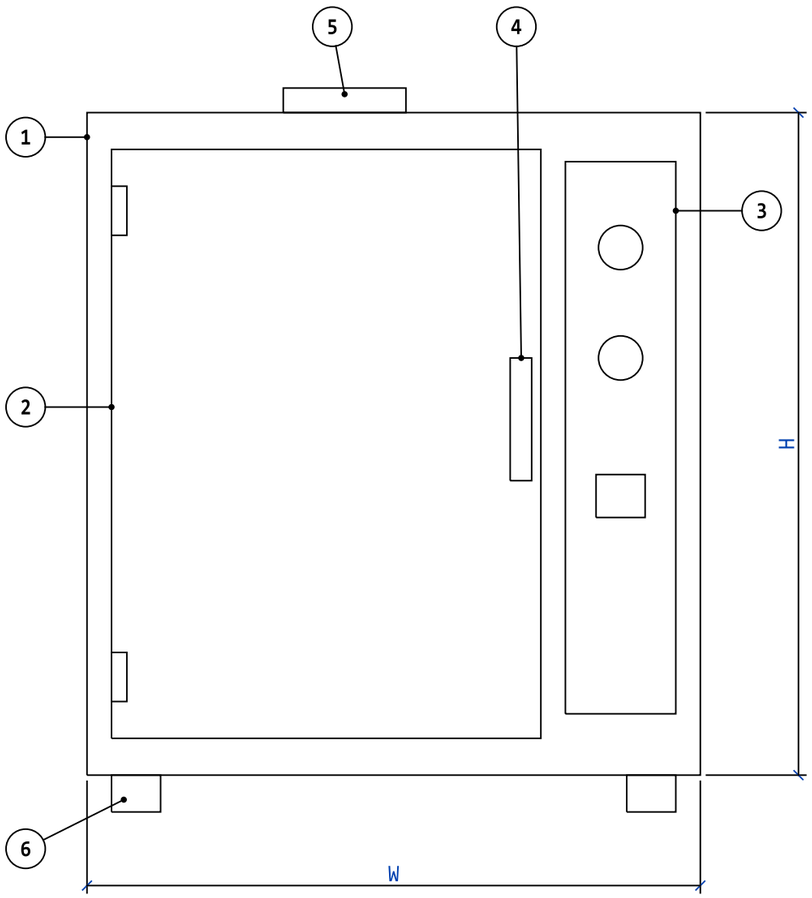
FRONT ELEVATION - HOT-AIR OVEN

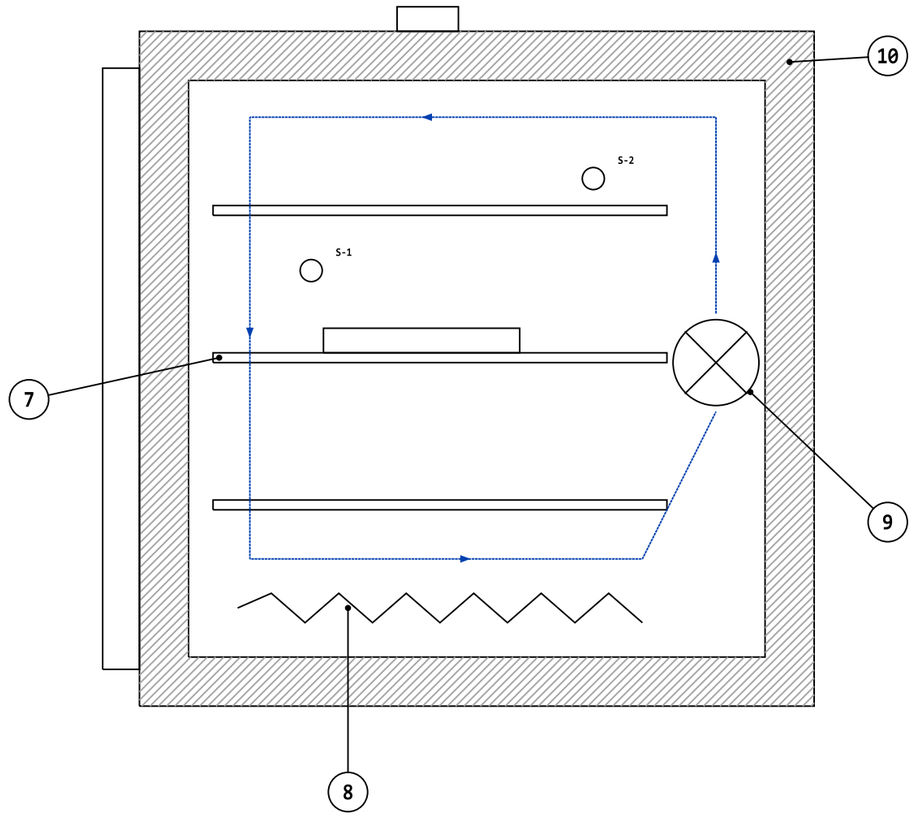
NOT TO SCALE



THE DOOR CLOSES ON ITS SEAL; THE KNOBS AND THE SWITCH ARE ON THE CONTROL PANEL
THE VENT LETS THE MOISTURE OUT; THE FEET KEEP THE OVEN LEVEL
W IS THE WIDTH OF THE OVEN; H IS ITS HEIGHT

SIDE SECTION - HOT-AIR OVEN

NOT TO SCALE



THE FAN MOVES THE HEATED AIR IN A LOOP OVER THE SHELVES; THE HEATER SITS ON THE FLOOR
S-1 IS THE CONTROL SENSOR; S-2 IS THE SENSOR OF THE SEPARATE CUT-OUT
THE SENSOR IS NOT THE SAMPLE: SEE DETAIL A

NOTES

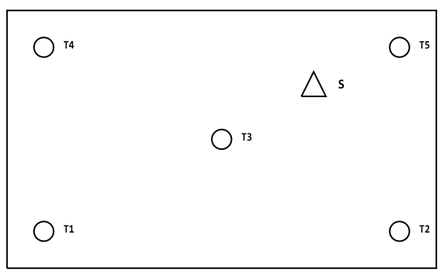
1. REFERENCE ARRANGEMENT OF A HOT-AIR LABORATORY OVEN AND A VACUUM OVEN. LETTERS ARE DIMENSIONS SET BY DESIGN: NO TEMPERATURE, PRESSURE, VOLUME, TIME OR POWER VALUE IS GIVEN.
2. THE FRONT ELEVATION SHOWS THE CABINET, THE DOOR AND ITS HANDLE, THE CONTROL PANEL WITH TWO KNOBS AND A SWITCH, THE VENT AND THE FEET. W IS THE WIDTH OF THE OVEN AND H ITS HEIGHT.
3. THE SIDE SECTION SHOWS THE INSULATED WALL, HATCHED, THE CHAMBER, THREE SHELVES WITH A TRAY ON ONE, THE HEATER ON THE FLOOR, THE FAN AND THE AIR PATH, DRAWN AS A LOOP, AND THE SENSORS S-1 AND S-2.
4. DETAIL A: ONE SHELF IN PLAN. THE CONTROL SENSOR S READS ONE POINT, AND THE SAMPLES SIT AT THE POINTS T1 TO T5. THE MAP MEASURES ALL OF THEM, WITH THE OVEN LOADED.
5. DETAIL B: A VACUUM OVEN IN SECTION, WITH A VACUUM-TIGHT CHAMBER, TWO HEATED SHELVES, HATCHED, A BLEED VALVE, A COLD TRAP AND A PUMP. DETAIL C: IN A HOT-AIR OVEN THE AIR CARRIES THE HEAT ROUND THE TRAY; IN A VACUUM OVEN IT ARRIVES ONLY THROUGH THE SHELF.
6. THE CONTROL, THE PROTECTION AND THE CURVE OF THE SENSOR AGAINST THE SAMPLE ARE ON SHEET 002. THE HEATERS, THE FAN, THE CONTROLLER, THE SENSORS, THE PUMP AND THE SEALS ARE CATALOGUE ITEMS, BOUGHT IN.

ITEMS

ITEM	DESCRIPTION
1	CABINET
2	DOOR
3	CONTROL PANEL
4	DOOR HANDLE
5	VENT
6	FOOT
7	SHELF
8	HEATER
9	FAN
10	INSULATION

DETAIL A - THE MAP

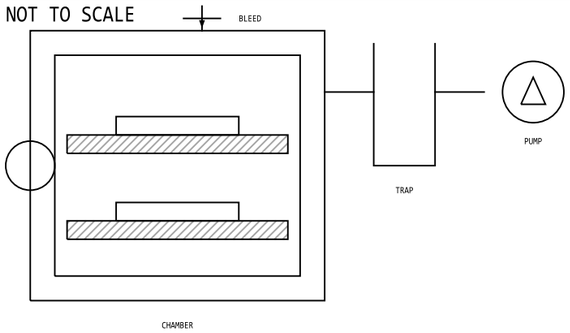
NOT TO SCALE



THE SENSOR S READS ONE POINT; THE SAMPLES SIT AT T1 TO T5
THE MAP MEASURES ALL OF THEM, WITH THE OVEN LOADED
AND SHOWS HOW FAR EACH ONE IS FROM S

DETAIL B - THE VACUUM OVEN

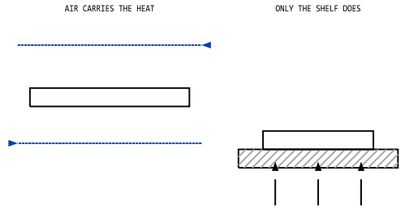
NOT TO SCALE



THE HEATED SHELVES CARRY THE HEAT; THE
TRAP COLLECTS THE VAPOUR BEFORE THE PUMP

DETAIL C - HOW HEAT ARRIVES

NOT TO SCALE



IN A VACUUM THERE IS NO AIR TO CARRY THE HEAT,
SO THE SAMPLE LAGS BEHIND THE SHELF

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
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LABORATORY OVEN - REFERENCE CONFIGURATION

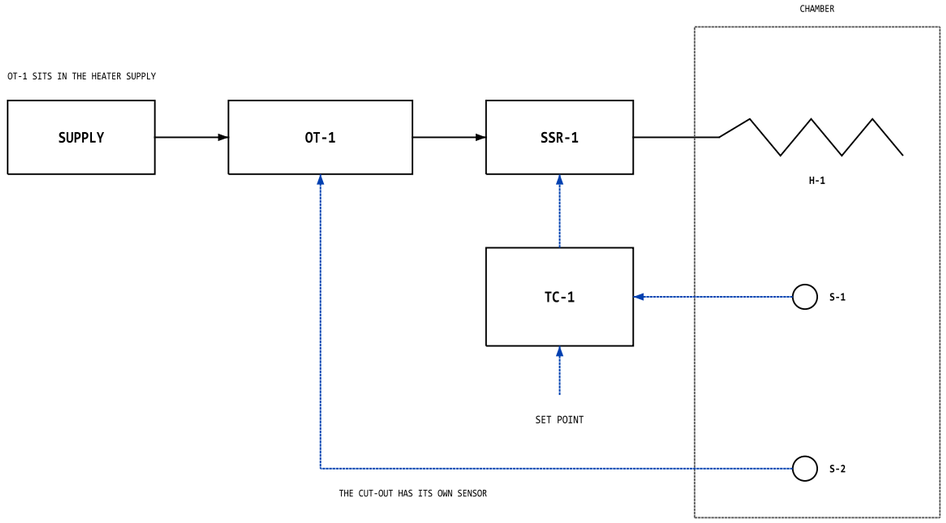
ARRANGEMENT AND DETAILS

THE OVEN, THE MAP, THE VACUUM OVEN AND HOW THE HEAT ARRIVES

DWG NO	SCALE @ A3	SHEET	REV
NMX-LBO-104-001	NTS	1 OF 2	A
DATE	UNITS	DRAWN	STATUS
16-11-2026	TAGS ONLY	NMX-DO	REFERENCE

CONTROL AND PROTECTION - BLOCK DIAGRAM

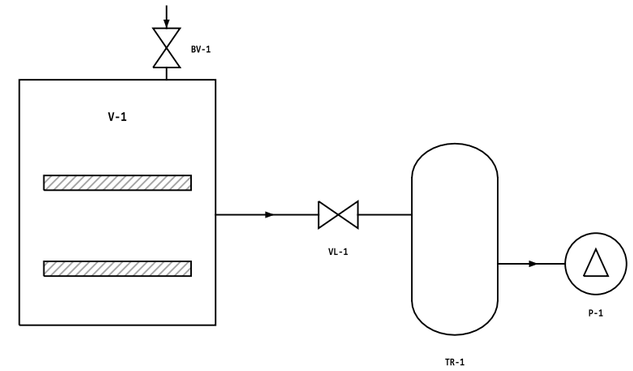
NOT TO SCALE



OT-1 IS THE OVER-TEMPERATURE CUT-OUT: IT HAS ITS OWN SENSOR S-2 AND ACTS WHEN THE CONTROLLER CANNOT
TC-1 READS S-1, TAKES THE SET POINT AND SWITCHES THE HEATER H-1 THROUGH THE SOLID-STATE RELAY SSR-1
HEAVY LINE IS POWER; THE BLUE DASHED LINE IS A SIGNAL

VACUUM PATH - VACUUM OVEN

NOT TO SCALE



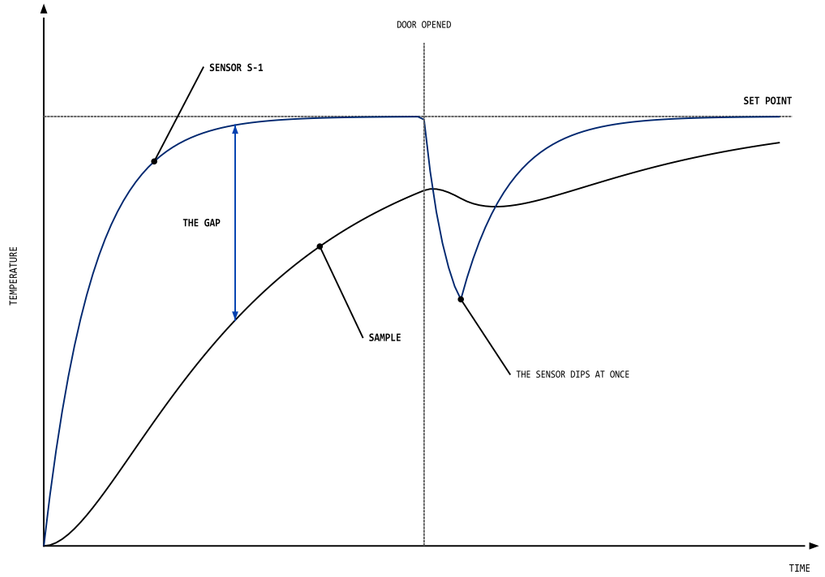
THE VAPOUR LEAVES THE CHAMBER, IS COLLECTED IN THE TRAP
AND NEVER REACHES THE PUMP; BV-1 LETS THE AIR BACK IN

NOTES

1. REFERENCE CONTROL, PROTECTION AND VACUUM PATH OF A LABORATORY OVEN. TAGS AND LETTERS ONLY: NO TEMPERATURE, PRESSURE, VOLUME, TIME OR POWER VALUE IS GIVEN.
2. THE BLOCK DIAGRAM: THE CONTROLLER TC-1 READS THE SENSOR S-1, COMPARES IT WITH THE SET POINT AND SWITCHES THE HEATER H-1 THROUGH THE SOLID-STATE RELAY SSR-1. THE SUPPLY REACHES SSR-1 THROUGH THE OVER-TEMPERATURE CUT-OUT OT-1.
3. OT-1 HAS ITS OWN SENSOR S-2 AND DOES NOT DEPEND ON TC-1: IT ACTS WHEN THE CONTROLLER CANNOT, FOR INSTANCE IF THE RELAY STAYS CLOSED.
4. THE VACUUM PATH: THE CHAMBER V-1, THE ISOLATING VALVE VL-1, THE COLD TRAP TR-1 AND THE PUMP P-1, WITH THE BLEED VALVE BV-1 THAT LETS THE AIR BACK IN. THE TRAP STANDS BEFORE THE PUMP.
5. DETAIL A: THE SENSOR REACHES THE SET POINT FIRST AND THE SAMPLE FOLLOWS; WHEN THE DOOR IS OPENED THE SENSOR DIPS AT ONCE AND THE SAMPLE MORE SLOWLY. THE CURVES ARE COMPUTED FROM A SIMPLE FIRST-ORDER MODEL IN UNITS OF THE SET POINT: A PICTURE OF THE IDEA, NOT A MEASUREMENT.
6. THE ARRANGEMENT AND THE DETAILS ARE ON SHEET 001. THE CONTROLLER, THE RELAY, THE CUT-OUT, THE SENSORS, THE VALVES, THE TRAP AND THE PUMP ARE CATALOGUE ITEMS, BOUGHT IN.

DETAIL A - THE SENSOR AGAINST THE SAMPLE

NOT TO SCALE - COMPUTED



THE SENSOR REACHES THE SET POINT FIRST; THE SAMPLE FOLLOWS, AND THE CONTROLLER SAYS READY IN THE GAP
WHEN THE DOOR IS OPENED THE SENSOR DIPS AT ONCE AND THE SAMPLE MORE SLOWLY: THE CURVES ARE COMPUTED,
A FIRST-ORDER SENSOR AGAINST A SLOWER FIRST-ORDER SAMPLE, IN UNITS OF THE SET POINT. A PICTURE OF THE IDEA

WHAT EACH STEP DOES

STEP	WHAT HAPPENS
1 DUTY	THE SAMPLES AND THE WAY THEY ARE HEATED ARE SET OUT
2 CHAMBER	THE CHAMBER, THE SHELVES AND THE DOOR SEAL ARE DESIGNED FOR IT
3 HEAT	HEATERS AND A FAN, OR HEATED SHELVES AND A PUMP, ARE SET OUT
4 CONTROL	THE CONTROLLER AND THE SEPARATE CUT-OUT ARE WIRED, EACH WITH ITS OWN SENSOR
5 PROVE	THE OVEN IS BUILT, THE CHAMBER MAPPED LOADED, THE CUT-OUT TRIED

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

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LABORATORY OVEN - REFERENCE CONFIGURATION

CONTROL, PROTECTION AND THE CURVE

THE CONTROL, THE VACUUM PATH AND THE SENSOR AGAINST THE SAMPLE

DWG NO	SCALE @ A3	SHEET	REV
NMX-LBO-104-002	NTS	2 OF 2	A
DATE	UNITS	DRAWN	STATUS
16-11-2026	TAGS ONLY	NMX-DO	REFERENCE