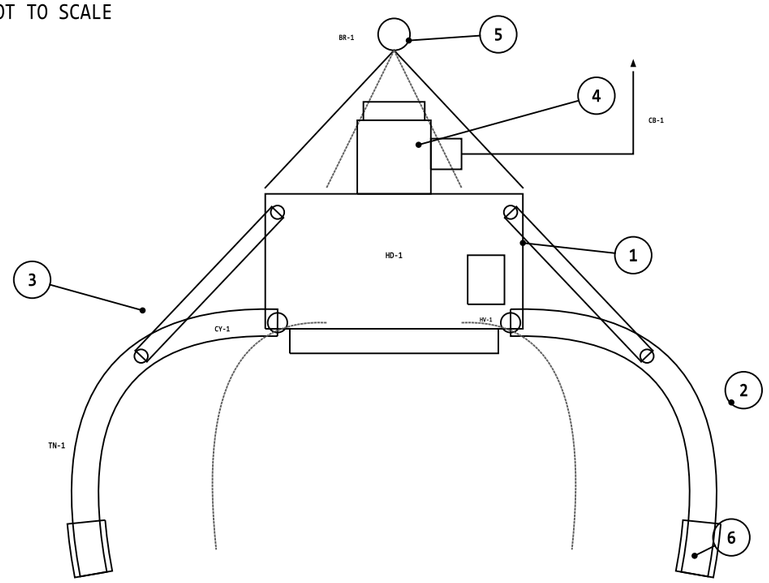
ELEVATION - GRAB OPEN

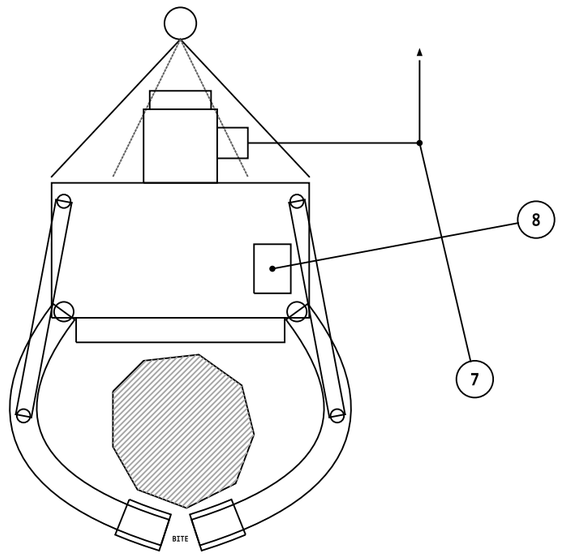
NOT TO SCALE



THE GRAB IS DRAWN OPEN AND THEN CLOSED ON A BITE OF LOOSE MATERIAL; NO CRANE IS DRAWN: A RING AND CHAINS BR-1 STAND IN FOR THE HOOK AND THE BRIDLE; THE MOTOR AND PUMP MP-1 RIDE ON THE HEAD, SO THE CRANE BRINGS DOWN ONE CABLE CB-1; THE HOLDING VALVES HV-1 KEEP THE TINES CLOSED IF THE SUPPLY IS LOST; TWO TINES BEHIND THE FRONT PAIR ARE HIDDEN

ELEVATION - CLOSED ON A BITE

NOT TO SCALE



NOTES

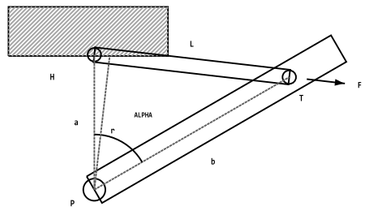
1. REFERENCE ARRANGEMENT OF AN ELECTRO-HYDRAULIC ORANGE PEEL GRAB. LETTERS ARE QUANTITIES SET BY DESIGN: NO WEIGHT, VOLUME, DENSITY, FORCE, PRESSURE, COUNT OR TIME VALUE IS GIVEN.
2. THE FIRST ELEVATION SHOWS THE GRAB OPEN: THE HEAD HD-1 WITH THE MOTOR AND PUMP MP-1, THE HOLDING VALVES HV-1, THE CABLE CB-1, THE TINES TN-1 ON PINS, THE CYLINDERS CY-1 AND THE WEAR PLATES WP-1. THE SECOND SHOWS IT CLOSED ON A BITE. THE NUMBER OF TINES IN A REAL GRAB IS WHAT THE MATERIAL NEEDS.
3. DETAIL A: THE LINKAGE, WHOSE GEOMETRY SHEET 002 PLOTS. DETAIL B: THE OIL CIRCUIT. DETAIL C: THE WEAR PLATE IN SECTION. NO CRANE IS DRAWN.
4. THE SEQUENCE OF A CYCLE AND THE CURVES ARE ON SHEET 002. THE MOTOR, THE PUMP, THE VALVES, THE CYLINDERS AND THE SWIVEL ARE CATALOGUE ITEMS, BOUGHT IN. THE COOLER AND THE FILTER ARE NOT SHOWN.

ITEMS

ITEM	DESCRIPTION
1	HEAD HD-1
2	TINES TN-1
3	CYLINDERS CY-1
4	MOTOR AND PUMP MP-1
5	RING AND CHAINS BR-1
6	WEAR PLATES WP-1
7	CABLE CB-1
8	HOLDING VALVES HV-1

DETAIL A - THE LINKAGE

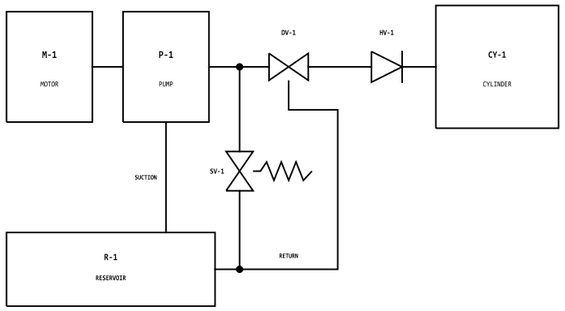
NOT TO SCALE



THE CYLINDER FORCE F ACTS AT THE PIN T; ITS TURNING ARM ABOUT THE PIVOT P IS r, WHICH CHANGES WITH THE ANGLE ALPHA AS THE TINE CLOSES; THE PINS ARE PLACED SO THAT r IS GOOD WHERE THE TINES MEET THE LOAD: SEE SHEET 002

DETAIL B - THE OIL CIRCUIT

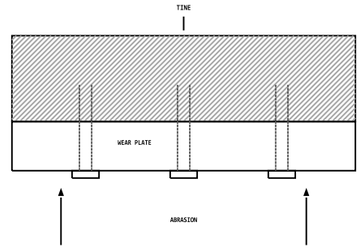
NOT TO SCALE



THE MOTOR M-1 DRIVES THE PUMP P-1; THE DIRECTIONAL VALVE DV-1 SENDS OIL TO CLOSE OR OPEN THE TINES THROUGH THE HOLDING VALVE HV-1, WHICH LOCKS THE OIL IN THE CYLINDER CY-1; THE RELIEF VALVE SV-1 LIMITS THE PRESSURE

DETAIL C - WEAR PLATE

NOT TO SCALE



THE WEAR PLATE IS BOLTED TO THE TIP OF THE TINE AND TAKES THE ABRASION, SO IT CAN BE REPLACED WITHOUT TOUCHING THE TINE

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED

ENGINEERED IN NOIDA - INDIA

ELECTRO-HYDRAULIC ORANGE PEEL GRAB - REFERENCE CONFIGURATION

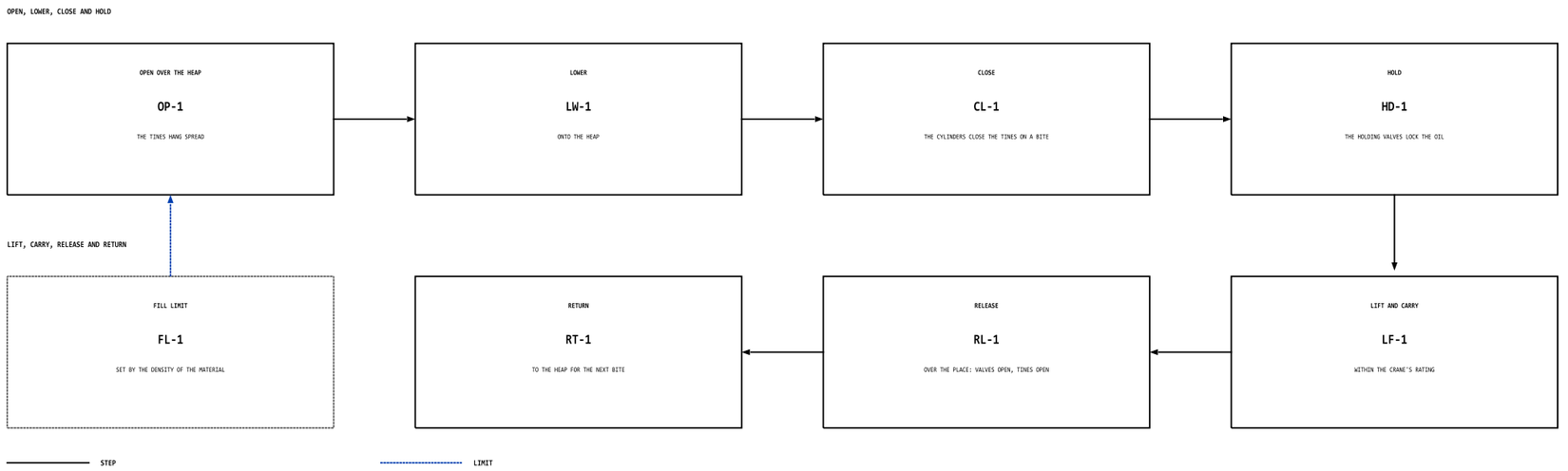
ARRANGEMENT AND DETAILS

THE GRAB, THE LINKAGE AND THREE DETAILS

DWG NO	SCALE @ A3	SHEET	REV
NMX-OPG-118-001	NTS	1 OF 2	A
DATE	UNITS	DRAWN	STATUS
21-11-2026	TAGS ONLY	NMX-DO	REFERENCE

SEQUENCE OF A CYCLE - ELECTRO-HYDRAULIC ORANGE PEEL GRAB

NOT TO SCALE

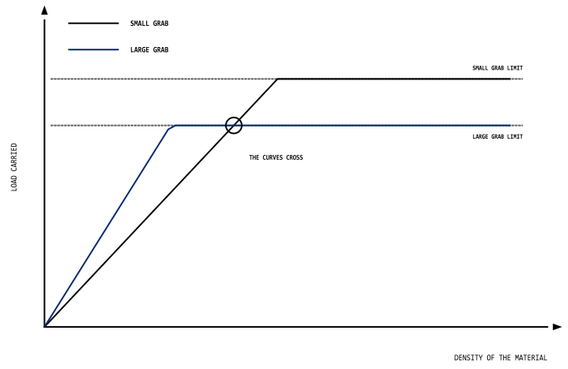


NOTES

1. REFERENCE SEQUENCE AND CURVES OF AN ELECTRO-HYDRAULIC ORANGE PEEL GRAB. TAGS AND LETTERS ONLY: NO WEIGHT, VOLUME, DENSITY, FORCE, PRESSURE, TEMPERATURE, COUNT OR TIME VALUE IS GIVEN.
2. THE SEQUENCE: OPEN OVER THE HEAP OP-1, LOWER LW-1, CLOSE CL-1 ON A BITE, HOLD HD-1 WITH THE HOLDING VALVES, LIFT AND CARRY LF-1 WITHIN THE CRANE'S RATING, RELEASE RL-1 OVER THE PLACE, AND RETURN RT-1. THE FILL LIMIT FL-1 IS SET BY THE DENSITY OF THE MATERIAL.
3. DETAILS A TO C ARE COMPUTED FROM SIMPLE RELATIONS IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT. THE ARRANGEMENT AND THE LINKAGE ARE ON SHEET 001.
4. THE RATING, THE LIMITS AND THE LIFTING RULES OF A REAL GRAB COME FROM THE CUSTOMER'S MATERIAL AND CRANE AND ARE WORKED OUT FOR EACH GRAB.

DETAIL A - LOAD AGAINST DENSITY

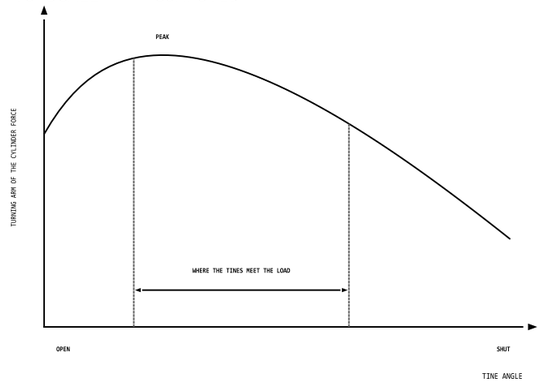
NOT TO SCALE - COMPUTED



THE CRANE ALLOWS ITS RATING LESS THE GRAB'S OWN MASS: THE LOAD RISES WITH THE DENSITY OF THE MATERIAL AND THEN STOPS AT THAT LIMIT; THE LARGE GRAB CARRIES MORE IN A LIGHT MATERIAL AND LESS IN A HEAVY ONE; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL B - GRIP AGAINST ANGLE

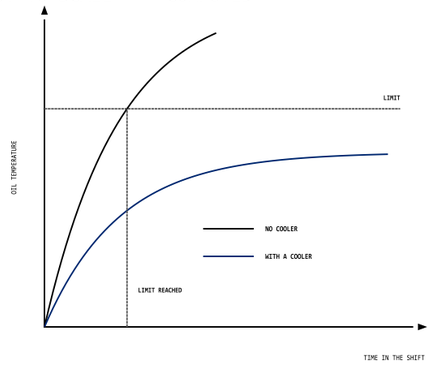
NOT TO SCALE - COMPUTED



THE CYLINDER PUSHES THE TINE THROUGH A LINKAGE, SO ITS TURNING ARM CHANGES WITH THE TINE ANGLE: IT RISES TO A PEAK AND FALLS TOWARD THE SHUT END; THE PINS ARE PLACED SO THAT THE ANGLES WHERE THE TINES MEET THE LOAD SIT NEAR THE PEAK; FROM THE LINKAGE ON SHEET 001; COMPUTED IN RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

DETAIL C - OIL TEMPERATURE

NOT TO SCALE - COMPUTED



CONTINUOUS CYCLING HEATS THE OIL: WITHOUT A COOLER IT CLIMBS TO THE LIMIT EARLY IN THE SHIFT, WITH ONE IT SETTLES BELOW IT; COMPUTED, RELATIVE UNITS: A PICTURE OF THE IDEA, NOT A MEASUREMENT

REFERENCE CONFIGURATION - NOT FOR CONSTRUCTION

NEOMETRIX DEFENCE LIMITED

ENGINEERED IN NOIDA - INDIA

ELECTRO-HYDRAULIC ORANGE PEEL GRAB - REFERENCE CONFIGURATION

SEQUENCE AND CURVES

THE SEQUENCE OF A CYCLE AND THE CURVES OF THE IDEA

DWG NO	SCALE @ A3	SHEET	REV
NMX-OPG-118-002	NTS	2 OF 2	A
DATE	UNITS	DRAWN	STATUS
21-11-2026	TAGS ONLY	NMX-DO	REFERENCE