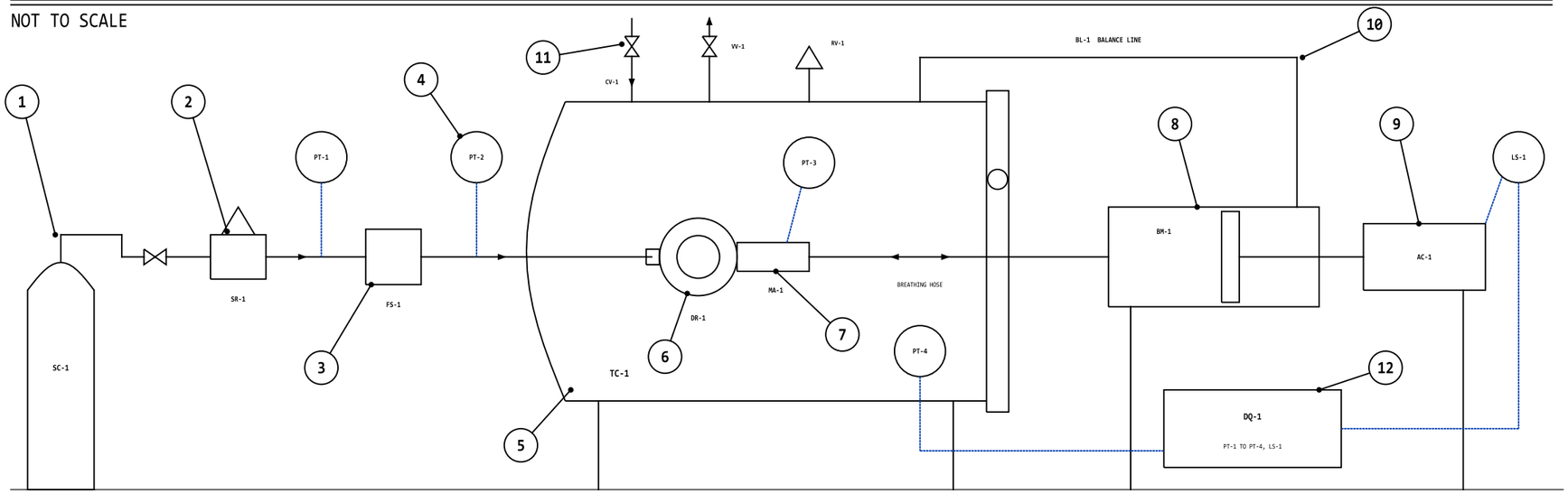
ARRANGEMENT - THE REGULATOR BREATHED BY A MACHINE

NOT TO SCALE



THE SUPPLY SC-1 IS SET BY SR-1 AND FEEDS THE FIRST STAGE FS-1; THE DEMAND REGULATOR DR-1 SITS ON THE MOUTH ADAPTER MA-1 IN THE CHAMBER TC-1, AND THE MACHINE BM-1 BREATHES THROUGH IT;

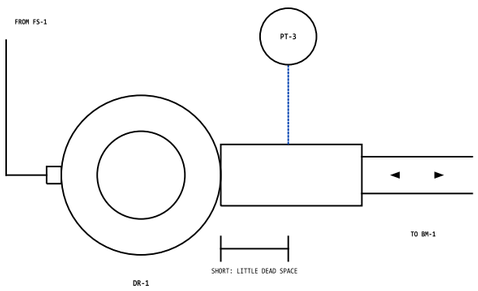
THE BALANCE LINE BL-1 PUTS CHAMBER PRESSURE BEHIND THE PISTON, SO THE ACTUATOR AC-1 WORKS AGAINST THE BREATH AND NOT THE DEPTH; CV-1 AND VV-1 SET AND HOLD THE DEPTH, AND DQ-1 RECORDS EVERY SIGNAL TOGETHER

NOTES

1. REFERENCE ARRANGEMENT OF A BREATHING REGULATOR TEST RIG. TAGS AND LETTERS ONLY: NO SIZE, FLOW, PRESSURE, DEPTH, TEMPERATURE, RATE OR TIME VALUE IS GIVEN.
2. THE ARRANGEMENT SHOWS THE SUPPLY, THE FIRST STAGE, THE DEMAND REGULATOR ON ITS MOUTH ADAPTER IN THE CHAMBER, THE BREATHING MACHINE, THE BALANCE LINE, THE CHAMBER VALVES AND THE DATA ACQUISITION.
3. DETAIL A: THE MOUTH ADAPTER AND ITS PRESSURE TAPPING. DETAIL B: THE BREATHING MACHINE. DETAIL C: THE CHAMBER. NO PERSON IS DRAWN.
4. THE SEQUENCE AND THE CURVES ARE ON SHEET 002. SENSORS, THE ACTUATOR AND VALVES ARE CATALOGUE ITEMS, BOUGHT IN. THE PROJECT'S OWN STANDARD GOVERNS THE TEST CONDITIONS.

DETAIL A - THE MOUTH ADAPTER

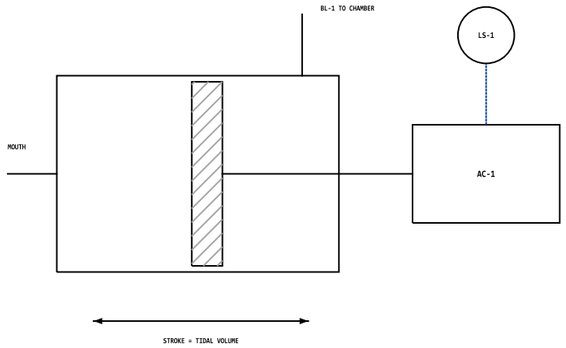
NOT TO SCALE



THE PRESSURE THE WEARER WOULD FEEL IS TAKEN AT THE MOUTH, CLOSE TO THE REGULATOR, AND THE SPIGOT IS KEPT SHORT SO THAT LITTLE GAS SITS IN IT BETWEEN ONE BREATH AND THE NEXT

DETAIL B - THE BREATHING MACHINE

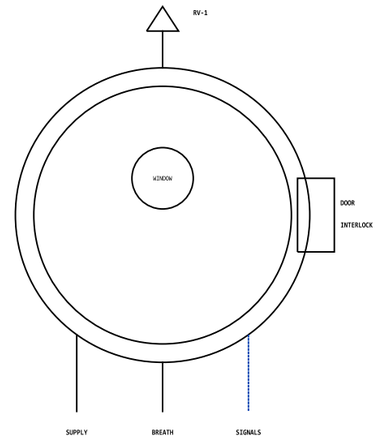
NOT TO SCALE



THE PISTON MOVES SMOOTHLY IN A RISING AND FALLING MOTION; ITS POSITION GIVES THE BREATHED VOLUME, AND THE BACK OF THE CYLINDER SEES CHAMBER PRESSURE THROUGH THE BALANCE LINE

DETAIL C - THE CHAMBER

NOT TO SCALE



A PRESSURE VESSEL WITH ITS OWN APPROVAL, A WINDOW, A RELIEF, A DOOR INTERLOCK AND SEALED PASSAGES FOR SUPPLY, BREATH AND SIGNALS

ITEMS

ITEM	DESCRIPTION
1	SUPPLY CYLINDER SC-1
2	SUPPLY REGULATOR SR-1, SENSOR PT-1
3	FIRST STAGE FS-1
4	INTERSTAGE SENSOR PT-2
5	TEST CHAMBER TC-1
6	DEMAND REGULATOR DR-1 UNDER TEST
7	MOUTH ADAPTER MA-1, TAPPING PT-3
8	BREATHING MACHINE BM-1
9	ACTUATOR AC-1, POSITION SENSOR LS-1
10	BALANCE LINE BL-1
11	CHAMBER VALVES CV-1, VV-1, RELIEF RV-1
12	DATA ACQUISITION DQ-1

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED

ENGINEERED IN NOIDA - INDIA

BREATHING REGULATOR TEST RIG - REFERENCE CONFIGURATION

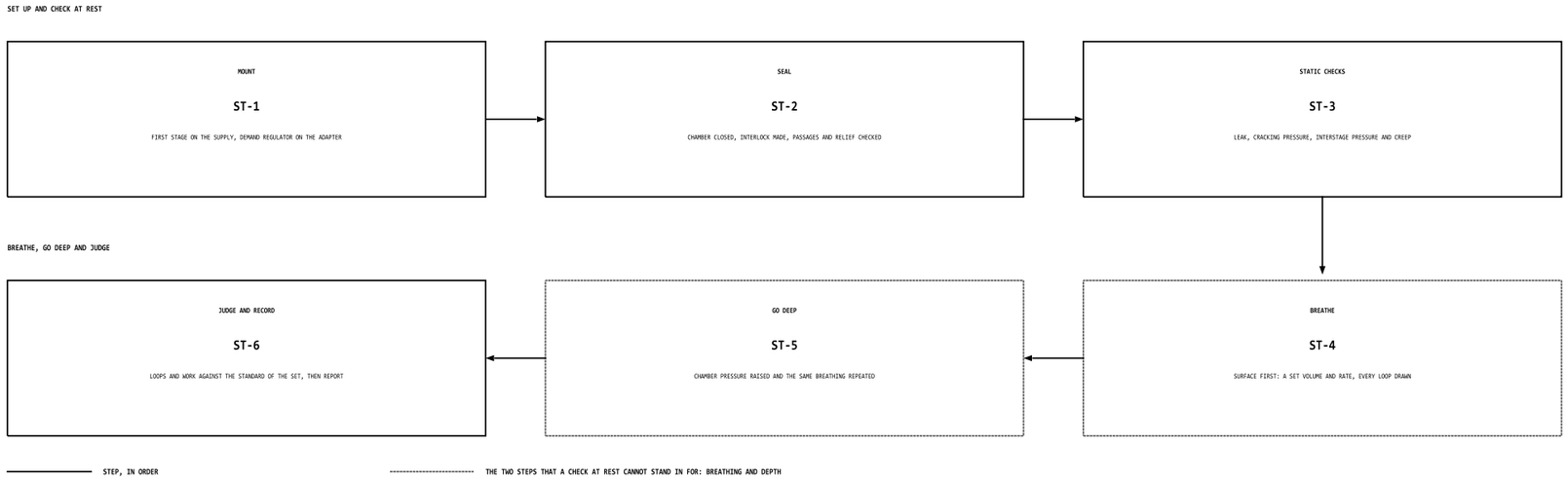
ARRANGEMENT AND DETAILS

SUPPLY, REGULATOR, CHAMBER, BREATHING MACHINE AND THREE DETAILS

DWG NO	SCALE @ A3	SHEET	REV
NMX-BRT-125-001	NTS	1 OF 2	A
DATE	UNITS	DRAWN	STATUS
27-11-2026	TAGS ONLY	NMX-DO	REFERENCE

SEQUENCE OF WORK - ONE REGULATOR ON THE RIG

NOT TO SCALE

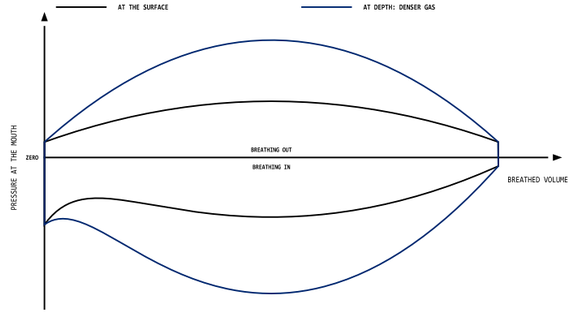


NOTES

1. REFERENCE SEQUENCE AND CURVES OF A BREATHING REGULATOR TEST RIG. TAGS AND LETTERS ONLY: NO SIZE, FLOW, PRESSURE, DEPTH, TEMPERATURE, RATE OR TIME VALUE IS GIVEN.
2. THE SEQUENCE: MOUNT ST-1, SEAL ST-2, STATIC CHECKS ST-3, BREATHE ST-4, GO DEEP ST-5, AND JUDGE AND RECORD ST-6. THE STATIC CHECKS COME FIRST SO THAT A LEAK IS NOT READ AS EASY BREATHING.
3. DETAILS A TO C ARE COMPUTED FROM SIMPLE RELATIONS IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT. THE ARRANGEMENT IS ON SHEET 001.
4. THE BREATHING RATES, THE DEPTHS AND THE LIMITS COME FROM THE STANDARD OF THE SET THE REGULATOR BELONGS TO. THE RIG DOES NOT SET THEM.

DETAIL A - ONE WHOLE BREATH

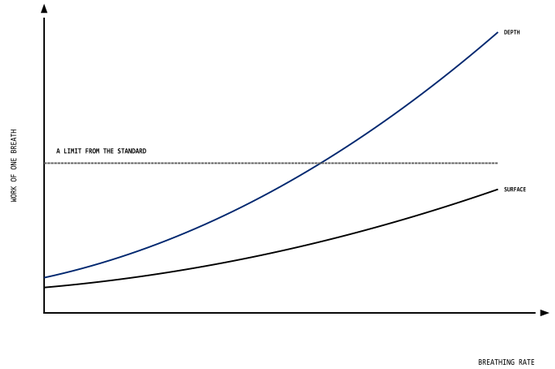
NOT TO SCALE - COMPUTED



THE SUCTION THAT OPENS THE VALVE SHOWS AT THE LEFT; THE REST OF THE LOOP IS THE EFFORT OF KEEPING THE GAS MOVING, AND THE AREA INSIDE IT IS THE WORK OF ONE BREATH; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL B - THE WORK RISES WITH RATE

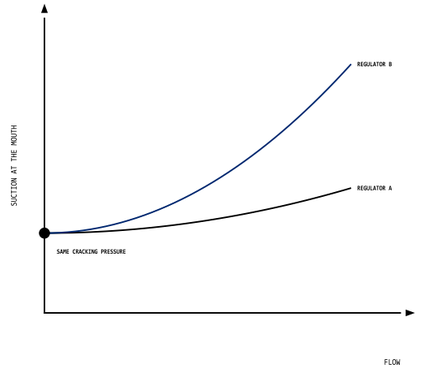
NOT TO SCALE - COMPUTED



MORE RATE MEANS MORE FLOW, AND DENSER GAS RESISTS IT MORE, SO A REGULATOR THAT IS EASY AT THE SURFACE MAY NOT BE AT DEPTH; THE PLACE OF THE LIMIT LINE HERE IS FOR ILLUSTRATION ONLY; COMPUTED, RELATIVE UNITS: A PICTURE, NOT A MEASUREMENT

DETAIL C - SAME START

NOT TO SCALE - COMPUTED



TWO REGULATORS CAN OPEN AT THE SAME SUCTION AND STILL ASK VERY DIFFERENT EFFORT ONCE GAS IS FLOWING; COMPUTED, RELATIVE UNITS: A PICTURE OF THE IDEA

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
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BREATHING REGULATOR TEST RIG - REFERENCE CONFIGURATION

SEQUENCE AND CURVES

THE ORDER OF WORK AND THE CURVES OF THE IDEA

DWG NO	SCALE @ A3	SHEET	REV
NMX-BRT-125-002	NTS	2 OF 2	A
DATE	UNITS	DRAWN	STATUS
27-11-2026	TAGS ONLY	NMX-DO	REFERENCE