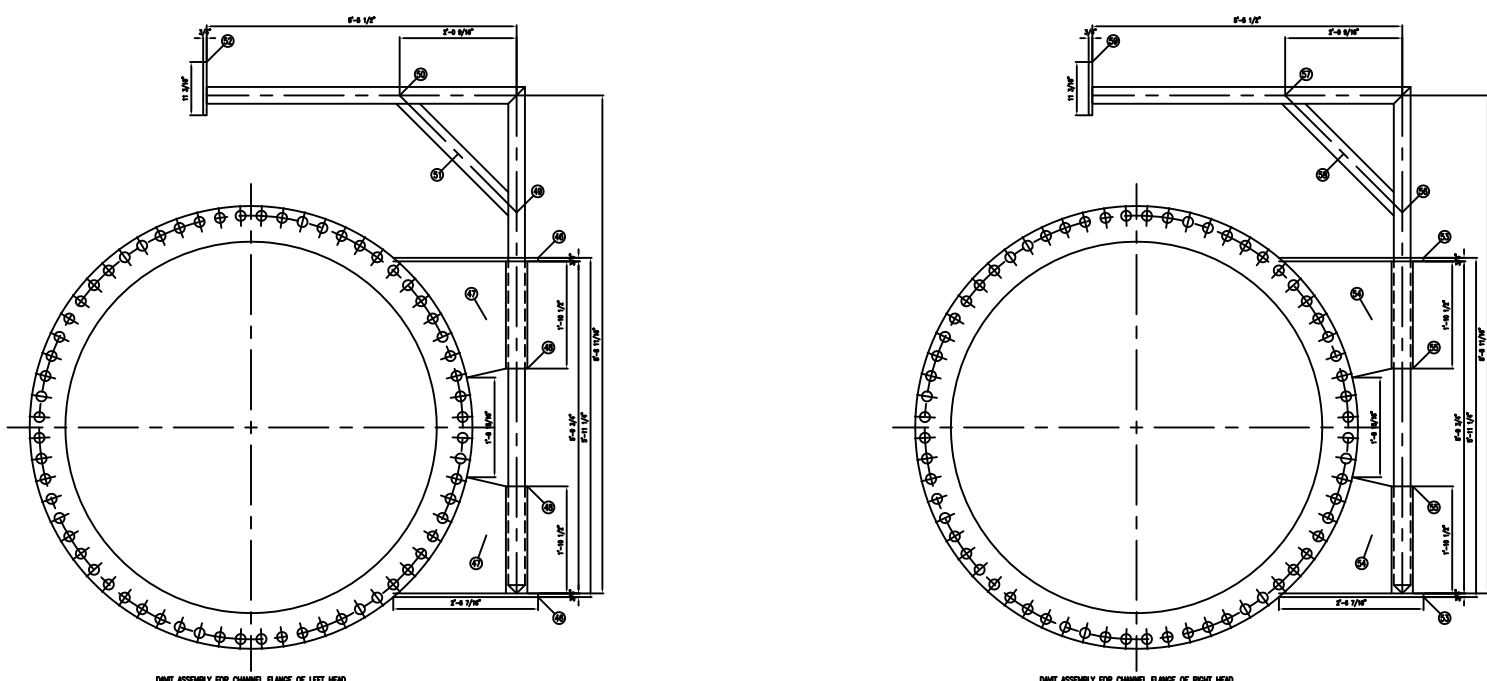
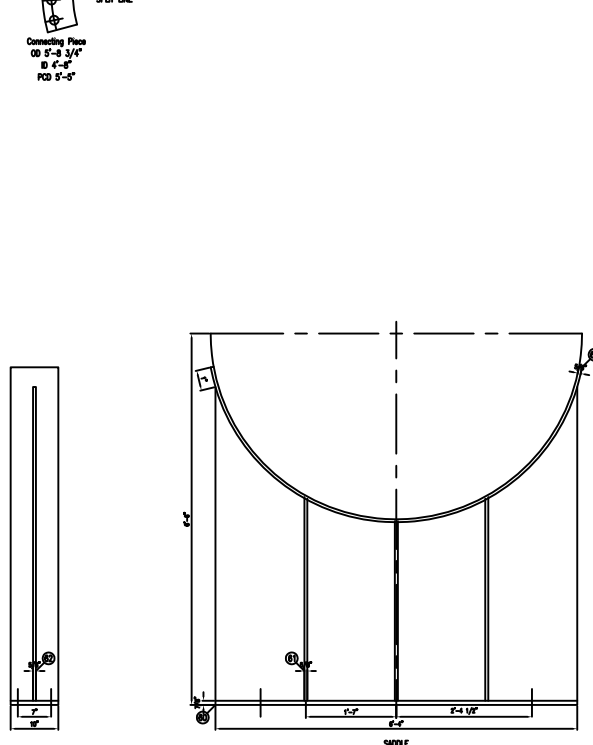
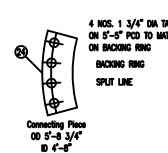
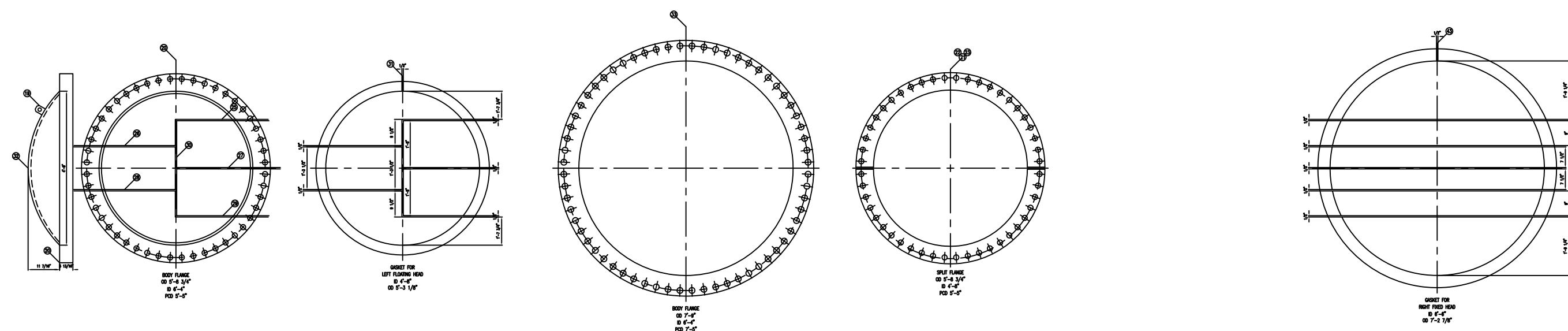
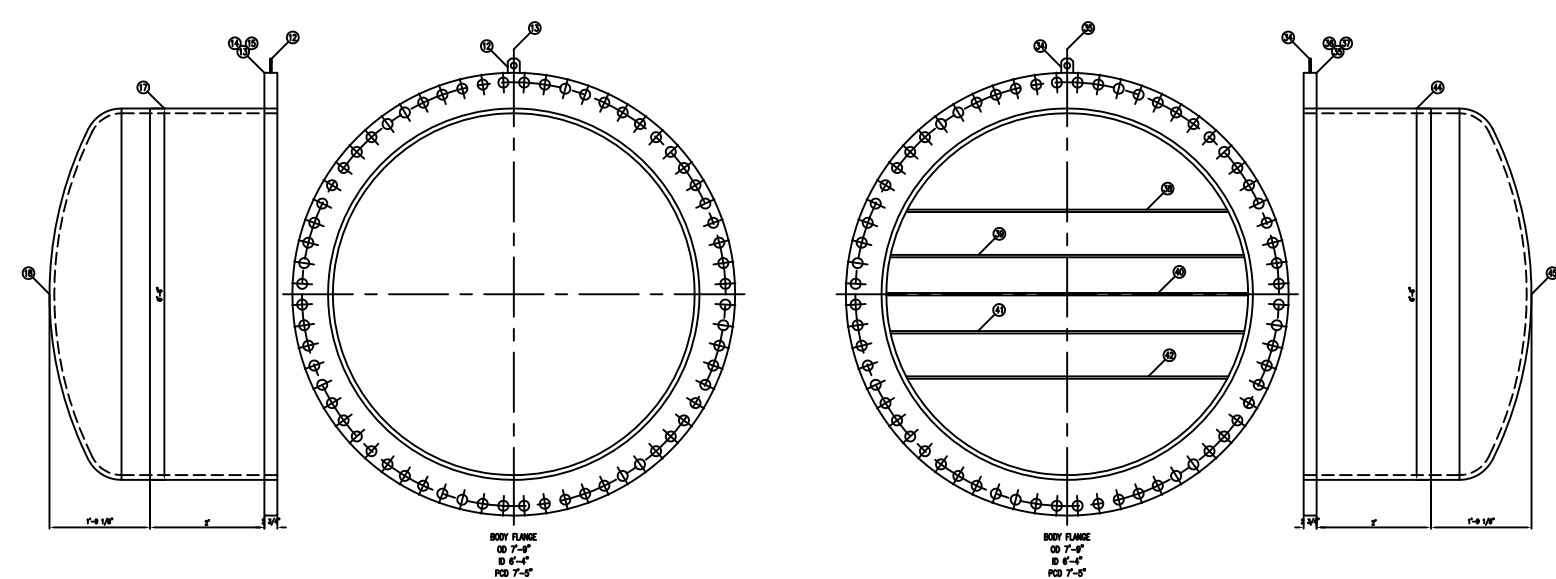


1. ALL DIMENSIONS ARE IN FOOT-INCHES.

2. ALL BOAT HOLES TO STRADDLE BOTH NATURAL CENTER LINES.

3. FOR TOLERANCES REEF SHELL & HYDRO EXCHANGER STD-10-15-0019 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 24" SHALL CONFORM TO ASME B16.5.

8. FLANGES ABOVE 24" SHALL CONFORM TO ASME B16.47.

9. ALL NOZZLES 2" AND BELOW SHALL BE PROVIDED WITH STIFFENER.

10. STIFFENER SIZE: 1/4" x 1/4" 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 SUEL COVERS.

14. FINISH OF CRACK SEATING FACE OF NOZZLE FLANGES SHALL BE 125-150 ARMS FOR SPINAL WOUND GASKETS.

15. ALL SHARP CORNERS SHALL BE ROUNDED WITH SMOOTH RADII AND SPREAD SURFACES 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 SA-20 ON POSITIVE SIDE ONLY.

19. FINAL ROLLING OF THE PLATES SHALL BE LENGTHWISE.

20. ALL FLANGES SHALL BE 100% UT EXAMINED IN ACCORDANCE WITH AS308, SEC 6 & 8, BEFORE ANY DRILLING OPERATION.

21. ALL WELDS SHALL BE PENETRATION WELDS, AFTER BACK CHIPPED TO SOUND METAL.

22. ALL TUBES TO BE ROUNDED FROM THE INSIDE AND DREGED WITH 90° ARC.

23. THOSE JOINTS THAT ARE NOT ACCESSIBLE FOR BACK CHIPPING, ROOT RUN SHALL BE CARRIED OUT FROM GYAS PROCESS.

24. NON DESTRUCTIVE EXAMINATION :

25. ALL BUT WELD DISHED HEDS SHALL BE UT EXAMINED FOR A DISTANCE OF 2 TIMES MATERIAL THICKNESS.

26. NOZZLE HOOKEND AND STRAIGHT PORTS OF DISHED HEDS SHALL BE 100% PT EXAMINED, AFTER FORMING.

27. 100% EXAMINATION OF DISHED HEDS SHALL BE DONE AFTER HEAT TREATMENT.

28. ALL NOZZLE WELDS SHALL BE PT EXAMINED AFTER ROOT RUN AND FINAL PASS.

29. EXTERNA SURFACES OF WELDS WITH THICKNESS MORE THAN 7" SHALL BE PT/DP EXAMINATION AFTER HYDROTEST.

30. ALL WELDS WITH THICKNESS LESS THAN 7" SHALL BE PT/DP EXAMINATION OR SEGRATIONS.

31. MP/DP TEST SHALL BE CARRIED OUT ON INSIDE/SURFACE OF DISHED HEDS.

32. MACHINED SURFACES OF ALL FORINGS SHALL BE EXAMINED FOR SURFACE DEFECTS BY MP/DP TEST.

33. METHODS FOR FASTENING NUTS TO THE RODS :

34. METHODS FOR FASTENING NUTS TO THE RODS :

35. WELD SECOND NUT TO THE ROD.

36. WELD BOTH NUTS.

37. ALL WELDS TO EXCEED THE LENGTH OF ONE FLAT LENGTH.

38. TOLERANCE FOR ALL NOZZLES ON THE VERTICAL LINE FROM ACTUAL NOZZLE CENTER LINE IS $\pm 1/16"$.

39. TOLERANCE FOR ALL NOZZLES ON TRUE VERTICAL LINE FROM ACTUAL NOZZLE CENTER LINE IS $\pm 1/16"$.

40. HEAT EXCHANGER SHALL BE HYDRO TESTED WITH CLEAN POTABLE WATER, SEA WATER SHALL NOT BE USED.

41. AFTER HYDROTEST, EQUIPMENT SHALL BE COMPLETELY DRIED OUT WITH HOT AIR.

42. EQUIPMENT SHALL BE PERFECTLY CLEANED, AND FREED FROM ALL FOREIGN MATERIAL.

43. ALL NOZZLES SHALL BE COVERED WITH TEMPORARY COVERS, TO AVOID DAMAGE TO THE NOZZLES.

31. PAINTING :

31.1. ALL EXTERNA UNMACHINED CS SURFACES SHALL BE PAINTED WITH ONE COAT OF INORGANIC ZINC SULFATE.

31.2. PRIMER OF 75 MICRON DFT SHALL BE APPLIED AFTER SHOT BLASTING THE SURFACE TO SA 2 1/2 FINISH.

31.3. EXTERNA LUGS SHALL NOT BE PAINTED OR GALVANIZED.

31.4. CLIENTS NAME, ADDRESS, EPC NO., P.O.NO. SHALL BE PAINTED ON SHELL WITH WHITE PAINT.

31.5. ALL PLATE FLANGES AND OTHER MACHINED SURFACES SHALL BE GREASED AND PROTECTED FROM RUST.

31.6. BLIND THREADS SHALL BE LUBRICATED.

32. GASKETS :

32.1. SERVICE GASKETS SHALL NOT BE USED FOR HYDROTEST.

32.2. GASKET MATERIAL FOR HYDROTEST SHALL BE SAME AS SERVICE GASKET.

32.3. EQUIPMENT SHALL BE SHIPPED IN AS HYDROTESTED CONDITION, WITHOUT REMOVING GASKETS USED FOR HYDROTEST.

32.4. SERVICE GASKETS SHALL BE SENT LOOSE, AND ASSEMBLED AT THE SITE.

32.5. GASKET MATERIAL FOR NOZZLE FLANGES SHALL BE SS 316 SPINAL WOUND WITH GRAVEL FILLER AND CS CUTTING RING.

32.6. GASKETS SHALL BE IN ACCORDANCE WITH ASME B16.5.

32.7. THE m AND y VALUES OF SPINAL WOUND GASKET SHALL BE GUARANTEED AS PER ASME SEC. I, DIV. 1.

32.8. GASKET CERTIFICATES SHALL INDICATE THE SAME AND SHALL BE PART OF FINAL DOCUMENTATION.

32.9. VENT NOZZLES TO BE KEPT OPEN DURING FILLING OF WATER FOR HYDROTEST AND DURING DRAINING.

32.10. TOLERANCES SPECIFIED AND NOTED OTHERWISE.

33. LIFTING LUGS ARE DESIGNED FOR LIFTING IN UPRIGHT POSITION.

33.1. HARDNESS OF METAL IN GASKET SHALL BE MINIMUM 15 BHN LOWER THAN FLANGE GASKET SEATING SURFACE METAL.

33.2. HARDNESS IN NO CASE SHALL EXCEED 160 BHN.

33.3. FILLER IN METAL JACKETED GASKETS SHALL NOT BE OF COMPRESSED TYPE.

33.4. ALL GASKETS SHALL BE MADE IN ONE CONTINUOUS PIECE ALL AROUND.

33.5. PASS PARTITION RIBS MUST BE CUT FROM SAME SHEET.

33.6. PLATE JACKETED FACE OF THE PARTITION PLATE SHALL BE METAL JACKETED AMONG FLANGES.

33.7. GASKET FOR ORBIT FLANGES SHALL BE METAL JACKETED AMONG FLANGE.

33.8. ALL RP PADS SHALL BE PROVIDED 2 NOS. OF 1/4" NPT TAIL HOLES FOR AIR/SOAP SOLUTION TEST.

34. HOLES TO BE PLUGGED WITH HARD GRADE AFTER TASTING.

35. APPROPRIATE COVERS FOR PIPES AND NOZZLES.

36. ASME B16.9 FOR FACTORY MADE WROUGHT BUTT WELD FITTINGS.

37. ASME B16.11 FOR FORGED FITTINGS, SOCKET WELDING AND THREADED JOINTS.

38. HEAT TREATMENT CYCLE FOR DISHED END

38.1. LOADING TEMPERATURE : 540 DEG F

38.2. RATE OF HEATING : 100 TO 400 DEG F PER HOUR.

38.3. SOAKING TEMPERATURE : 1100 $\pm$ 10 DEG F

38.4. SOAKING TIME : 30 TO 150 MINUTES

38.5. RATE OF COOLING (UP TO 540 DEG F) : 100 TO 500 DEG F PER HOUR.

38.6. METHOD OF COOLING (<540 DEG F) : AIR

39. NAME PLATE OF DISHED END SHALL BE DRILLED TO BRACKET ALL ON FOUR SIDES AND INDENT TO INVERTS.

40. SEALING STRIPS SHALL BE CONTINUOUS.

41. STRIP EDGES OF BAFFLE PLATES SHALL BE WELDED BACK AFTER WELDING SEALING STRIPS.

42. TOP PORTION OF BAFFLE TO BE CUT TO ACCOMMODATE MOUNTING PLATE.

43. TUBE HOLE EDGES IN TUBE SHEET AND BAFFLES SHALL BE CHAMFERED TO 1X45 DEG ON BOTH SIDES.

44. FOLLOWING PARTS SHALL BE SUPPLIED AS SPECIFIED

44.1. 400K GASKETS FOR ORBIT JOINTS WITH NOZZLES WITH BLIND FLANGES.

45. 200 (MINIMUM 4) SETS OF STUDS AND NUTS FOR ORBIT JOINTS AND NOZZLES WITH BLIND FLANGES.

46. BOTTOM SEALING STRIP SHALL BE CONTINUOUS, AND SHALL EXTEND BETWEEN END BAFFLES.

47. HULL OF MATERIAL REEF SHEET.

48. SEALING END SHALL BE REPAIRED ON SHELL/TUBE SIDE AT 75 1/8 TO 100 INCH AND AT 300 DEG F.

49. SLIDING END SHALL BE PAINTED WITH "CAUTION : SLIDING END".

50. ALL TUBES SHALL BE COLD DRAIN, SEAMLESS, SINGLE PIECE AND IN ANNEALED CONDITION.

51. ALL TUBE HOLES SHALL HAVE CLOSE FIT AT PER TEMPA.

52.

52.

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REV	DATE	DESCRIPTION	DRN	CHKD
REVISION LIST				
COMPANY NAME				
CITY				
DRN: SSD DATE: 07-04-2025 CHKD: AKK DATE: 07-04-2025 APPD: HHR DATE: 07-04-2025 SCALE: 1/32.0 SHEET: 5		Client: ABC ENGINEERS Consultant: ABC CONSULTANTS End User: ABC COMPANIES Title : PART DETAILS		
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