Heading – dish head inspection for dish head:-

1. Template verification – as per drawing requirement
2. Material identification – asme sec 8 div 1 UG 115
3. Ovality -
4. out of roundness - ASME SEC 8 edition 2017 UG 80 (a) - 1
5. Inside diameter - as per drawing
6. Weld setup - as per drawing / wps
7. Joint configuration - as per drawing /wps
8. Welder identification – as per weld plan , weld book
9. Outside circumference – as per drawing
10. Inside circumference - as per drawing
11. Inside depth at centre - as per drawing
12. Minimum thickness at straight , knuckle , crown radius -
13. Over crowning – ASME SEC 8 edition 2017 UG 81 (a)
14. Under crowning - ASME SEC 8 edition 2017 UG 81 (a)
15. Knuckle radius deviation - ASME SEC 8 edition 2017 UG 81 (a)
16. Profile checking – as per drawing
17. Type of forming -
18. Heat treatment – drawing , ASME SEC 8 DIV1 UCS , asme sec 8 div1 UG 79 / UCS 79 as per client
19. Spin hole - ASME SEC 8 DIV1 UG-36(c)(3)(-a)
20. Visual inspection-
21. E value checking – Asme sec 8 div 1 figure ug 80.1
22. HT chart review – drawing , ASME SEC 8 DIV1 UCS ,as per client
23. MTC – as per specification , additional client requirement ie – general notes , EIL specification .
24. Visual examination on inside & outside surface for objectionable forming marks.
25. WPS , PQR ,WPQ requirements .
26. Reapair – if repair done by welding for pwht treated dish head / any heat treated than again pwht / any heat treatment has to done

Notes :-

1.straight face , height , inside diameter ,cr, kr as per drawing , deformation in template

2.heat number , plate number , material of construction , thickness , item number as per BOM , LOW STREss stamp for formed dish head , for blank plate if >6mm than do hard stamp for ferrous plate .

3.

4 , 5 - The difference between the maximum and minimum inside diameters at any cross section shall not exceed 1% of the nominal diameter at the cross section under consideration. The diameters may be measured on the inside or outside of the vessel. If

measured on the outside, the diameters shall be corrected for the plate thickness at the cross section under consideration

9 ,10. circumference should be measured from inside practically because misalignment is to be matched with id not od and thickness of shell & dish head is different .
11. height should be checked at centre but two times adjacent to spin hole in + ways .

12. thickness should be checked at each 45 degree from WL to spin hole by ut machine or utg

13, 14 - The inner surface of a tori spherical , tori conical, hemispherical, ellipsoidal head shall not deviate outside of the specified shape by more than 11/4% of D nor inside the specified shape by more than 5/8% of D, where D is the nominal inside diameter of the vessel shell at point of attachment. Such deviations shall be measured perpendicular to the specified shape.

15- Knuckle should be at least as per drawing, practically less than drawing is not acceptable as and for more than its acceptable upto 2-3mm only. Gap here indicates KR less than required.
If due to accepted over crowning gap found in knuckle by template than inspection can be done by template which contain only sf and knuckle portion .

16 . for checking profile its should be taken care to use of paint /paper/tape on template for using carbon steel template over stainless steel dish head .

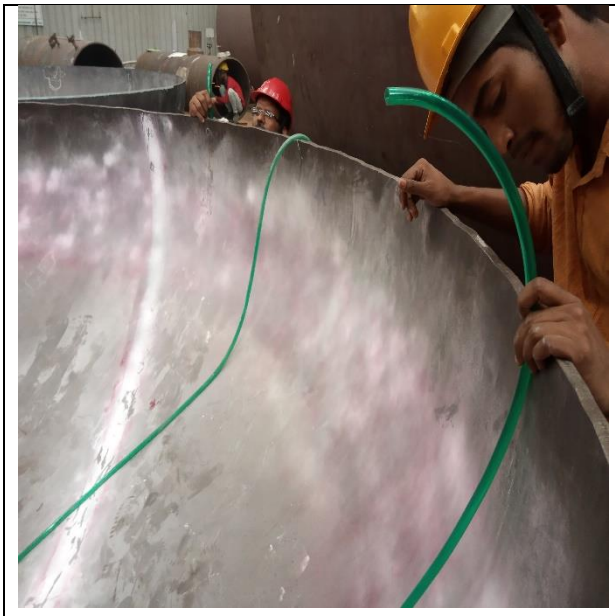
18. ask for the fibre elongation % .

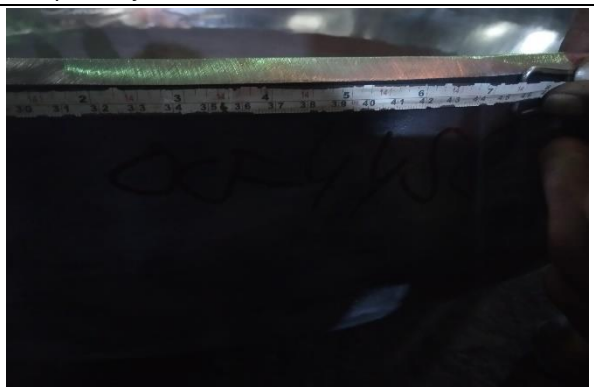
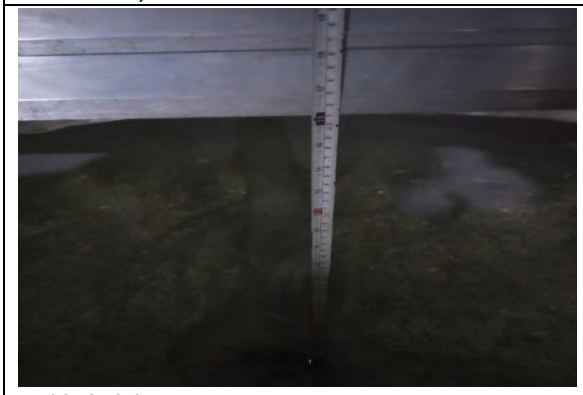
19. (89 mm) diameter — in vessel shells or heads with a required minimum thickness of 3/8 in. (10 mm) or less
(60 mm) diameter — in vessel shells or heads over a required minimum thickness of 3/8 in. (10 mm)

20 .for stainless steel visual should be done with LED light

Verify completion of heat treatment (if applicable) including simulation heat treatment & testing of the coupon.

Before trimming	Heading
 Check over crowning / undercrowning than further proceed if this ok	 Check water level of pipe
 Measurment of master point at outside / inside ,its should be same point at inside / outside	 First checked marking is done for TL
 2.Check of all internal punch by water level with one Master point	 3.Check of all external punch by water level with one Master point

 4.Cross check with 1 internal master point with all outside punch by water level	 If all previous points checked are ok than check the height from punch to centre (perpendicular)
 If above all things goes right than finally cross verify with template also for height at least + form for 2 quadrant for safe side .	 Thickness measurement if visually not accepted than after repair again show thickness
After trimming –FINAL DIMENSION	Heading
 Template layout verification	 Template layout verification

 Template layout verification	 Template layout verification
 Outside circumference	 Outside circumference
 inside diameter (0 °-45 °-90 °-135 °-180 °-225 °-270 °-315 °-360 °)	 inside diameter (0 °-45 °-90 °-135 °-180 °-225 °-270 °-315 °-360 °)
 Inside height	 Level of dish head at WL

Thickness at four quadrant

Thickness measurment

Overcrowning / undercrowing verification by template

Overcrowning / undercrowing verification by template

Over knuckle verification by template

Straight face

Bevel angle of dish head at wl

LPT at outside

	
Lpt at inside	LPT consumable manufacturer and type verification