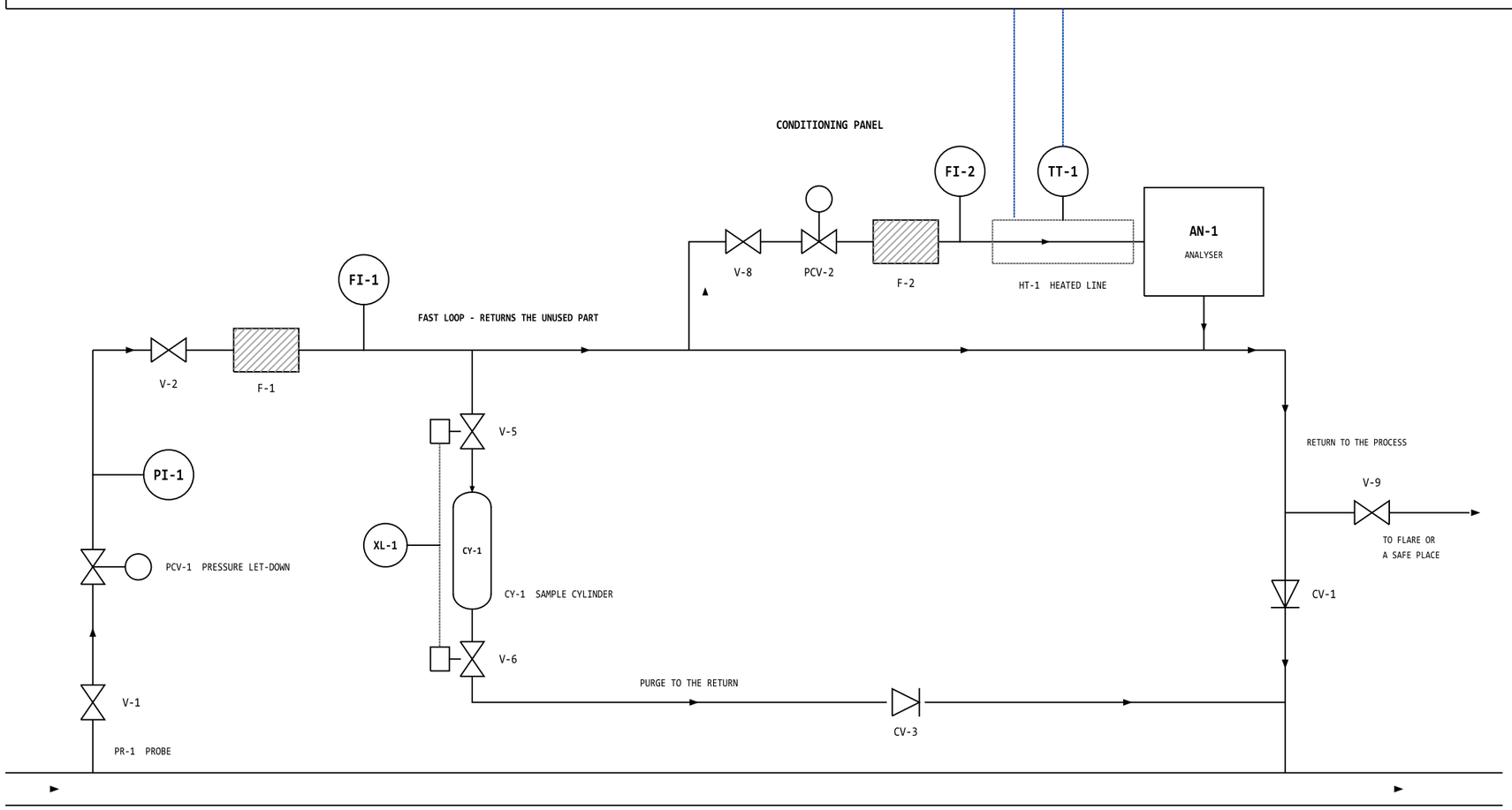
TIC-1 HEAT-TRACE CONTROLLER

HEATS THE CONDITIONING LINE ABOVE THE TEMPERATURE AT WHICH THE VAPOUR DROPS OUT - READINGS: FLOW, PRESSURE, TEMPERATURE - EACH SAMPLE ON RECORD



CLOSED SAMPLING SYSTEM - PROCESS AND INSTRUMENT SCHEMATIC

NOT TO SCALE - TAGS ONLY, NO PROCESS VALUES

LEGEND

- PIPE OR TUBE
- XX-1 INSTRUMENT (TAG)
- INTERLOCK LINK
- VALVE
- FILTER
- CHECK VALVE
- HEATED LINE
- SAMPLE CYLINDER
- SIGNAL

HOLDS AND RELEASES

CAUSE	EFFECT
TT-1 LINE BELOW ITS LIMIT	ALARM, HOLD THE SAMPLE
FI-1 LOOP FLOW LOW	ALARM, THE SAMPLE IS OLD
FI-2 FLOW LOW AT AN-1	ALARM, CLOSE V-8
PI-1 PRESSURE HIGH AT THE TAP	ALARM, CLOSE V-1
XL-1 ORDER NOT FOLLOWED	THE HANDLE WILL NOT MOVE

NOTES

1. REFERENCE SCHEMATIC OF A CLOSED SAMPLING SYSTEM. TAGS ONLY: NO PRESSURE, TEMPERATURE, FLOW, TIME OR SIZE VALUE IS GIVEN.
2. PR-1 REACHES INTO THE LIVE STREAM, AND THE TAP IS WHERE THE FLOW IS. PCV-1 LETS THE PRESSURE DOWN AT THE TAP, WHICH SHORTENS THE DELAY AND SHRINKS THE VOLUME IN THE LINE. PI-1 READS THE PRESSURE THERE.
3. THE FAST LOOP KEEPS THE STREAM MOVING PAST THE SAMPLING POINT AND RETURNS THE UNUSED PART TO THE PROCESS THROUGH CV-1. THE RETURN POINT IS AT A LOWER PRESSURE THAN THE TAP, SO THAT THE LOOP FLOWS. F-1 IS SMALL AND KEPT IN THE FLOW.
4. CY-1 IS FILLED THROUGH CLOSED LINES. WITH V-5 AND V-6 OPEN THE STREAM FLOWS THROUGH IT AND PURGES IT, AND WHAT IS FLUSHED OUT GOES TO THE RETURN THROUGH CV-3. V-6 AND THEN V-5 ARE CLOSED TO HOLD THE SAMPLE.
5. XL-1 INTERLOCKS THE HANDLES OF V-5 AND V-6, SO THAT THE STEPS CAN ONLY BE TAKEN IN ORDER: A CYLINDER IS NEVER FILLED BEFORE IT IS PURGED.
6. THE CONDITIONING PANEL TAKES A SAMPLE AT T2 FOR AN-1. V-8 ISOLATES IT, PCV-2 SETS THE PRESSURE, F-2 FILTERS, AND FI-2 SHOWS THE FLOW. THE SAMPLE LEAVES AN-1 TO THE LOOP DOWNSTREAM, NEVER TO THE ROOM.
7. HT-1 IS HEATED SO THAT THE SAMPLE STAYS ABOVE THE TEMPERATURE AT WHICH A VAPOUR DROPS OUT. TT-1 READS ITS TEMPERATURE AND TIC-1 HOLDS IT. WHERE THE STREAM IS HOT THE LINE IS COOLED INSTEAD.
8. V-9 SENDS THE RETURN TO A FLARE OR A SAFE PLACE WHEN IT CANNOT GO BACK TO THE PROCESS. IT IS KEPT CLOSED OTHERWISE.
9. CYLINDERS, VALVES, REGULATORS, FILTERS, FLOW METERS, HEATERS AND ANALYSERS ARE CATALOGUE ITEMS, BOUGHT IN.
10. FOR REFERENCE SEE ASTM D3700. AREA CLASSIFICATION AND THE CERTIFICATION OF ELECTRICAL PARTS COME FROM THE CUSTOMER'S OWN HAZARDOUS-AREA DESIGN.

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
ENGINEERED IN NOIDA - INDIA

CLOSED SAMPLING SYSTEM - REFERENCE CONFIGURATION

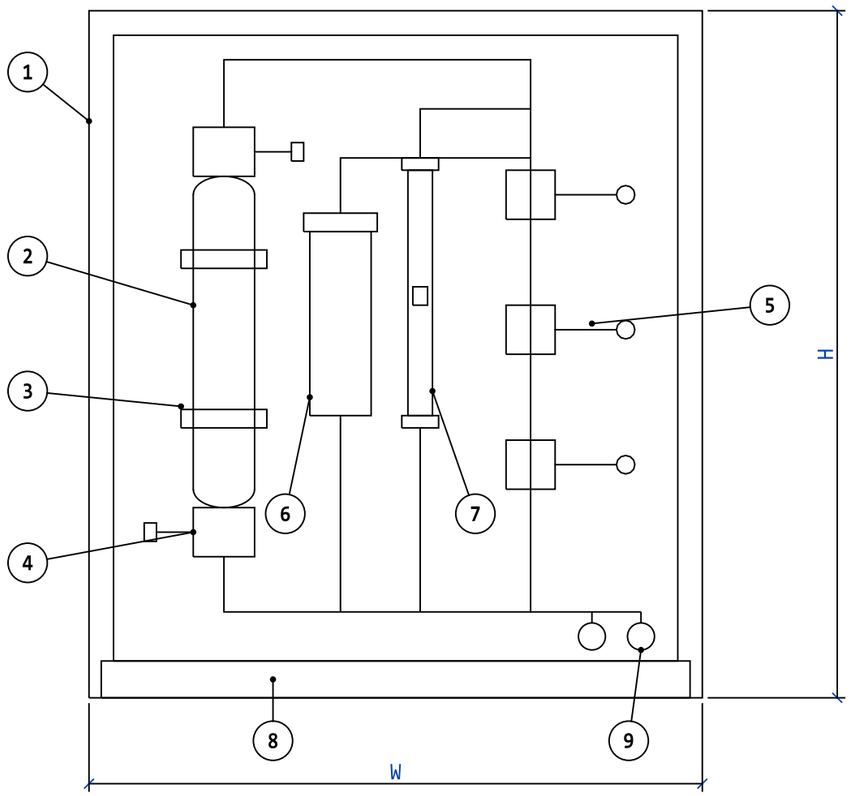
PROCESS AND INSTRUMENT SCHEMATIC

TAP, FAST LOOP, CYLINDER STATION, CONDITIONING PANEL AND RETURN

DWG NO	SCALE @ A3	SHEET	REV
NMX-CSM-90-001	NTS	1 OF 2	A
DATE	UNITS	DRAWN	STATUS
03-11-2026	TAGS ONLY	NMX-DO	REFERENCE

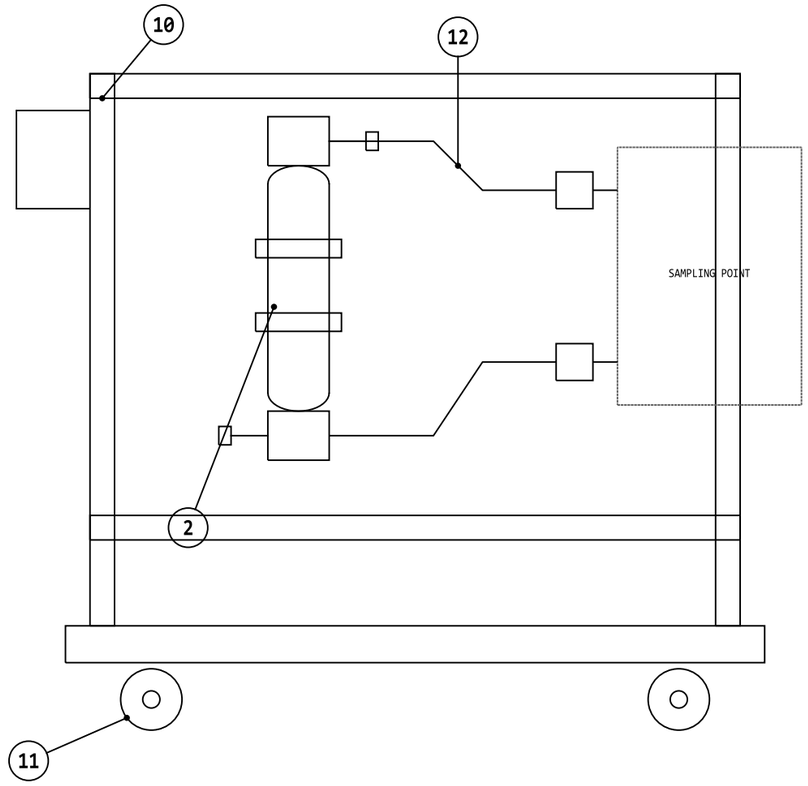
ELEVATION - CLOSED LIQUID SAMPLING STATION

NOT TO SCALE



ELEVATION - MOBILE CLOSED SAMPLING CART

NOT TO SCALE



NOTES

1. REFERENCE ARRANGEMENT OF A CLOSED LIQUID SAMPLING STATION AND OF A MOBILE CLOSED SAMPLING CART. THE LETTERS ARE DIMENSIONS OR TIMES SET BY DESIGN: NO PRESSURE, TEMPERATURE, FLOW, TIME OR SIZE VALUE IS GIVEN.
2. H AND W ARE THE HEIGHT AND THE WIDTH OF THE STATION FRAME. T1 AND T2 IN DETAIL A ARE THE LAG OF A LONG LINE AND OF A FAST LOOP.
3. DETAIL A: A LONG LINE MAKES THE SAMPLE OLD BEFORE IT ARRIVES. A FAST LOOP KEEPS THE STREAM MOVING PAST THE SAMPLING POINT, SO THE LAG IS SHORT AND THE SAMPLE IS OF THE PROCESS NOW.
4. DETAIL B: THE STEPS IN ORDER. XL-1 INTERLOCKS THE HANDLES OF V-5 AND V-6 SO THAT THEY CAN ONLY BE MOVED IN THIS ORDER.
5. DETAIL C: A FLOATING-PISTON CYLINDER HOLDS A LIQUID SAMPLE UNDER PRESSURE. THE SAMPLE PUSHES THE PISTON AGAINST A PRE-CHARGE, SO THAT ITS LIGHT COMPONENTS STAY IN IT. SEE ASTM D3700.
6. THE STATION HAS A DRIP TRAY AND ROOM FOR THE HANDS. THE CART CARRIES THE SAME KIND OF STATION ON CASTORS AND JOINS A SAMPLING POINT BY CLOSED HOSES, SO THAT THE PURGE GOES BACK TO THE RETURN AT THAT POINT.
7. THE PROCESS SCHEMATIC, THE INSTRUMENTS AND THE HOLDS AND RELEASES ARE ON SHEET 001. CATALOGUE ITEMS ARE BOUGHT IN.

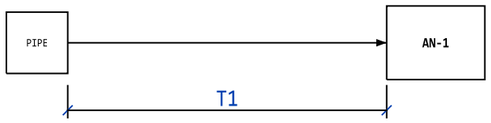
ITEMS

ITEM	DESCRIPTION
1	FRAME AND BACK PANEL
2	SAMPLE CYLINDER
3	CYLINDER CLAMP
4	END VALVE BLOCK
5	THREE-WAY VALVE MANIFOLD
6	FILTER
7	FLOW METER
8	DRIP TRAY
9	BULKHEAD FITTINGS
10	CART FRAME AND HANDLE
11	CASTORS
12	CLOSED HOSE AND COUPLING

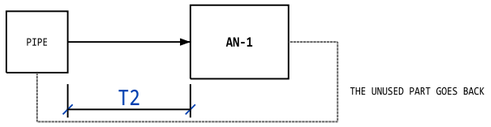
DETAIL A - THE LAG

NOT TO SCALE

A LONG LINE: A SAMPLE OF THE PAST



A FAST LOOP: A SAMPLE OF NOW



DETAIL B - THE ORDER OF THE STEPS

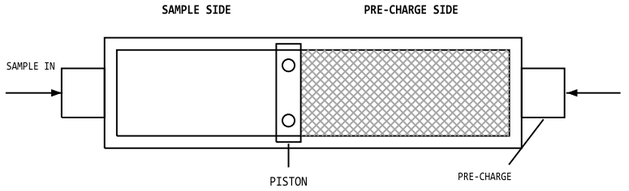
NOT TO SCALE

STEP	V-5	V-6	CY-1
PURGE	OPEN	OPEN	FLOWS THROUGH
FILL	OPEN	SHUT	FILLED
ISOLATE	SHUT	SHUT	HELD
REMOVE	SHUT	SHUT	TO THE LAB

XL-1 LETS THE HANDLES MOVE ONLY IN THIS ORDER.
THE OUTLET IS CLOSED BEFORE THE INLET. ORDER SET BY DESIGN.

DETAIL C - THE FLOATING-PISTON CYLINDER

NOT TO SCALE



THE SAMPLE PUSHES THE PISTON AGAINST THE PRE-CHARGE,
SO THAT ITS LIGHT COMPONENTS STAY IN IT.

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
ENGINEERED IN NOIDA - INDIA

CLOSED SAMPLING SYSTEM - REFERENCE CONFIGURATION

GENERAL ARRANGEMENT AND DETAILS

STATION, CART, THE LAG, THE ORDER OF THE STEPS AND THE CYLINDER

DWG NO	SCALE @ A3	SHEET	REV
NMX-CSM-90-002	NTS	2 OF 2	A
DATE	UNITS	DRAWN	STATUS
03-11-2026	TAGS ONLY	NMX-DO	REFERENCE