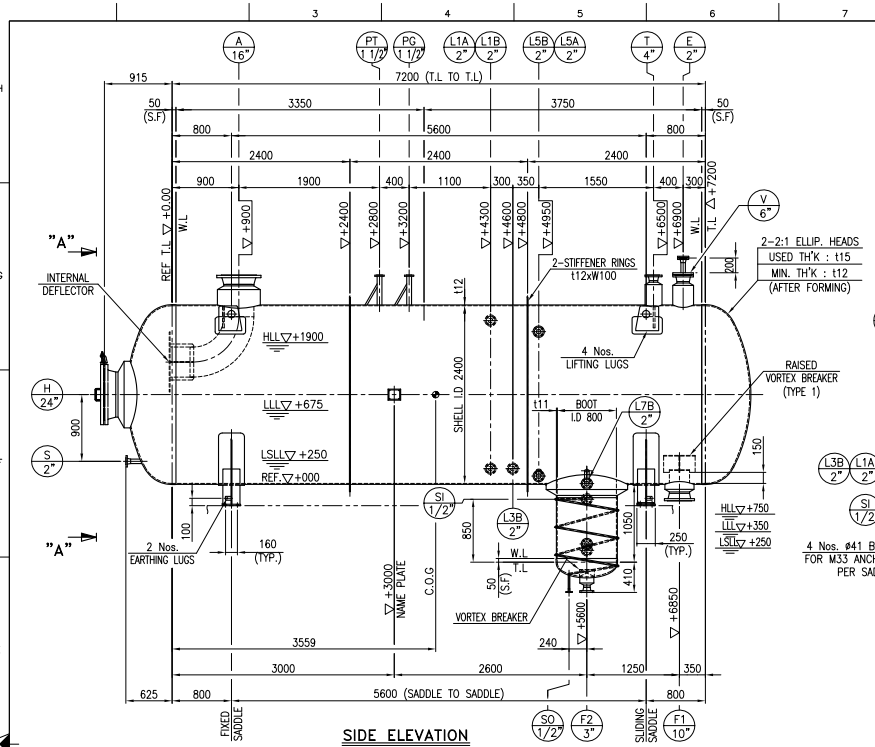
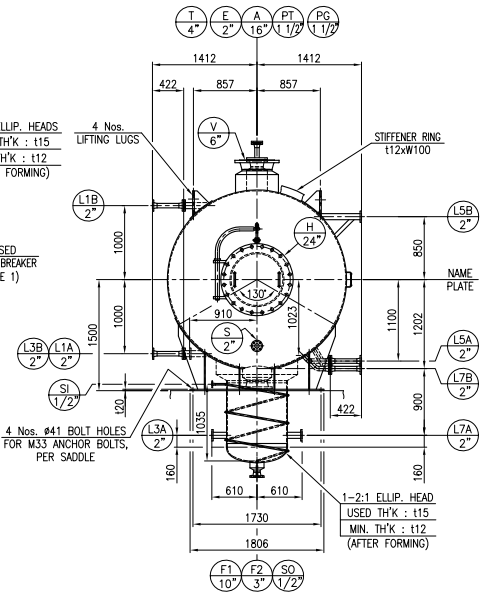
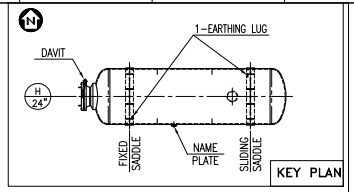



31. STEAM COIL DETAIL:

| | |
|---|---|
| SIZE | 1/2" NPS, SCH. STD, LENGTH 5m |
| PRESSURE MIN/NOR/MAX | 2.5 / 3.5 / 4.0 Kg/cm2 |
| TEMPERATURE MIN/NOR/MAX | SAT / 200 / 230 °C |
| DESIGN PRESSURE | 6.0 Kg/cm2 (g) FV @ DESIGN TEMPERATURE |
| DESIGN TEMPERATURE | 260 °C |
| PIPE MATERIAL | SA106-B |
| BOLTS/NUT FOR INTERNAL FLANGE | SA193-B7 / SA194-2H |
| FITTINGS | SA234-WPB |
| GASKET | SS SPIRAL WOUND WITH GRAPHITE FILLED, SS316L INNER & OUTER RING |
| CRROSION ALLOWANCE | 1.5mm |
| TEST PRESSURE (2* DESIGN PRESSURE.) – 12kg/cm$^2$(g) | |

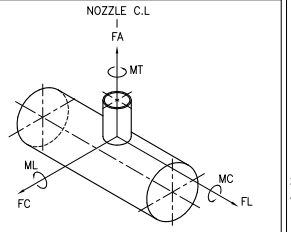
## GENERAL NOTES

1. ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE SPECIFIED.
2. VESSEL FABRICATION TOLERANCES SHALL BE IN ACCORDANCE WITH STD'D NO. 0000-000-STC-04-90-10.
3. NOZZLE FLANGE BOLT HOLES SHALL STRADDLE THE VESSEL CENTER LINES OF VESSEL OR NORTH – SOUTH C.L.
4. GASKET CONTACT SURFACE OF STANDARD FLANGE SHALL HAVE SPIRAL GROOVE IN RA 3.2~6.3 µm IN ACCORDANCE WITH ASME B16.5.
5. ALL REINFORCEMENT PADS FOR NOZZLE SHALL BE PROVIDED ONE NPT 1/4 TELL-TALE HOLES WITH HEAVY GREASE AFTER TEST. THE VENT HOLE SHALL BE LOCATED AT 45° OFF THE LONGITUDINAL AXIS OF VESSEL.
6. ANCHOR BOLTS TO BE EQUALLY SPACED, STRADDLING NORTH-SOUTH & EAST-WEST CENTERLINES.
7. SPARE PARTS
   – FOR CONSTRUCTION(SP1) : GASKET : 200%
   : BOLT & NUT : 10% (MIN. 4 SETS)
8. GASKET : t4.5 SPIRAL WOUNDED PER ASME B16.20
   – FILLER : GRAPHITE – INNER RING : 316L S.S
   – HOOP : 316L S.S – OUTER RING : C.S
9. REMOVABLE INTERNAL PARTS SHALL BE SO DESIGNED AS TO BE INSTALLED THROUGH THE MANHOLE.
10. NOZZLE PROJECTIONS SHALL BE TAKEN AS
    10-1) FROM VESSEL C.L TO FLANGE FACE FOR NOZZLES ON SHELL.
    10-2) FROM HEAD T.L TO FLANGE FACE FOR NOZZLES ON HEAD.
11. ALL WELDINGS SHALL BE CONTINUOUS UNLESS OTHERWISE SPECIFIED.
12. PAINTING & SURFACE PREPARATION SHALL BE DONE IN ACCORD. WITH PJT SPEC. 9952T-000-JSD-2310-0001 AND VHE'S PAINT & RUST PREVENTION PROCEDURE.
    – GASKET CONTACT SURFACES SHALL NOT BE COATED AND PAINTED.
13. ALL THICKNESSES SPECIFIED ON THE DRAWING ARE MINIMUM AFTER FORMING & MACHINING.
14. FLANGE UPTO 24" NB SHALL BE IN ACCORDANCE WITH ASME B16.5 AND ABOVE IN ACCORDANCE WITH ASME B16.47 SERIES "B".
15. WELD NECK FLANGE I.D SHALL MATCH WITH CORRESPONDING NOZZLE PIPE I.D.
16. ALL WELDED ATTACHMENTS TO THE EQUIPMENT SHALL BE SUPPLIED BY MANUFACTURER AND TO BE OF SAME MATERIAL AND SAME GRADE AS PRESSURE PARTS.
17. ALL SHARP CORNERS SHALL BE ROUNDED TO 3mm RADIUS (MANWAY R6mm)
18. TRANSPORTATION : VESSEL SHALL BE COMPLETELY CLEANED, PROTECTED AND PREPARED FOR SHIPMENT AS PER 9952T-000-PP-0611, SEA TRANSPORT METALLIC SADDLES SHALL BE CONSIDERED WITH RELATED LOAD DISTRIBUTION 10 ton/m2 PER SADDLE.
19. ALL INSIDE WELDS TO BE GROUND FLUSH.
20. MANHOLE SHALL BE PROVIDED WITH 3 NOS. JACK SCREW M16 OF SS 304.
21. LOCAL LOADS ANALYSIS FOR PROCESS NOZZLES SHALL BE CARRIED OUT AS PER WRC 107/297. LOAD IN ACCORDANCE WITH SPECIFICATION 9952T-000-JSD-0400-0001.
22. HYDROTEST GASKET SHALL BE SAME AS SERVICE GASKET.
23. SEA TRANSPORT METALLIC SADDLES SHALL BE ALSO SUITABLE FOR SITE HYDROTEST.
24. ALL CARBON STEEL PRESSURE PARTS TO BE KILLED AND NORMALIZED CONDITION.
25. CORROSION ALLOWANCE :
    – WELDED INTERNALS : 1 TIME THE CORROSION ALLOWANCE ON EACH SIDE.
    – CS REMOVABLE INTERNALS : 1/4 TIME THE CORROSION ALLOWANCE ON EACH SIDE.
    – SS INTERNALS : 0 mm CORROSION ALLOWANCE.
    – TOTAL C.A OF 3mm CONSIDERED FOR ANCHOR BOLTS.
26. FOR ADDITIONAL STD'D REFER SPEC. 9952T-000-STC-0490-0000-1 CONSTRUCTION STD. DRAWINGS PRESSURE EQUIPMENT.
27. EARTHQUAKE LOADS INCLUDED THE REDUCTION FACTOR OF 1.4 AS PER UBC 97 § 1612.
28. STEAM OUT CONDITIONS CHECKED IN DESIGN CONDITION WITH 0.5 kg/cm$^2$ (g) @ 230°C.
29. BOOT SHELL AND HEAD SHALL BE STEAM COIL.
30. COLD FORMED HEADS SHALL BE STRESS RELIEVED AFTER COLD FORMING.
31. ALL PRESSURE PART MATERIALS SHALL MEET THE REQUIREMENT OF 9952T-000-JSS-6300-0009 (EQUIPMENT IN WET H2S SERVICE).

**SOUR SERVICE**

**A S M E** CODE STAMPED WORK ( U )

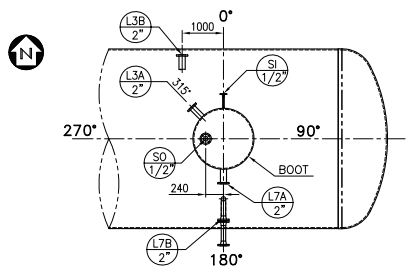
**MAXIMUM ALLOWABLE NOZZLE LOADS**




| NOZZLE NO. | FORCE (N) | | | MOMENT (N-m) | | |
|---|---|---|---|---|---|---|
| | FA | FL | FC | MT | ML | MC |
| A(16") | 15000 | 15696 | 15696 | 31392 | 25114 | 18835 |
| F1(10") | 6622 | 9810 | 9810 | 12263 | 9810 | 7358 |
| T(4") | 2649 | 3924 | 3924 | 1962 | 1570 | 1177 |
| F2(3") | 1982 | 2943 | 2943 | 1099 | 883 | 657 |
| S(2") | 1324 | 1962 | 1962 | 491 | 392 | 294 |

| | | | |
|---|---|---|---|
| ☒ | 9952T-000-STC-0490-20 | TYPICAL DETAILS VARIOUS (PAGE 4/7) | |
| ☐ | 9952T-000-STC-0490-20 | SUPPORT FOR INTERNAL DISTRIBUTOR PIPES (PAGE 5/7) | |
| ☒ | 9952T-000-STC-0490-20 | VORTEX BREAKERS (PAGE 6/7) | |
| ☐ | 9952T-000-STC-0490-20 | PLATE FLANGES FOR INTERNAL PIPES DISTRIBUTORS (PAGE 7/7) | |
| ☐ | 9952T-000-STC-0490-30 | DEAD PIECE OF MANHOLE | |
| ☒ | 0000-000-STC-0490-31 | LIFTING LUGS FOR HORIZONTAL VESSELS | |
| ☐ | 9952T-000-STC-0490-32 | OUTSIDE COILS ON HORIZONTAL VESSEL FOR STEAM TRACING OR WATER | |
| ☒ | 9952T-000-STC-0490-33 | OUTSIDE COILS ON VERTICAL VESSEL FOR STEAM TRACING OR WATER | |
| ☒ | 9952T-000-STC-0490-51 | SUPPORT GUSSETS (PAGE 1-9) | |
| | | ALGERIAN REGULATION | |
| ☒ | Circulaire n°2 of 21st July 1993 | | |
| ☒ | Décret exécutif n°90-245 of 18th August 1990 | | |
| ☐ | Décret exécutif n°90-246 of 18th August 1990 | | |
| | | REFERENCE SPECIFICATIONS (SEE MATERIAL SPECIFICATION) | |
| | NUMBER | DESIGNATION | |
| | 9952T-000-JSD-0400-0001 | JOB SPECIFICATION FOR DESIGN PRESSURE & ATMOSPHERIC EQUIPMENT | |

| | | |
|---|---|---|
| | REFERENCE STANDARD DRAWINGS | |
| | NUMBER | DESIGNATION |
| ☒ | 9952T-000-STC-0490-01 | MANUFACTURER'S NAME PLATE FOR VESSELS |
| ☒ | 0000-000-STC-0490-02 | SUPPORT SADDLES TYPE A & B (EQUIPMENT DIAMETER ≤ 3000) |
| ☐ | 0000-000-STC-0490-03 | SUPPORT SADDLES TYPE C (EQUIPMENT DIAMETER > 3000) |
| ☐ | 0000-000-STC-0490-04 | SUPPORT SADDLES FOR STACKED UNITS TYPE A (PAGE 1/3) |
| ☐ | 0000-000-STC-0490-04 | SUPPORT SADDLES FOR STACKED UNITS TYPE B (PAGE 2/3) |
| ☐ | 0000-000-STC-0490-04 | WEDGES FOR STACKED UNITS (PAGE 3/3) |
| ☒ | 0000-000-STC-0490-10 | TOLERANCES FOR HORIZONTAL EQUIPMENT |
| ☒ | 0000-000-STC-0490-11 | MANHOLES COVER SUPPORTS |
| ☐ | 0000-000-STC-0490-12 | MANHOLES AND HANDHOLES HINGES |
| ☐ | 0000-000-STC-0490-14 | HOT INSULATION SUPPORT FOR HORIZONTAL VESSELS (PAGE 2/3) |
| ☐ | 0000-000-STC-0490-16 | COLD INSULATION SUPPORT |
| ☒ | 9952T-000-STC-0490-20 | EARTH LUGS (PAGE 1/7) |
| ☒ | 9952T-000-STC-0490-20 | PROJECTION OF NOZZLES ON PLATFORMS- ERGONOMIC STD (PAGE 2/7) |
| ☒ | 9952T-000-STC-0490-20 | PROJECTION OF NOZZLES (PAGE 3/7) |




**BOOT DETAIL** (PLAN VIEW)

| REF. DWG. | DRAWING NAME |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| 11C0067-24-14 | PIPE SUPPORT CLIP DETAIL |
| 11C0067-24-13 | LADDER & P/F CLIP DETAIL |
| 11C0067-24-12 | DEVELOPMENT DETAIL |
| 11C0067-24-11 | NAME PLATE DETAIL |
| 11C0067-24-10 | FIRE PROOFING DETAIL |
| 11C0067-24-09 | |
| 11C0067-24-08 | |
| 11C0067-24-07 | STEAM COIL DETAIL |
| 11C0067-24-06 | NOZZLE DETAIL (4/4) |
| 11C0067-24-05 | NOZZLE DETAIL (3/4) |
| 11C0067-24-04 | NOZZLE DETAIL (2/4) |
| 11C0067-24-03 | NOZZLE DETAIL (1/4) |
| 11C0067-24-02 | BODY DETAIL |

| MATERIAL LIST | | |
|---|---|---|
| SHELL/HEADS | | SA516-60N+HIC |
| BOOT SHELL/HEAD | | SA516-60N+HIC |
| FLANGE (FORGING) & BLINDS | | SA105N |
| NOZZLE NECK | PIPE | SA106-B |
| | PLATE | SA516-60N+HIC |
| | FITTINGS | SA234-WPB |
| SADDLES WRAPPER PLATE | | SA516-60N |
| SADDLES | | SA283-C |
| INTERNAL ATTACHMENTS | | SA516-60N |
| EXTERNAL ATTACHMENTS | | SA516-60N |
| INTERNAL REMOVABLE | | – |
| BOLT / NUT | EXTERNAL | SA193-B7M / SA194-2HM |
| | INTERNAL | SA193-B8 / SA194-8 |
| GASKET | EXTERNAL | SEE NOTE 8 |
| | INTERNAL | – |
| NAMEPLATE / BRACKET | | 304 S.S / SA516-60N |
| ANCHOR BOLT / NUT | | S355 |

| MARK | REQ'D NO. | SIZE | SCH. NO. | FLANGE RATING | DIA. REINF. | THK. REINF. | SERVICE | PROJECTION FROM VESSEL CL |
|---|---|---|---|---|---|---|---|---|
| SO | 1 | 1/2" | STD | ASME 150# WN.RF | – | – | STEAM TRACED OUTLET | SEE DWG. |
| SI | 1 | 1/2" | STD | ASME 150# WN.RF | – | – | STEAM TRACED INLET | 610 |
| PG | 1 | 1 1/2" | – | ASME 150# LWN.RF | – | – | PRESSURE GAUGE | 1615 |
| PT | 1 | 1 1/2" | – | ASME 150# LWN.RF | – | – | PRESSURE TRANSMITTER | 1615 |
| L7B | 1 | 2" | XXS | ASME 150# WN.RF | – | – | LEVEL TRANSMITTER | SEE DWG. |
| L7A | 1 | 2" | – | ASME 150# LWN.RF | – | – | LEVEL TRANSMITTER | SEE DWG. |
| L5B | 1 | 2" | – | ASME 150# LWN.RF | – | – | LEVEL TRANSMITTER | SEE DWG. |
| L5A | 1 | 2" | XXS | ASME 150# WN.RF | – | – | LEVEL TRANSMITTER | SEE DWG. |
| L3B | 1 | 2" | – | ASME 150# LWN.RF | – | – | LEVEL GAUGE/TRANSMITTER | 910 |
| L3A | 1 | 2" | – | ASME 150# LWN.RF | – | – | LEVEL GAUGE/TRANSMITTER | SEE DWG. |
| L1B | 1 | 2" | – | ASME 150# LWN.RF | – | – | LEVEL GAUGE/TRANSMITTER | SEE DWG. |
| L1A | 1 | 2" | – | ASME 150# LWN.RF | – | – | LEVEL GAUGE/TRANSMITTER | SEE DWG. |
| H | 1 | 24" | t14 | ASME 150# WN.RF | 850 | 134.2 | MANHOLE (W/B.F & DAVIT) | SEE DWG. |
| V | 1 | 6" | XS | ASME 150# WN.RF | 280 | 66.85 | VENTILATION NOZZLE (W/B.F) | 1615 |
| | | | | | | | | |
| E | 1 | 2" | XXS | ASME 150# WN.RF | – | – | VENT (W/B.F) | SEE DWG. |
| S | 1 | 2" | – | ASME 150# LWN.RF | – | – | STEAMOUT | SEE DWG. |
| F2 | 1 | 3" | XXS | ASME 150# WN.RF | 190 | 65.75 | WATER OUTLET (W/VORTEX BREAKER) | SEE DWG. |
| T | 1 | 4" | 120 | ASME 150# WN.RF | 230 | 68.95 | VAPOR OUTLET | 1615 |
| F1 | 1 | 10" | XS | ASME 150# WN.RF | 407 | 79.65 | OIL OUTLET (W/VORTEX BREAKER) | 1435 |
| A | 1 | 16" | XS | ASME 150# WN.RF | 650 | 134.5 | INLET (W/INTERNAL DEFLECTOR) | 1615 |

NOZZLE TABLE

| VESSEL DESIGN DATA | | | | |
|---|---|---|---|---|
| CODE | ASME SEC. VIII DIV. 1 2010 EDITION & ALGERIAN DECREE 90-245 | | | |
| FLUID | HC+H2O+H2S | | TYPE | SADDLE |
| DENSITY | 640 / 645 kg/m$^3$ | | VOLUME | 36.8 M$^3$ |
| INT. DESIGN PRESS. | 5.3 (SEE NOTE 28) kg/cm$^2$G | | U-STAMP | YES |
| INT. DESIGN TEMP. | 90 °C | | | |
| EXT. DESIGN PRESSURE | FV kg/cm$^2$G | | LETHAL SERVICE | NO |
| EXT. DESIGN TEMP. | 90 °C | | CYCLIC SERVICE | NO |
| OPERATING PRESSURE | 2.7 kg/cm$^2$G | | AMINE SERVICE | NO |
| OPERATING TEMPERATURE | 50 / 60 °C | | HYDROGEN SERVICE | NO |
| M.A.W.P (HOT & CORR.) | 5.3 kg/cm$^2$G | | CAUSTIC SERVICE | NO |
| TEST PRESSURE HYDRO-STATIC / SHOP FIELD | 7.95 kg/cm$^2$G | | WET H2S SERVICE | NO |
| | 7.95 kg/cm$^2$G | | SOUR SERVICE | YES |
| RADIOGRAPHED (S/H) | FULL | | | |
| JOINT EFFICIENCY (S/H) | 1 | | | |
| P.W.H.T | YES | | | |
| CORROSION ALLOWANCE | 3 (VESSEL) / 6 (BOOT) (SEE NOTE 25) mm | | | |
| INSULATION | NO mm | | WEIGHT (KG) | |
| FIREPROOFING | 50 mm | | FABRICATION | 9839 |
| M.D.M.T (AT DESIGN PRESSURE) | 1 °C | | ERECTION | 9839 |
| PAINTING | (SEE NOTE 12) | | EMPTY | 9839 |
| WIND CODE/BASIC WIND SPEED | RNV99 (BASIC WIND SPEED 25 m/s) | | OPERATING | 33835 |
| EATHQUAKE CODE | UBC 1997 (ZONE 4, I=1.25, CAT.=2 , Na=1.18, Nv=1.44, R=2.2) | | TEST (SHOP) | 46688 |
| SNOW DESIGN CODE | RNV 99 | | TEST (FIELD) | 46688 |

| REV | DATE | STATUS – DESCRIPTION | DRWN | CHKD | APPD | APPD BY OWNER |
|---|---|---|---|---|---|---|
| | | | | | | |