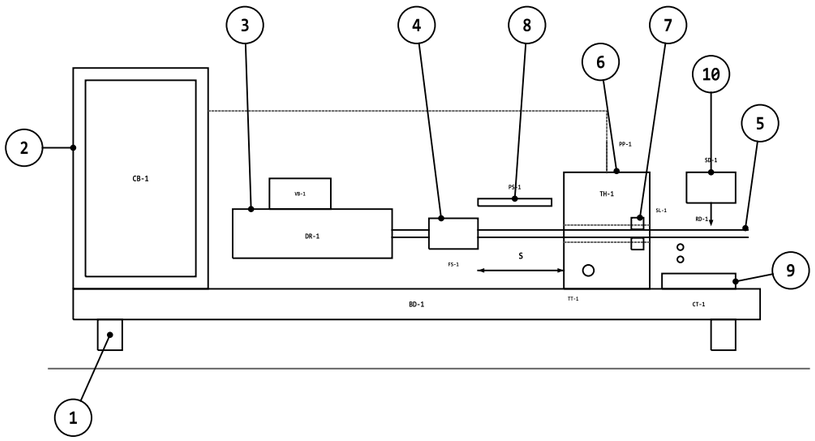
SIDE ELEVATION - SEAL TEST RIG

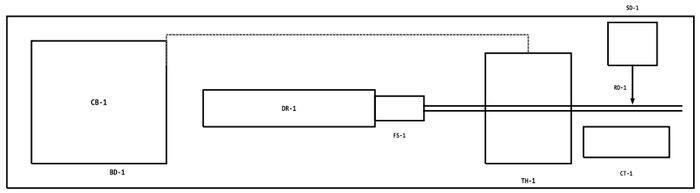
NOT TO SCALE



THE SERVO DRIVE DR-1 MOVES THE GROUND TEST ROD RD-1 THROUGH THE SEAL SL-1 IN THE GLAND GL-1 OF THE TEST HEAD TH-1, OUT AND IN, UNDER OIL PRESSURE;
THE FORCE SENSOR FS-1 READS THE FRICTION OF EACH STROKE, THE POSITION SENSOR PS-1 PLACES IT, AND THE CATCH CT-1 TAKES ONLY WHAT PASSES THE SEAL

PLAN - THE RIG FROM ABOVE

NOT TO SCALE



THE PLAN FROM ABOVE: THE DRIVE DR-1 AND THE SENSOR FS-1 PUSH THE ROD RD-1 THROUGH THE HEAD TH-1; THE CATCH CT-1 SITS UNDER THE ROD
WHERE IT LEAVES THE SEAL, AND THE SIDE LOAD SD-1 LEANS THE FREE END OF THE ROD; THE PRESSURE HOSE RUNS FROM THE CABINET CB-1 TO THE HEAD

NOTES

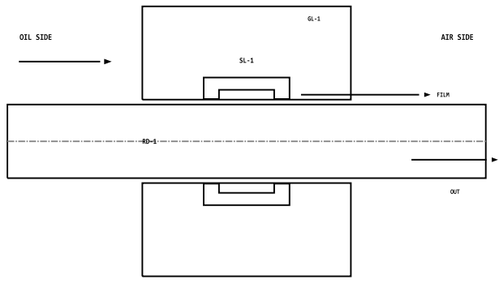
1. REFERENCE ARRANGEMENT OF A HYDRAULIC SEAL TEST RIG. LETTERS ARE QUANTITIES SET BY DESIGN: NO FORCE, PRESSURE, SPEED, TEMPERATURE, SIZE, COUNT OR TIME VALUE IS GIVEN.
2. THE SIDE ELEVATION SHOWS THE BED BD-1, THE CABINET CB-1, THE SERVO DRIVE DR-1 WITH ITS VALVE VB-1, THE FORCE SENSOR FS-1, THE TEST ROD RD-1 THROUGH THE TEST HEAD TH-1, THE SEAL SL-1 IN THE GLAND GL-1, THE POSITION SENSOR PS-1, THE LEAKAGE CATCH CT-1 AND THE SIDE LOAD SD-1; THE STROKE S IS A LETTER. THE PLAN SHOWS THE SAME RIG FROM ABOVE.
3. DETAIL A: THE GLAND. DETAIL B: CENTRING AND SIDE LOAD. DETAIL C: THE LEAKAGE CATCH. NO PERSON IS DRAWN, AND NO SEAL IS NAMED.
4. THE SEQUENCE OF A TEST AND THE CURVES ARE ON SHEET 002. THE DRIVE, THE SUPPLY, THE SENSORS, THE TEMPERATURE CONTROL AND THE DATA ACQUISITION ARE CATALOGUE ITEMS, BOUGHT IN. THE RIG DOES NOT CHOOSE THE SEAL AND DOES NOT REPLACE THE SEAL MAKER'S OWN DATA OR THE PROOF OF THE MACHINE.

ITEMS

ITEM	DESCRIPTION
1	BED BD-1 ON FEET
2	CABINET CB-1, SUPPLY AND CONTROL
3	SERVO DRIVE DR-1 AND VALVE VB-1
4	FORCE SENSOR FS-1
5	GROUND TEST ROD RD-1
6	TEST HEAD TH-1 AND GLAND GL-1
7	SEAL SL-1, THE ITEM UNDER TEST
8	POSITION SENSOR PS-1
9	LEAKAGE CATCH CT-1
10	SIDE LOAD SD-1

DETAIL A - THE GLAND

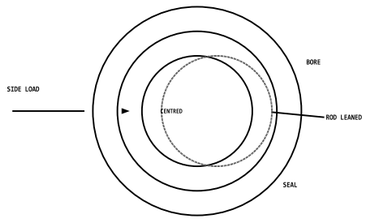
NOT TO SCALE



THE SEAL SITS IN ITS GROOVE AND PRESSES ON THE ROD; THE
OUT STROKE DRAGS A FILM OF OIL OUT THROUGH THE SEAL AND THE
IN STROKE WIPES IT BACK; WHAT THE SEAL LETS BY IS THE FILM
DRAGGED OUT LESS THE FILM WIPED BACK

DETAIL B - CENTRING AND SIDE LOAD

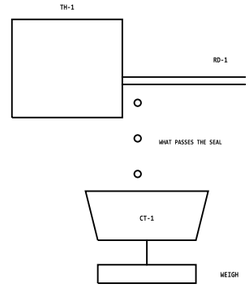
NOT TO SCALE



A GLAND THAT IS OFF CENTRE, OR A ROD THAT LEANS, SQUEEZES
THE SEAL ON ONE SIDE AND LETS IT GO ON THE OTHER; THE ROD IS
CENTRED AND CHECKED, AND THE SIDE LOAD IS PUT ON PURPOSE,
SO THAT THE SEAL IS TRIED WHEN IT IS SQUEEZED ON ONE SIDE

DETAIL C - THE LEAKAGE CATCH

NOT TO SCALE



THE CATCH TAKES ONLY WHAT PASSES THE SEAL
AND WEIGHS IT; A DRY RUN FIRST SHOWS THAT
NOTHING ELSE DRIPS, SO A DROP IS NEVER
BLAMED ON THE SEAL BY MISTAKE

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
ENGINEERED IN NOIDA - INDIA

HYDRAULIC SEAL TEST RIG - REFERENCE CONFIGURATION

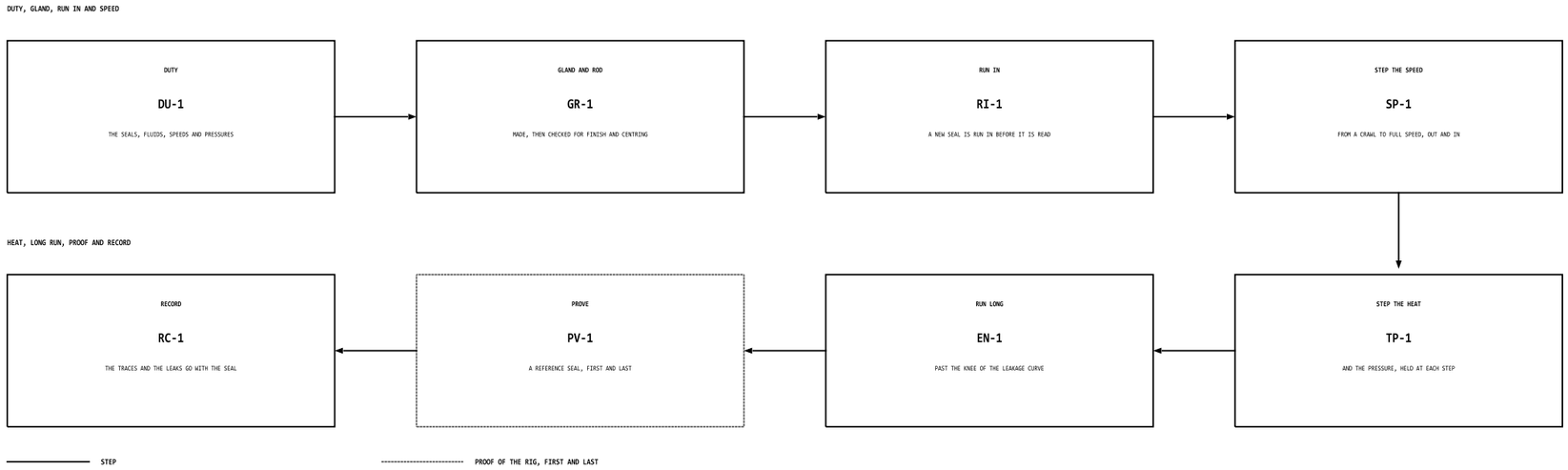
ARRANGEMENT AND DETAILS

THE RIG, THE GLAND AND THREE DETAILS

DWG NO	SCALE @ A3	SHEET	REV
NMX-HSR-122-001	NTS	1 OF 2	A
DATE	UNITS	DRAWN	STATUS
24-11-2026	TAGS ONLY	NMX-DO	REFERENCE

SEQUENCE OF A TEST - HYDRAULIC SEAL TEST RIG

NOT TO SCALE

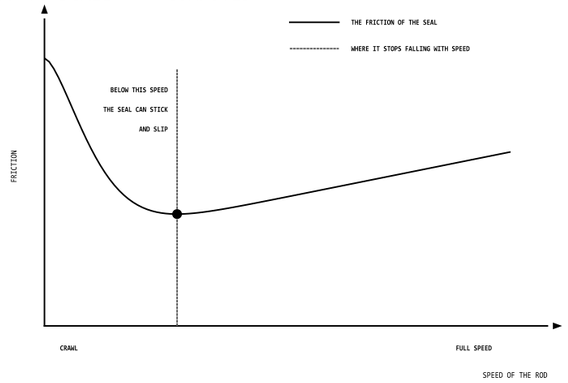


NOTES

1. REFERENCE SEQUENCE AND CURVES OF A HYDRAULIC SEAL TEST RIG. TAGS AND LETTERS ONLY: NO FORCE, PRESSURE, SPEED, TEMPERATURE, SIZE, COUNT OR TIME VALUE IS GIVEN.
2. THE SEQUENCE: DUTY DU-1, GLAND AND ROD GR-1 MADE AND CHECKED, RUN IN RI-1, STEP THE SPEED SP-1 FROM A CRAWL TO FULL SPEED ON BOTH STROKES, STEP THE HEAT AND THE PRESSURE TP-1, RUN LONG EN-1 PAST THE KNEE, PROVE PV-1 WITH A REFERENCE SEAL FIRST AND LAST, AND RECORD RC-1.
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 FLUIDS, THE PRESSURES, THE SPEEDS AND THE TEMPERATURES COME FROM THE DUTY OF THE SEAL AND THE AUTHORITY THE CUSTOMER NAMES. THE RIG DOES NOT CHOOSE THE SEAL AND DOES NOT REPLACE THE SEAL MAKER'S OWN DATA OR THE PROOF OF THE MACHINE.

DETAIL A - FRICTION AT A CRAWL

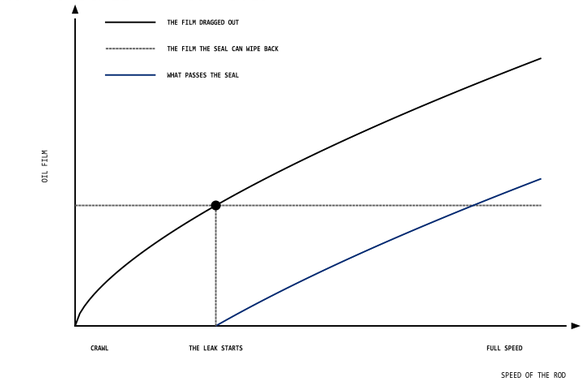
NOT TO SCALE - COMPUTED



A SEAL CLINGS AT A CRAWL AND THE FRICTION FALLS AS A FILM BUILDS, THEN RISES SLOWLY WITH THE DRAG; WHERE IT FALLS WITH SPEED THE SEAL CAN JUDDER, SO IT IS READ AT A CRAWL; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL B - THE LEAK GROWS WITH SPEED

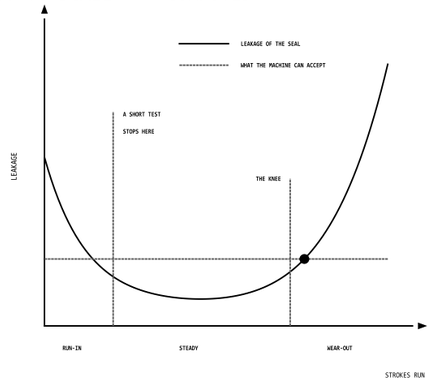
NOT TO SCALE - COMPUTED



THE FASTER THE ROD MOVES, THE THICKER THE FILM IT DRAGS OUT; THE SEAL WIPES BACK ONLY SO MUCH, SO THE LEAK APPEARS AT SPEED AND GROWS WITH IT; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL C - THE LONG RUN

NOT TO SCALE - COMPUTED



A NEW SEAL LEAKS WHILE IT RUNS IN, SETTLES TO A STEADY FLOOR AND THEN WEARS; A SHORT TEST SEES ONLY THE FIRST TWO, SO THE LONG RUN GOES PAST THE KNEE; COMPUTED, RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED
ENGINEERED IN NOIDA - INDIA

HYDRAULIC SEAL TEST RIG - REFERENCE CONFIGURATION

SEQUENCE AND CURVES

THE SEQUENCE OF A TEST AND THE CURVES OF THE IDEA

DWG NO	SCALE @ A3	SHEET	REV
NMX-HSR-122-002	NTS	2 OF 2	A
DATE	UNITS	DRAWN	STATUS
24-11-2026	TAGS ONLY	NMX-DO	REFERENCE