MODEL 10LH
SPECIFICATION

1.0 General Specifications

There will be furnished one (1) only Grind Hog™ Model 10LH Comminutor as manufactured by G.E.T. Industries, Inc. Rotation shall be in a ❒ clockwise (standard) / ❒ counter-clockwise (optional) direction.

1.1 Design Criteria

The comminutor shall be designed to handle the flows indicated below, within the head loss noted.

(a) hydraulic capacity 1.2 MGD (4500m^3/day)
(b) satisfactory operation shall occur under conditions of zero flow
(c) head loss at peak flow shall not exceed 10 inches (254 mm)
(d) design shall be such that the flow enters the size reduction and screening device horizontally and exits vertically downward to facilitate the flushing of solids

1.2 Casing and Curb Ring

Shall be:

(a) of heavy-duty construction and of high quality cast iron
(b) machined flat and complete with three (3) holes for anchor bolts
(c) of the open type allowing free access for complete cutting bar and shear bar mechanism maintenance and inspection without dismantling the unit

1.3 Rotating Drum Screen

(a) heavy-duty Cast Ductile Iron ASTM 536, grade 60-45-18

1.4 Cutting Elements

(a) replaceable shear bars constructed of high-quality A2 tool-steel shall be attached to the rotating drum. Each shear bar shall be machined from solid bar stock, surface ground to establish exact tolerances
(b) stationary cutting bars (3), shall be of high-quality 01 tool steel hardened to a minimum of 56 Rockwell C, and shall be reversible, allowing for four (4) sets of cutting edges prior to sharpening or replacement
(c) all submerged fasteners shall be of stainless steel

1.5 Hydraulic Motor

The Grind Hog™ motor shall be a low speed, high torque, rotary power hydraulic motor that utilizes the hydraulic pressure developed by the hydraulic power unit to provide rotational torque for unit operation. Motor shall be water tight and functional when submerged up to 20 feet. Hydraulic motor shall be by Sauer Dan Foss or equal

1.6 Hydraulic Power Unit

a) **General**

1. The remotely located hydraulic power unit provides hydraulic oil power to drive the hydraulic motor which, through an SM-Cyclo Reducer, drives the rotating drum. In addition, the hydraulic power unit provides overload protection and quick response to frequent stop-start and severe reversing of the unit

2. The entire hydraulic system shall be designed to motor rated 2500-psi maximum pressure. At idle load conditions, the system operating pressure should be in the 200 to 400-psi range

3. As solids are encountered, oil pressure will automatically increase on a demand basis to provide the required hydraulic motor torque necessary to continue rotation of the drum screen

4. Should the system demand pressure exceed 1250-psi, a pressure switch shall be activated and a 4-way (2-directional) solenoid valve shifted. The rotation of the drum screen shall then reverse for about 5 seconds. At the end of this time, the valve shall again be shifted and the drum screen will return to the forward direction

5. If the obstruction has been cleared, the power pack unit shall continue to operate in the forward direction. If the obstruction has not cleared, the reversing sequence shall repeat until the torque requirement is reduced or until it has had to repeat the reversing cycle 7 times within a period of 45 seconds. If 7 reversals have occurred within 45 seconds the controller shall shut down the hydraulic unit, activate an overload relay, and illuminate the indicating light

6. If 5 occur, contact Q8 for a possible auto-dialer is activated

b) **Components**

1. Hydraulic power unit shall include the following components at a minimum
   a. MA 18 gallon, 24 1/2"x18 1/2"x14" Die Cast Aluminum Reservoir
   b. Positive displacement pump driven by a TEFC, C face, vertically mounted 5 Hp motor (460/3/60)
   c. Combination oil level and oil temperature gauge
   d. 10-micron, oil return line filter
   e. Oil temperature limit switch set at 176^{o}F
   f. Oil level switch
   g. Filter breather
   h. Pressure switch (adjustable) preset at 1250-psi
   i. 110 volt solenoid valve
   j. Relief valve preset at 1500-psi
   k. 2-1/2 inch, 0 to 3000-psi oil filled gauge
   l. Suction strainer
   m. Flexible hoses rated for a minimum 2000-psi working pressure with quick disconnect at hydraulic motor end and at power pack end

2. The hydraulic power unit will be mounted in a remote location as specified by the owner

3. Hydraulic connections between the Grind Hog™ motor and the hydraulic power unit shall consist of two lengths of 1/2 inch flexible hose sections with quick disconnect couplers. Quick connections shall contain spring loaded ball check valves to avoid oil loss upon disconnecting

4. On completion of installation, the hydraulic power unit must be filled with a high quality fluid (supplied by others) with a viscosity of approximately 100 to 250-SSU at 100°F (38°C) with good chemical stability and anti-foaming properties. The grades of hydraulic fluid must be in accordance with the supplier's recommendations

CONTROL SYSTEM

a) **Functional Description**

1. The controller shall be the supplier's standard Model GHC 1850H with four (4) button remote control station (on, off, jog forward, jog reverse) and lights in NEMA 4X enclosure

2. The controller shall be equipped with a HAND-OFF/RESET-AUTO three-position selector switch. In OFF/RESET the unit shall not run. In HAND the grinder shall run. In AUTO the unit start and stop will be controlled by a remotely located dry contact

3. When a jam condition occurs in either the HAND or AUTO mode the controller shall stop the unit and reverse its rotation to clear the obstruction. If the jam is cleared, the controller shall return the unit to normal operation. If the jam condition still exists, the controller shall go through seven additional reversing cycles within 45 seconds before signaling an overload condition. When an overload condition occurs the controller shall shut the unit off and activate a fail relay with contacts

4. If operation is terminated due to a fail condition and a power failure occur, the fail indicator shall reactivate when power is restored

5. Controller reset shall be from local panel controls only

6. The controller shall provide over-current protection for the hydraulic power unit oil pump motor through an overload relay mounted directly on the motor starter

7. The controller shall have indicator lights for POWER ON, RUN, GRIND HOG™ OVERLOAD, MOTOR OVERLOAD, OIL OVERTEMP and LOW OIL LEVEL conditions

8. The controller shall be rated 5 Hp, ____ volts, ____ phase, ____ Hz

b) **Motor Controller Components**

1. Enclosure:
   a. Enclosure shall be fabricated of fiberglass reinforced polyester resins and shall be suitable for wall mounting. Doors shall have corrosion resistant hinges and latches
   b. Each enclosure shall be NEMA 4X rated and house the overall disconnect switch, control power transformers, control devices, relays, fuses, terminal blocks and full voltage non-reversing motor starter

2. Control Devices:
   a. Pilot devices shall be mounted on the enclosure front panel
   b. Indicators shall be integral transformer type with low voltage long life 24 volt lamps. Lamps and selector switches shall be heavy duty NEMA 4X type
   c. Two sets of normally open (no) dry contact shall be included, one for a FAIL signal output and one for a RUN signal output. The contacts shall be rated 10 amp, 240 VAC, resistive overload

3. Motor Starter:
   a. A full voltage non-reversing contactor type motor starter shall be provided for the 5 Hp hydraulic oil pump electric motor
   b. The overload (OL) relay shall be adjustable so that the range selected includes the FLA (Fill load amps) rating and service factor

1.7 Drive Arrangement

a) the hydraulic motor shall be close-coupled to a speed reducer drive, a heavy duty planetary gear of the totally enclosed non-vented type suitable for total submergence during emergencies
b) double seals on the output shaft shall ensure flood-proof operation through a reduction ratio of 6:1
c) the cycloidal reducer shall be capable of withstanding shock loads to 500% of its mechanical rating of 7.8 Hp. and be warranted for two (2) years
d) the drive shall have a minimum full load efficiency of 90% and be pre-lubricated with grease, requiring routing maintenance every 500 to 1,000 hours

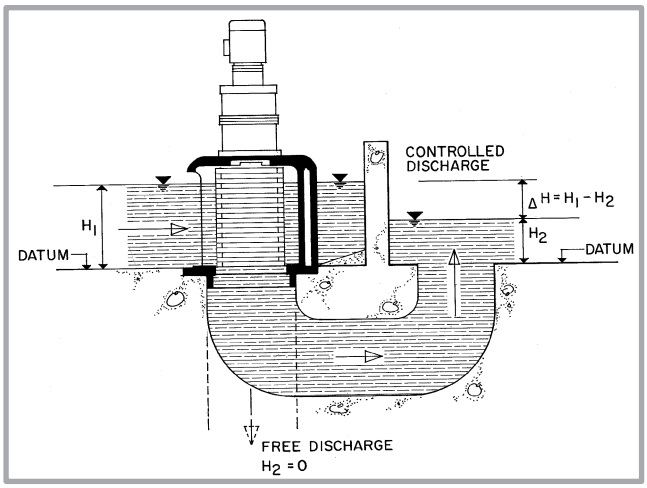
A) 'KWIK-LIFT' WET WELL REMOVAL SYSTEM

The Comminutor shall be equipped with a slide rail system which will allow the Grind Hog™ to be removed without entering the wet well. The guide rails shall be 304 schedule 40 stainless steel pipe, 1.5 inches in diameter, and shall be of adequate length as shown on the drawings. Guide rail support shall be 304 stainless steel and shall be mounted to the wet well wall. All attaching hardware shall be of stainless steel and shall be supplied by the contractor.

Grind Hog™

HYDRAULIC DATA SHEET

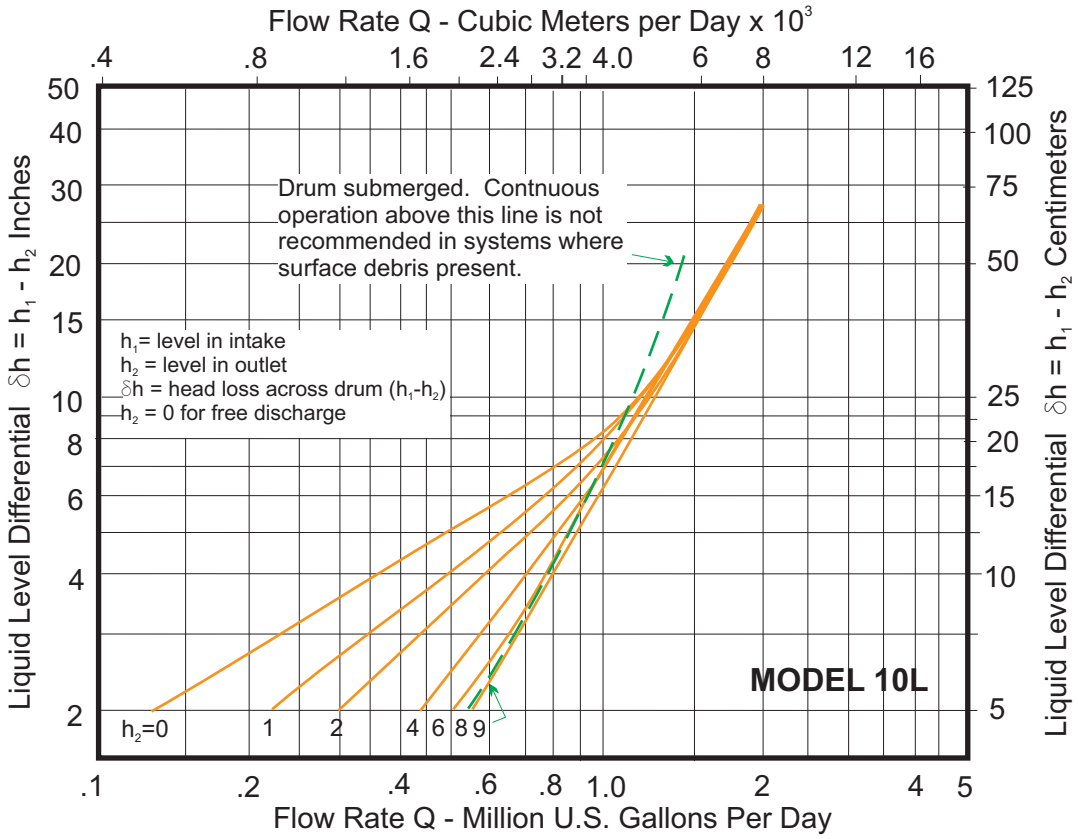
IN-CHANNEL MODEL 10L



GENERAL DATA

Capacity	0-1.2 MGD (US)	0-4500 m^3/day
Drum Diam.	9.4 in	23.9 cm
Inlet Area	97 in^2	625.8 cm^2
Outlet Area	45 in^2	290.3 cm^2
Slot Width	0.470 in	12 mm

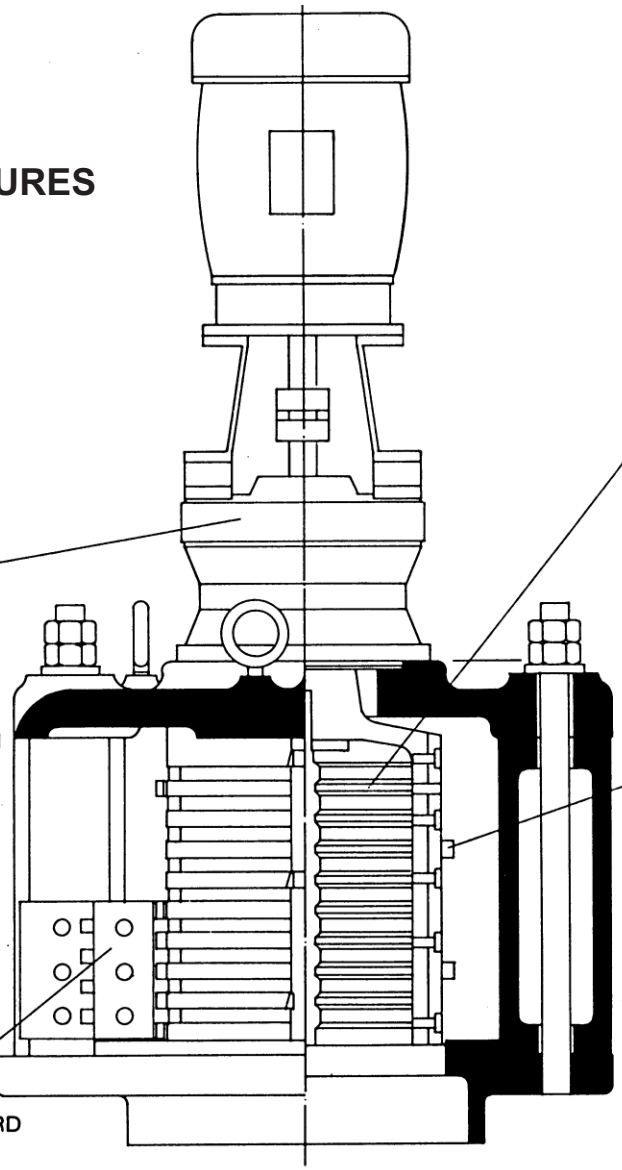
HYDRAULIC PERFORMANCE CURVE



G.E.T. Industries Inc.
Toll Free: (877) 213-7418
E-mail: get@grindhog.com ♦ Web: www.grindhog.com

IN-CHANNEL MODEL 10L cont'd...

DESIGN FEATURES



SM-CYCLO® SPEED REDUCERS

- HIGHEST OVERLOAD CAPACITY FOR FREQUENT STOP-START AND SEVERE REVERSING
- SMOOTH, SILENT OPERATION
- EXCEPTIONAL LIFE

Torque transmitting parts roll, don't grind. There is no sliding friction, so output torque/input horsepower efficiency approaches 95%.

CAST DUCTILE IRON SEWAGE SCREEN

- LONG LIFE UNDER ABRASIVE CONDITIONS

ROTATING SHEAR BAR ASSEMBLY

- MACHINED FROM SOLID BARSTOCK
- PRECISE TOLERANCES MAINTAINED.

STATIONARY CUTTING BAR

- REVERSIBLE-SPARE STANDARD EQUIPMENT
- A2 HIGH QUALITY TOOL STEEL
- HIGH RESISTANCE TO WEAR

VERTICAL "FREE" OR "CONTROLLED" DISCHARGE

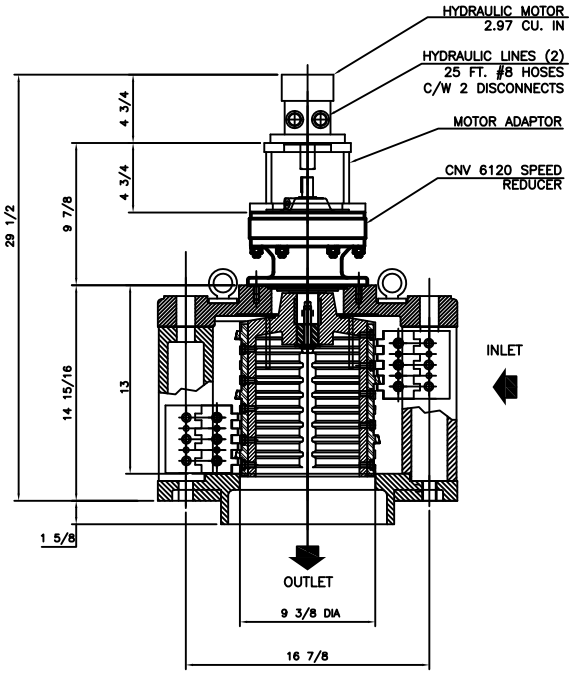
SUBMERGED FASTENERS OF STAINLESS STEEL

HEAVY DUTY CAST IRON CONSTRUCTION

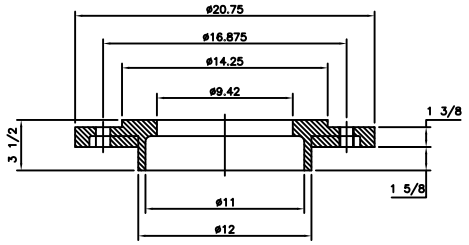
G.E.T. Industries Inc.
Toll Free: (877) 213-7418
E-mail: get@grindhog.com ♦ Web: www.grindhog.com

MECHANICAL DETAIL

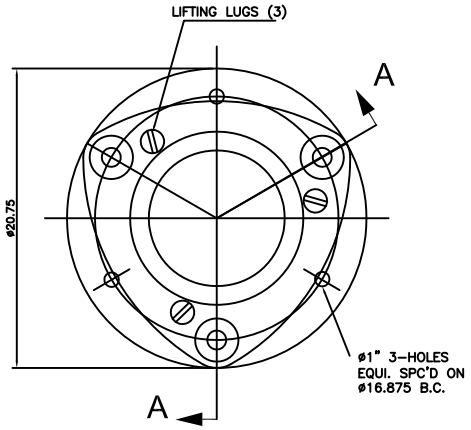
MODEL 10 LH
HYDRAULIC DRIVE
FIXED-IN-PLACE
SERIAL No. -_____



SIDE VIEW



BASE RING DETAIL



TOP VIEW
COVER PLATE

MATERIALS OF CONSTRUCTION & GENERAL ENGINEERING DATA

HOUSING:	GREY IRON			CAPACITY	1.2 MGD (US) / 4500 m3/day	INLET AREA	97 SQ IN	626 cm sq	
DRUM (SCREEN):	DUCTILE IRON (ASTM 536 GRADE 60-45-18)			DRUM SPEED	50 RPM	OUTLET AREA	45 SQ IN	290 cm sq	
SHEAR BARS:	AISI-A2 HIGH ALLOY TOOL STEEL			ROTATION	CLOCKWISE	DRUM DIAMETER	9.4 IN	23.9 cm	
CUTTING BARS:	AISI-01 TOOL STEEL REVERSIBLE			SLOT WIDTH	.470 IN / 12 mm	WEIGHT	400 LB	181 kg	
HARDWARE & FASTENERS:	304 STAINLESS STEEL			No. OF SLOTS	36				
MOTOR MANUFACTURER:	DANFOSS	POWER:	HYDRAULIC	RPM:	930 MAX	REDUCER:	SM - CYCLO	MODEL:	V6120
STYLE: DH-50 2.97 CU IN	HP: -	KW: 6.8 MAX	FRAME: -	FLANGE: -		RATIO: 6:1		RATING:	7.84 HP

G.E.T. INDUSTRIES INC.
get@grindhog.com
www.grindhog.com
1 (877) 213-7418

TOLERANCES	INFO	SCALE: NTS
DECIMAL		DRAWN BY: G.P.
FRACTIONAL	INFO	APPROVED BY: W.D.M.
ANGULAR	INFO	
DATE: AUG. 2014	FILE NO.	DWG. No. 6 0175 / REV.