTERNAL ATTACHMENTS	INTERNAL ATTACHMENTS
-	SA516-70	SA516-70
LIFTING LUG	LIFTING LUG	LIFTING LUG
SA283-C	SA283-C	SA283-C
SADDLE / PAD	PASS PARTITION	PASS PARTITION
SA283-C / SA516-70	-	-
GASKETS	GASKETS	GASKETS
SEE NOTE 6	SEE NOTE 6	SEE NOTE 6
BOLT/NUTS	BOLT/NUTS	BOLT/NUTS
FOR EXTERNAL SA193-B7/SA194-3	FOR EXTERNAL SA193-B7/SA194-3	FOR EXTERNAL SA193-B7/SA194-3
FOR INTERNAL -	FOR INTERNAL -	FOR INTERNAL -
EARTH LUG	TUBE SHEET	TUBE SHEET
SA240-304	SA266-2 + B265-1 CLAD	SA266-2 + B265-1 CLAD
NAME PLATE	TUBES	TUBES
SA204-304	SB338-Gr.2 (E)	SB338-Gr.2 (E)
ANCHOR B/N	BAFFLE	BAFFLE
SA307-B/SA194-2H	SA285-C	SA285-C
	TIE ROD/SPACER	TIE ROD/SPACER
	A36/A53-B(E)	A36/A53-B(E)

NOZZLE DATA

MARK	Q'TY	SIZE	SCH.	RATING	TYPE	DESCRIPTION	PROJ.	REMARK
N8	1	DN80 (3")	SCH.160	ASME #150	WN.RF	TUBE SIDE DRAIN	SEE DWG.	
N7	1	DN80 (3")	SCH.160	ASME #150	WN.RF	TUBE SIDE VENT	SEE DWG.	
N6	1	DN80 (3")	SCH.160	ASME #150	WN.RF	SHELL SIDE DRAIN	SEE DWG.	
N5	1	DN80 (3")	SCH.160	ASME #150	WN.RF	SHELL SIDE VENT	SEE DWG.	
N4	1	DN700 (28")	t17	ASME #16.47 SERIES "B" #150#	WN.RF	SEA WATER OUTLET	SEE DWG.	
N3	1	DN700 (28")	t17	ASME #16.47 SERIES "B" #150#	WN.RF	SEA WATER INLET	SEE DWG.	
N2	1	DN800 (32")	t13	ASME #16.47 SERIES "B" #150#	WN.RF	HFO OUTLET	SEE DWG.	
N1	1	DN800 (32")	t13	ASME #16.47 SERIES "B" #150#	WN.RF	HFO INLET	SEE DWG.	

REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO.
CCW HEAT EXCHANGER ASSEMBLY DWG	14-PDG-M-08-V101-001
CCW HEAT EXCHANGER SHELL DETAIL	14-PDG-M-06-V101-001
CCW HEAT EXCHANGER TUBE BUNDLE & TUBE SHEET DETAIL	14-PDG-M-06-V101-001
CCW HEAT EXCHANGER NOZZLE AND INSTRUMENT CONNECTION DETAIL	14-PDG-M-06-V022-001
NAME PLATE DWG FOR SHELL & TUBE HEAT EXCHANGER	14-TAA-M-10-V001-001

REV. DATE DESCRIPTION DESIGNED CHECKED APPROVED

PROJECT: JEDDAH SOUTH THERMAL POWER PLANT STAGE-I

OWNER: **الشركة السعودية للكهرباء Saudi Electricity Company**

ENGINEER: **FICHTNER**

CONTRACTOR: **HYUNDAI HEAVY INDUSTRIES CO., LTD.**

SUBCONTRACTOR: N/A VENDOR INTERNAL DWG NO.: N/A

THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR FOR ORDERING MATERIAL UNTIL CERTIFIED AND DATED. THE CONTRACTOR SHALL CONFIRM FULLY COMPLIANCE WITH THE O&S COMMENTS. NO OTHER CHANGES HAD BEEN MADE ON THE DRAWING. THE CONTRACTOR MAY SUBMIT THE DRAWING AS "FOR CONSTRUCTION"

APPROVAL/CERTIFICATION INFORMATION
DOC. NO. _____
REV. NO. _____

DRAWING TITLE: **CCW HEAT EXCHANGER - ASSEMBLY DWG.(INCL FOUNDATION)**

CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.	REV.
31121106/00	1:50	14-PDG-M-08-V101-001	01 OF 02	A