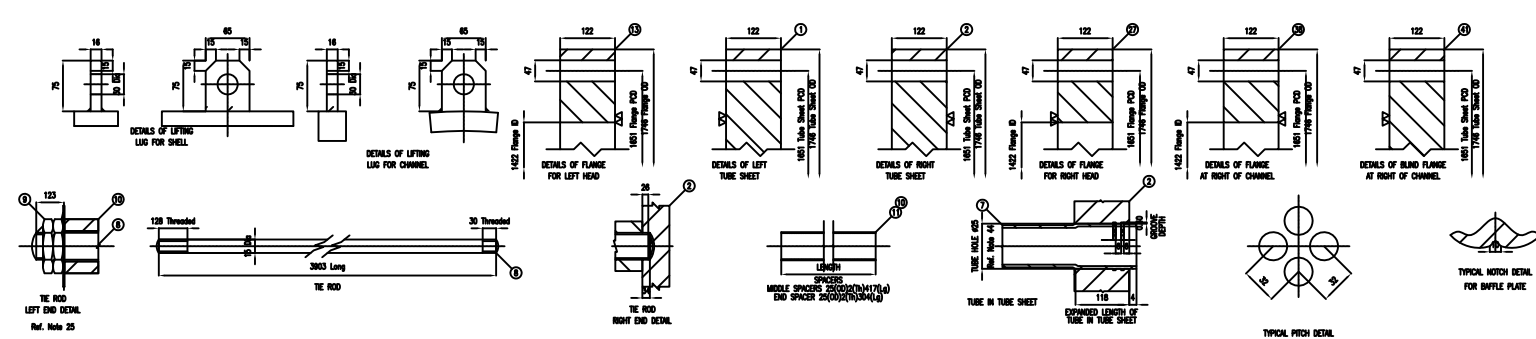
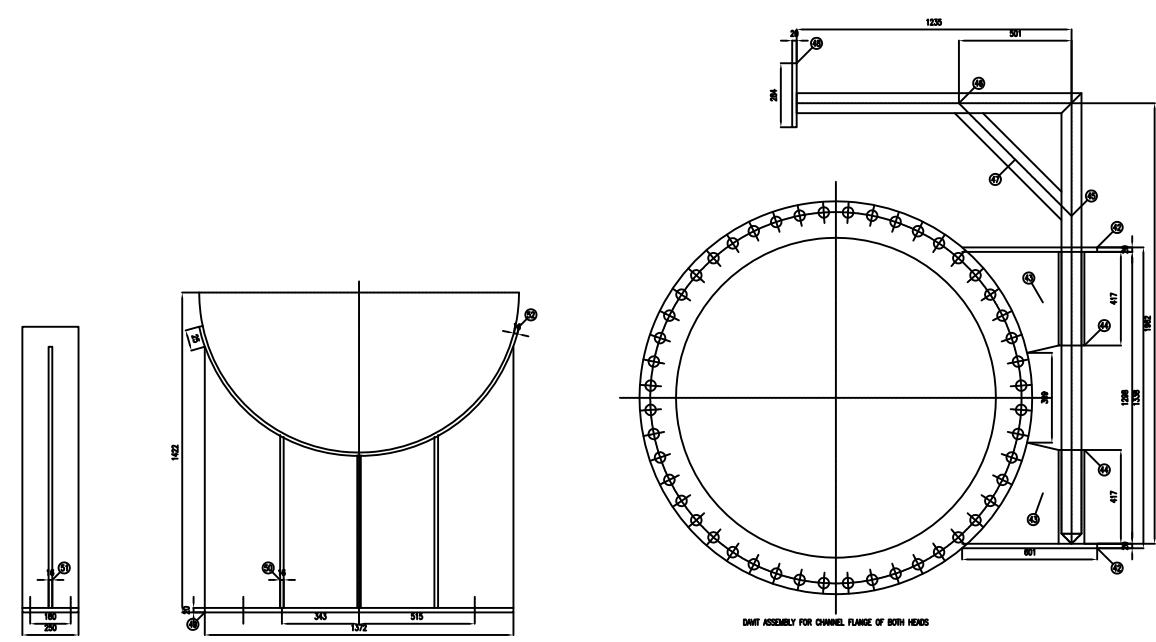
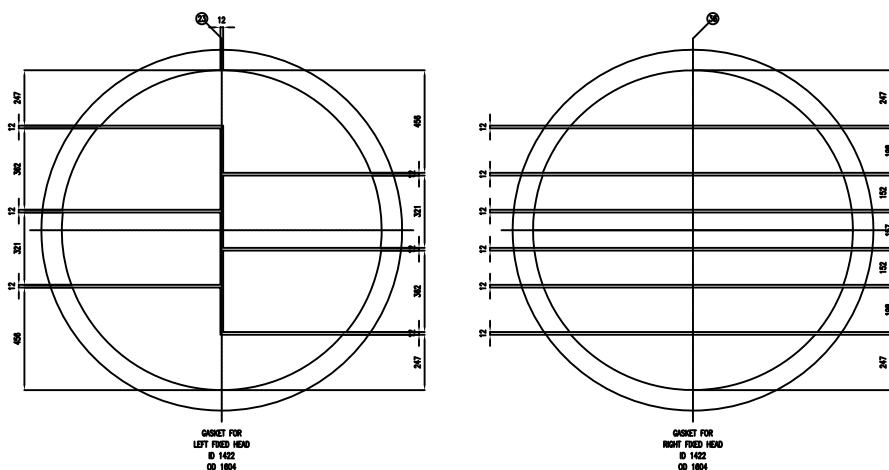
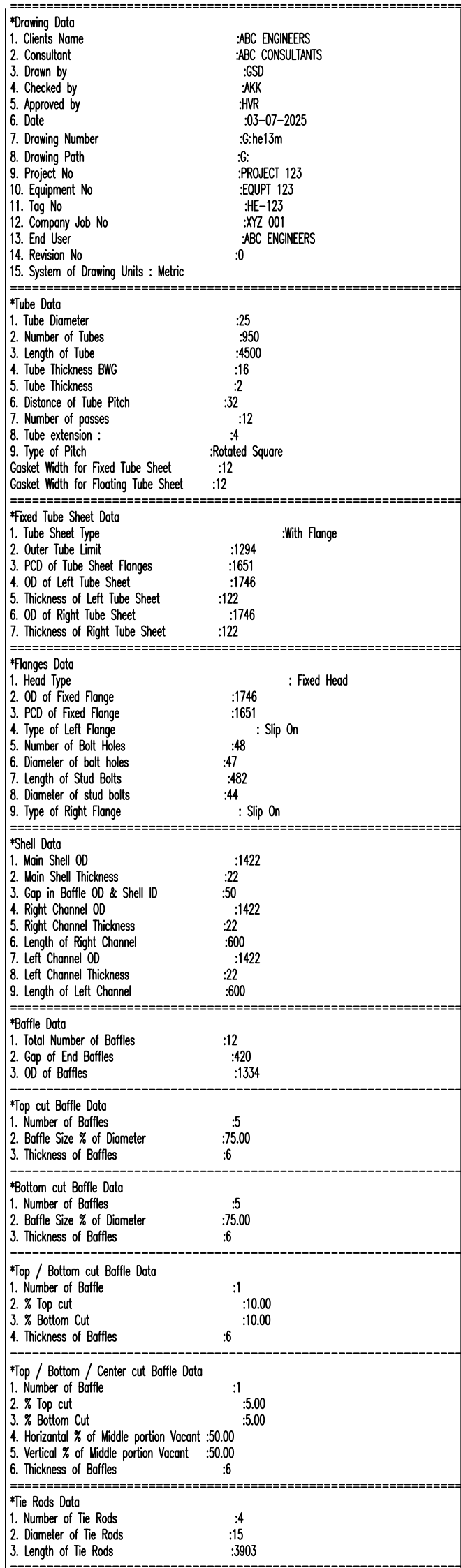
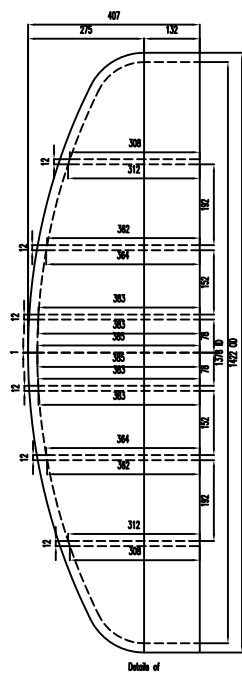




1. ALL DIMENSIONS ARE IN MM.
2. ALL BOLT HEADS TO STRIKE THROUGH BOTH HORIZONTAL CENTER LINES.
3. FOR TOLERANCES REEER SHEET & TUBE EXCHANGER SHEETS 7-15-019 REV-3.
4. HYDRO TEST SHALL BE DONE IN HORIZONTAL POSITION.
5. UNIT TO BE MOUNTED IN HORIZONTAL POSITION.
6. INDICATED THICKNESSES ARE MINIMUM AFTER CONSTRUCTION.
7. FLANGES UP TO 600 mm NB SHALL CONFORM TO ASME B16.5.
8. FLANGES ABOVE 600 mm NB SHALL CONFORM TO ASME B16.47.
9. ALL NOZZLES 50 mm NB AND BELOW SHALL BE PROVIDED WITH STIFFENER.
10. STIFFENER SIZE 30 mm x 8 mm AT RIGHT ANGLES.
11. AFTER HYDROTEST, EQUIPMENT SHALL BE COMPLETELY DRIED OUT WITH HOT AIR.
12. BLIND FLANGES SHALL BE PROVIDED WHERE MENTIONED.
13. OTHER FLANGES SHALL BE COVERED WITH STEEL COVERS.
14. FINISH OF ALL SEATING FACE OF NOZZLE FLANGES SHALL BE 125-150 ARMS FOR SPOOL WOUND GASKETS.
15. ALL WELDING SURFACES SHALL BE ROUND OFF WITH SMOOTH RADII UNLESS SPECIFIED OTHERWISE.
16. ALL PRESSURE BEARING PLATES SHALL BE SUPPLIED IN NORMALIZED CONDITION.
17. THESE PLATES SHALL CONFORM TO SA-20.
18. TOLERANCE ON PLATE THICKNESS SHALL BE ON POSITIVE SIDE ONLY.
19. FINAL ROLLING OF THE PLATES SHALL BE LENGTHWISE.
20. ALL FLANGES SHALL BE 100% UT EXAMINED IN ACCORDANCE WITH SASSB, SEC 6 & 8, BEFORE ANY DRILLING OPERATION.
21. ALL WELDS SHALL BE PENETRATION WELDS, AFTER BACK CHIPPING TO SOUND METAL.
22. ALL WELDS WILL BE REMOVED FROM OTHER SIDE OF THE JOINTS UNLESS SHOWN OTHERWISE.
23. THOSE JOINTS THAT ARE NOT ACCESSIBLE FOR BACK CHIPPING, ROOT RUN SHALL BE CARRIED OUT BY GRIND PROCESS.
24. NON DESTRUCTIVE EXAMINATION :
 - a. ALL BUT WELD EDGES SHALL BE EXAMINED FOR A DISTANCE OF 2 TIMES MATERIAL THICKNESS.
 - b. BACKWELD JOISON AND STRAIGHT FACE JOINED HEADS SHALL BE 100% FT EXAMINED, AFTER FORMING.
 - c. 100% EXAMINATION OF DISHED HEADS SHALL BE DONE AFTER FINAL PASS.
 - d. ALL NOZZLE WELDS SHALL BE DP EXAMINED AFTER ROOT RUN AND FINAL PASS.
 - e. EXTERNAL SURFACES OF WELDS WITH THICKNESS MORE THAN 50 mm NB SHALL BE DP/UT EXAMINATION AFTER HYDROTEST.
 - f. ALL WELDING EDGES SHALL BE CHECKED FOR CRACKS, DISCONTINUITIES, OR SEGREGATIONS.
 - g. MP/DP TEST SHALL BE CARRIED OUT ON INSIDE/OUTSIDE SURFACES OF DISHED HEADS.
 - h. MACHINED SURFACES OF ALL FORNINGS SHALL BE EXAMINED FOR SURFACE DEFECTS BY MP/DP TEST.
24. METHODS FOR FASTENING NUTS TO THE RODS :
 - a. METHODS FOR FASTENING NUTS TO THE RODS :
 - b. WELD SECOND NUT TO THE ROD.
25. WELD BOTH NUTS.
26. ALL WELDS TO EXCEED THE LENGTH OF ONE FLAT OF LENGTH.
 - a. TOLERANCE FOR ALL NOZZLES ON TRUE VERTICAL LINE FROM ACTUAL NOZZLE CENTER LINE IS ± 3 mm.
 - b. TOLERANCE FOR ALL NOZZLES ON TRUE VERTICAL LINE FROM ACTUAL NOZZLE CENTER LINE IS ± 5 - 3 mm.
27. HEAT EXCHANGER SHALL BE HYDRO TESTED WITH CLEAN POTABLE WATER, SEA WATER SHALL NOT BE USED.
28. AFTER HYDROTEST, EQUIPMENT SHALL BE DRAINED AND DRIED WITH HOT AIR.
29. EQUIPMENT SHALL BE PERFECTLY CLEANED AND FREED FROM ALL FOREIGN MATERIAL.
30. ALL NOZZLES SHALL BE COVERED WITH THERMAL COVERS, TO AVOID DAMAGE IN TRANSPORT.
31. PAINTING :
 - a. ALL EXTERNAL UNPAINTED CS SURFACES SHALL BE PAINTED WITH ONE COAT OF EPICORING ZINC SILICATE.
 - b. PRIMER OF 75 MICRON DFT SHALL BE APPLIED AFTER SHOT BLASTING THE SURFACE TO SA 2 1/2 FINISH.
 - c. EXTERIOR LOGS SHALL NOT BE PAINTED OR GALVANIZED.
 - d. CLIENT'S NAME, ADDRESS, EPOCH NO., P.O.NO. SHALL BE PAINTED ON SHELL WITH WHITE PAINT.
 - e. ALL WELDING EDGES AND OTHER MACHINED SURFACES SHALL BE GRASSED AND PROTECTED FROM RUST.
 - f. BOLT HEADS SHALL BE LUBRICATED.
32. GASKETS :
 - a. SERVICE GASKETS SHALL NOT BE USED FOR HYDROTEST.
 - b. GASKET MATERIAL FOR HYDROTEST SHALL BE SAME AS SERVICE GASKET.
 - c. EQUIPMENT SHALL BE SHIPPED IN AS HYDROTESTED CONDITION, WITHOUT REMOVING GASKETS FOR HYDROTEST.
 - d. SERVICE GASKETS SHALL BE SENT LOOSE, AND ASSEMBLED AT SITE BY OTHERS.
 - e. GASKET MATERIAL FOR NOZZLE FLANGES SHALL BE SS 316 SPOOL WOUND WITH GRAIN FILLER AND CS OUTER RING.
 - f. GASKETS SHALL BE USED IN ACCORDANCE WITH THE FOLLOWING :
 - 32.1. THE m AND n VALUES OF SPOOL WOUND GASKET SHALL BE GUARANTEED AS PER ASME SEC VII, DIV 1.
 - 32.2. GASKET CERTIFICATES SHALL INDICATE THE SAME AND SHALL BE PART OF FINAL DOCUMENTATION.
 - 32.3. VENT NOZZLES TO BE KEPT OPEN DURING FILLING OF WATER FOR HYDROTEST AND DURING DRAINING.
 - 32.4. IF TOLERANCES SPECIFIED ARE MINIMUM AFTER FORMING.
 - 32.5. LIFTING LUGS ARE DESIGNED FOR LIFTING IN EVEN TOLERANCE.
 - 32.1. HARDNESS OF METAL IN GASKET SHALL BE MINIMUM 15 BHN LOWER THAN FLANGE GASKET SEATING SURFACE METAL.
 - 32.2. HARDNESS IN NO GASKET SHALL EXCEED 160 BHN.
 - 32.3. FILLER IN METAL JACKETED GASKETS SHALL NOT BE OF COMPRESSED TYPE.
 - 32.4. ALL GASKETS SHALL BE MADE IN ONE CONTINUOUS PIECE ALL AROUND.
 - 32.5. PASS PARTITION RIBS MUST BE CUT FROM EACH SHEET.
 - 32.6. FLAT JACKED FACE OF THE GASKET SHALL BE SAME AS PASS PARTITION FLAT SIDE.
 - 32.7. GASKET FOR ORTH FLANGES SHALL BE METAL JACKED ARNER FLBER.
 - 32.8. ALL RT PASS SHALL BE PROVIDED 2 NOS. OF 3 mm. IPT TEST TALE HOLES FOR AIR/SPOW SOLUTION TEST.
33. HOLES TO BE PUGHED WITH HANOID GRACE AFTER TESTING.
34. APPROPRIATE COVERS FOR PIPES AND FITTINGS SHALL BE PROVIDED.
35. ASME B16.5M FOR FACTORY MADE WROUGHT BUTL WELD FITTINGS.
37. ASME B16.11 FOR FORMED FITTINGS, SOCKET WELDING AND THREADED JOINTS.
38. HEAT TREATMENT CYCLE FOR DISHED END :
 - 38.1. LOADING TEMPERATURE : 350 DEG C
 - 38.2. RATE OF HEATING : 56 TO 222 DEG C PER HOUR
 - 38.3. SOAKING TEMPERATURE : 610 +/- 10 DEG C
 - 38.4. SOAKING TIME : 30 TO 50 MINUTES
 - 38.5. RATE OF COOLING (UNTIL 300 DEG C) : 56 TO 278 DEG C PER HOUR.
 - 38.6. MEDIUM OF COOLING (<300 DEG C) : AIR
39. NAME PLATE SHALL BE TACKLED BEFORE BACK ON ALL FOUR SIDES IN ADDITION TO RIVETS.
40. SEALING STRIPS SHALL BE CONTINUOUS.
41. BROWN EDGES OF BATTLE PLATES, SHALL BE WELDED BACK AFTER WELDING SEALING STRIPS.
42. TOP PORTION OF BATTLE TO BE CUT TO ACCOMMODATE IMPEMEMENT PLATE.
43. TUBE HOLES EDGES IN TUBE SHEET AND BATTLEFELS SHALL BE CHAMFERED TO 1X45 DEG ON BOTH SIDES.
44. FOLLOWING PARTS SHALL BE SUPPLIED AS SPARES :
 - 44.1. 400% GASKETS FOR ORTH JOINTS AND NOZZLES WITH BLIND FLANGES.
 - 44.2. 20% (MINIMUM 4 SETS) OF STUDS AND NUTS FOR ORTH JOINTS AND NOZZLES WITH BLIND FLANGES.
 - 44.3. BOTTOM SEALING STRIP SHALL BE CONTINUOUS, AND SHALL EXTEND BETWEEN END BATTLEFELS.
 - 44.4. SHALL OF MATERIAL, REEER SHEET 3 TO 5.
 - 44.5. STAINING OUT SHALL BE REQUIRED ON SHELL/TUBE SIDE AT 5 KG/50 CM AND AT 170 DEG C.
 - 44.6. SLIDING END SHALL BE PAINTED WITH " CAUTION : SLIDING END".
 - 44.7. ALL TUBES SHALL BE COLD DRAWN, SEAMLESS, SINGLE PIECE AND IN ANNEALED CONDITION.
 - 44.8. ALL TUBE HOLES SHALL HAVE CLOSE FIT AS PER TEMA.
- 52.

0	03-07-2025		SSD	AKK HNR
REV	DATE	DESCRIPTION	DNR	CHKD APPD
		REVISION LIST		
		COMPANY NAME		
		CITY		
DRAWN: SSD	Client: ABC ENGINEERS			
DATE: 03-07-2025	Consultant: ABC CONSULTANTS			
CHKD: AKK	End User: ABC ENGINEERS			
DATE: 03-07-2025	Title :			
APPD: HNR	PART DETAILS			
DATE: 03-07-2025				
SCALE: 1/25.0				
SHEET: 9				
THIS DRAWING IS THE PROPERTY OF THE CLIENT. ALL USE WITHOUT WRITING CONSENT IS PROHIBITED.		DWG. No.: hsl3m_dwg	SHEET 2 OF 3	REV. No.: 0
		PROJECT No.: PROJECT 123	EQUIP No.: EQUIP 123	
TAG No.: 123		COMPANY JOB No.: XYZ 001		
PO No.: 123		CLIENT'S PO No.: 123		

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No.	Description	Qty	Material	Unit Price	Size			Wt. Kgs
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REV	DATE							
DESCRIPTION								
REVISION LIST								
COMPANY NAME								
CITY								
DRN	USD	Client: ABC ENGINEERS						
DATE	03-07-2025	Consultants: ABC CONSULTANTS						
CHKO	ABC	End User: ABC ENGINEERS						
DATE	03-07-2025							
APPR	HR	Title :						
DATE	03-07-2025							
SKOTE	120.0	GENERAL ARRANGEMENT						
SHEET	1							
This drawing is the property of the owner and shall remain confidential and for reference only.								
DRG. No.: hsl3m_080				SHEET 3 OF 3		REV. No. 0		
PROJECT No.: PROJECT 123				EQPT. No.: EQUIPT 123				
TAG No.: Company JOB No.: XYZ 001								
HE-123				CLIENT'S PO No:				

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