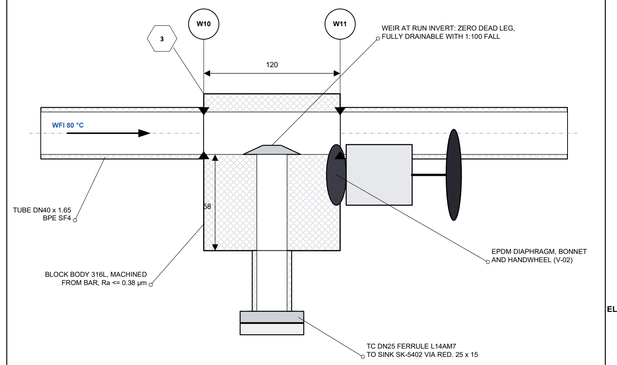
N

UP

E

PLANT NORTH

## DETAIL A - ZDL VALVE V-02 WELDED IN LOW RUN (SECTION, NTS)




SECTION ON THE RUN CENTRE LINE, LOOKING NORTH. THE SAME ARRANGEMENT APPLIES TO V-01 (ACTUATED) AND V-03 (DN15 OUTLET).
DEAD LEG CHECK: L / D = 0 AT THE SEAT (ASME BPE LIMIT L / D <= 2).




## BILL OF MATERIALS - OB-A7-ISO-5801-02

| PT | QTY | DESCRIPTION | SIZE | MATERIAL / STANDARD | CERT / HEAT |
|---|---|---|---|---|---|
| 1 | 21.4 m | TUBE, ORBITAL WELD, 1.65 WALL, SF4 ID FINISH | DN40 | 316L EP, ASME BPE | EN 10204 3.1 / H-44821 |
| 2 | 6 | ELBOW 90° LONG TANGENT, BUTT WELD | DN40 | 316L EP, BPE 2CL | 3.1 / H-44907 |
| 3 | 3 | ZDL VALVE BODY, BLOCK, EPDM DIAPHRAGM | 40 x 25 | 316L EP, BPE | 3.1 / VB-2291 |
| 4 | 1 | DIAPHRAGM VALVE, MANUAL, BW x TC | DN15 | 316L EP, BPE | 3.1 / VB-2310 |
| 5 | 1 | ACTUATOR, PNEUMATIC, FC, PROXIMITY FEEDBACK | DN25 | SS / PPS | CoC |
| 6 | 1 | REDUCER CONCENTRIC, BUTT WELD | 25 x 15 | 316L EP, BPE | 3.1 / H-44930 |
| 7 | 3 | INSTRUMENT TEE, SHORT OUTLET, TRI-CLAMP | 40 x 1/2 in | 316L EP, BPE | 3.1 / H-44952 |
| 8 | 12 | FERRULE, TRI-CLAMP, L14AM7 | DN40/25/15 | 316L EP | 3.1 / H-44960 |
| 9 | 6 | GASKET, TRI-CLAMP, PLATINUM-CURED SILICONE | VARIOUS | USP CLASS VI | CoC / LOT 7731 |
| 10 | 6 | CLAMP, 2-PIECE, WING NUT | VARIOUS | 304 | CoC |
| 11 | 4 | PIPE GUIDE, CLAMP-ON, PTFE LINED | DN40 | 316 / PTFE | CoC |
| 12 | 1 | ANCHOR, WELDED LUG + BASE PLATE | DN40 | 316L | 3.1 / P-1182 |
| 13 | 1 | HANGER, ROD M10 + CLEVIS | DN40 | 316 | CoC |
| 14 | 18 m | INSULATION 25 mm + SS CLADDING (IH) | DN40 | MINERAL WOOL / 316 | CoC |
| 15 | 8 | LINE ID LABEL / FLOW ARROW | - | PVC FREE | - |

## CUT LIST (TUBE ONLY, INCLUDES 3 mm WELD GAP, SAW CUT + FACE)

| SPOOL | PC | FROM - TO | CUT LENGTH mm | END PREP | WELDS |
|---|---|---|---|---|---|
| SP-01 | 1 | MATCH LINE ISO-5801-01 - ELBOW 1 (A1) | 2 447 | FERRULE / SQ | W1 |
| SP-02 | 2 | ELBOW 1 - FIELD CLOSURE (CEILING) | 241 | SQ / SQ | W2, W3 (F) |
| SP-02 | 3 | FIELD CLOSURE - PT-5811 TEE | 552 | SQ / SQ | W3 (F), W4 |
| SP-02 | 4 | PT-5811 TEE - ELBOW 2 (B1) | 722 | SQ / SQ | W5, W6 |
| SP-03 | 5 | ELBOW 2 - ZDL V-01 (POU-5813) | 322 | SQ / SQ | W7, W8 |
| SP-03 | 6 | ZDL V-01 - ZDL V-02 (POU-5811) | 297 | SQ / SQ | W9, W10 |
| SP-03 | 7 | ZDL V-02 - ZDL V-03 (SV-5812) | 222 | SQ / SQ | W11, W12 |
| SP-03 | 8 | ZDL V-03 - DRAIN TEE (C1) | 222 | SQ / SQ | W13, W14 |
| SP-03 | 9 | DRAIN TEE - DRAIN VALVE V-04 (DN15) | 215 | SQ / TC | W15 |
| SP-04 | 10 | DRAIN TEE - FIELD CLOSURE (CEILING) | 1 522 | SQ / SQ | W16, W17 (F) |
| SP-04 | 11 | FIELD CLOSURE - ELBOW 3 (D1) | 67 | SQ / SQ | W17 (F), W18 |
| SP-04 | 12 | ELBOW 3 - ELBOW 4 (E1) | 1 497 | SQ / SQ | W19, W20 |
| SP-05 | 13 | ELBOW 4 - TE-5812 TEE | 1 187 | SQ / SQ | W21, W22 |
| SP-05 | 14 | CE-5813 TEE - ELBOW 5 (F1) | 485 | SQ / SQ | W23, W24 |
| SP-05 | 15 | ELBOW 5 - MATCH LINE ISO-5801-03 | 1 047 | SQ / FERRULE | W25 |

## WELD LOG (ORBITAL GTAW, ASME BPE MJ; FIELD WELDS FLAGGED ON THE ISOMETRIC)

| WELD | TYPE | SPOOL | SIZE | JOINT | WPS | WELDER | COUPON | BORESCOPE | RT | STATUS |
|---|---|---|---|---|---|---|---|---|---|---|
| W1 | SHOP | SP-01 | DN40 | TUBE - ELBOW 1 | WPS-OB-07 | W-11 | C-01 | ACC 100 % | ACC | RELEASED |
| W2 | SHOP | SP-02 | DN40 | ELBOW 1 - TUBE | WPS-OB-07 | W-13 | C-01 | ACC 100 % | - | RELEASED |
| W3 | FIELD | SP-02 | DN40 | CLOSURE AT CEILING | WPS-OB-09 | W-15 | C-02 | ACC 100 % | ACC | PENDING |
| W4 | SHOP | SP-02 | DN40 | TUBE - PT TEE | WPS-OB-07 | W-12 | C-02 | ACC 100 % | - | RELEASED |
| W5 | SHOP | SP-02 | DN40 | PT TEE - TUBE | WPS-OB-07 | W-14 | C-03 | ACC 100 % | - | RELEASED |
| W6 | SHOP | SP-02 | DN40 | TUBE - ELBOW 2 | WPS-OB-07 | W-11 | C-03 | ACC 100 % | ACC | RELEASED |
| W7 | SHOP | SP-03 | DN40 | ELBOW 2 - TUBE | WPS-OB-07 | W-13 | C-04 | ACC 100 % | - | RELEASED |
| W8 | SHOP | SP-03 | DN40 | TUBE - ZDL V-01 | WPS-OB-07 | W-15 | C-04 | ACC 100 % | - | RELEASED |
| W9 | SHOP | SP-03 | DN40 | ZDL V-01 - TUBE | WPS-OB-07 | W-12 | C-05 | ACC 100 % | - | RELEASED |
| W10 | SHOP | SP-03 | DN40 | TUBE - ZDL V-02 | WPS-OB-07 | W-14 | C-05 | ACC 100 % | - | RELEASED |
| W11 | SHOP | SP-03 | DN40 | ZDL V-02 - TUBE | WPS-OB-07 | W-11 | C-06 | ACC 100 % | ACC | RELEASED |
| W12 | SHOP | SP-03 | DN40 | TUBE - ZDL V-03 | WPS-OB-07 | W-13 | C-06 | ACC 100 % | - | RELEASED |
| W13 | SHOP | SP-03 | DN40 | ZDL V-03 - TUBE | WPS-OB-07 | W-15 | C-07 | ACC 100 % | - | RELEASED |
| W14 | SHOP | SP-03 | DN40 | TUBE - DRAIN TEE | WPS-OB-07 | W-12 | C-07 | ACC 100 % | - | RELEASED |
| W15 | SHOP | SP-03 | DN15 | TEE - DRAIN | WPS-OB-07 | W-14 | C-08 | ACC 100 % | - | RELEASED |
| W16 | SHOP | SP-04 | DN40 | TEE - RISER | WPS-OB-07 | W-11 | C-08 | ACC 100 % | ACC | RELEASED |
| W17 | FIELD | SP-04 | DN40 | CLOSURE AT CEILING | WPS-OB-09 | W-13 | C-09 | ACC 100 % | ACC | PENDING |
| W18 | SHOP | SP-04 | DN40 | TUBE - ELBOW 3 | WPS-OB-07 | W-15 | C-09 | ACC 100 % | - | RELEASED |
| W19 | SHOP | SP-04 | DN40 | ELBOW 3 - TUBE | WPS-OB-07 | W-12 | C-10 | ACC 100 % | - | RELEASED |
| W20 | SHOP | SP-04 | DN40 | TUBE - ELBOW 4 | WPS-OB-07 | W-14 | C-10 | ACC 100 % | - | RELEASED |
| W21 | SHOP | SP-05 | DN40 | ELBOW 4 - TUBE | WPS-OB-07 | W-11 | C-11 | ACC 100 % | ACC | RELEASED |
| W22 | SHOP | SP-05 | DN40 | TUBE - TE TEE | WPS-OB-07 | W-13 | C-11 | ACC 100 % | - | RELEASED |
| W23 | SHOP | SP-05 | DN40 | CE TEE - TUBE | WPS-OB-07 | W-15 | C-12 | ACC 100 % | - | RELEASED |
| W24 | SHOP | SP-05 | DN40 | TUBE - ELBOW 5 | WPS-OB-07 | W-12 | C-12 | ACC 100 % | - | RELEASED |
| W25 | SHOP | SP-05 | DN40 | ELBOW 5 - TUBE | WPS-OB-07 | W-14 | C-13 | ACC 100 % | - | RELEASED |

## LINE DATA

| | |
|---|---|
| LINE | DN40-WFI-5802-S3A-IH |
| SERVICE | WFI HOT LOOP 2, 80 °C, TURBULENT > 1 m/s |
| PIPING CLASS | S3A - 316L EP, ORBITAL WELD, BPE SF4 |
| DESIGN | 6 barg / 150 °C (SIP) |
| OPERATING | 4 barg / 80 °C |
| TEST | HYDROSTATIC 9 barg WITH WFI, 30 min |
| INSULATION | IH - 25 mm MINERAL WOOL, 316 CLADDING |
| SLOPE | 1:100 MIN TO LOW POINT DRAIN V-04 |
| PASSIVATION | CITRIC ACID, ASTM A967, AFTER HYDROTEST |
| P&ID | OB-A7-PID-5102 (DROP), UTL-5001 (LOOP) |
| INSPECTION | 100 % BORESCOPE, 20 % RT + ALL FIELD WELDS |

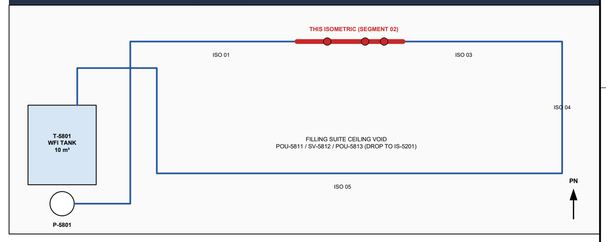
## NOTES

1. DIMENSIONS IN mm TO PIPE CENTRE LINES; ELEVATIONS ABOVE FFL +0.000.
2. ORBITAL GTAW TO WPS-OB-07 (SHOP) / WPS-OB-09 (FIELD); FIELD CLOSURES W3 AND W17 AT THE CEILING (FLAGGED).
3. LOOP DRAINS TO LOW POINT C1 (DRAIN V-04); 1:100 FALL ON THE CEILING RUNS AND THE LOW RUN.
4. ZERO DEAD LEG (ZDL) BLOCK VALVES V-01 TO V-03 WELDED IN THE LOW RUN; NO BRANCH > 2D BEFORE A SEAT.
5. WELD NUMBERS IN CIRCLES; BOM PIECE MARKS IN HEXAGONS; SPOOL NUMBERS IN OVALS.
6. THE LOOP DROPS THROUGH THE CEILING TO THE FILLER; POU-5813 FEEDS IS-5201 (VENDOR DRAWING VP-5201-104).
7. ILLUSTRATIVE SPECIMEN: ALL TAGS, NUMBERS AND DATA ARE FICTIONAL.

## ISOMETRIC SYMBOLS

- SHOP WELD
- TRI-CLAMP JOINT
- FIELD WELD (FLAG)
- PIPE GUIDE / ANCHOR / HANGER
- W7 — WELD NUMBER
- FLOW ARROW
- 3 — BOM PIECE MARK
- SLOPE 1:100 (FALL)
- ZDL DIAPHRAGM VALVE, MANUAL
- SP-03 — SPOOL NUMBER
- DIAPHRAGM VALVE, PNEUMATIC
- CEILING PENETRATION SLEEVE
- CONCENTRIC REDUCER
- MATCH — MATCH LINE

## KEY PLAN - WFI LOOP 2 IN CEILING VOID (PLAN, NTS)




| REV | DATE | DESCRIPTION | BY | CHK | APPR |
|---|---|---|---|---|---|
| 0 | 2026-07-14 | ISSUED FOR DESIGN | RD | MIB | TV |
| B | 2026-05-22 | ISSUED FOR HAZOP | RD | MIB | TV |
| A | 2026-03-06 | ISSUED FOR INTERNAL REVIEW | RD | MIB | TV |

ORYVIA BIOLOGICS SA
STERILE DRUG PRODUCT MANUFACTURING

AURELIA SITE - BUILDING 7
FILL / FINISH LINE 5 - PROJECT 24-0317

DATE: 2026-09-24

DRAWING TITLE

# PIPING ISOMETRIC - WFI DISTRIBUTION LOOP

## LOOP 2, SEGMENT 02 AND DROP TO FILLER IS-5201 - FILLING SUITE CEILING VOID

LINE DN40-WFI-5802-S3A-IH

| DRAWN | CHECKED | PROCESS APPROVAL | QA APPROVAL | ENGINEERING CONTRACTOR |
|---|---|---|---|---|
| R. DELACOUR 2026-09-24 | M. ISHIKAWA-BRENT 2026-09-24 | T. VANHOUTE 2026-09-24 | S. ABERKANE 2026-09-24 | VELDRAN ENGINEERING PARTNERS |

ILLUSTRATIVE DOCUMENT - NOT FOR CONSTRUCTION

| DRAWING NUMBER | REV | SHEET | SCALE | SIZE |
|---|---|---|---|---|
| OB-A7-ISO-5801-02 | 0 | 2 OF 5 | NTS | ANSI D |