COUNTY OF SAN JOAQUIN

DEPARTMENT OF PUBLIC WORKS
P.0. BOX 1810-1810 E. HAZELTON AVENUE
STOCKTON, CALIFORNIA 95201
(209) 468-3000
FAX # (209) 468-9324

Permit No: **PS-1101074**
Date Issued: 07/22/2014
Exp. Date: 10/15/2014
Project No: PWP760164
Quad: CC

ENCROACHMENT PERMIT

To: CITY OF STOCKTON - MUD
2500 NAVY DRIVE
STOCKTON, CA 95206

Encroachment Type:

Traffic Control Devices	Above ground Temp. Piping		

Location:
TUXEDO AVE. BETWEEN PERSHING AVE. AND CARLTON AVE.

In compliance with your request of **06/02/2011** , permission is hereby granted to do work in County right-of-way as shown on attached application and subject to all the terms, conditions and restrictions written below or printed as general or special provisions on any part of this form. See reverse side and attached sheet, if any.

Trench excavations for service connections will not be permitted within ten feet (10') of pavement centerline unless otherwise approved by the Director. Surface of trench patches shall match in kind and be smooth and even with that of abutting surface. Special attention shall be given to depth of utilities through roadside area in anticipation of future drainage facilities, road profile and/or frontage development. All underground utility facilities are to be established and accurately dimensioned on sketches from surveyed centerline of road right of way, or from right of way (border) lines.

Permittee shall call the Department of Public Works, Field Engineering Division (Permit Inspections) at (209)953-7421 at least forty-eight hours prior to beginning any work within the County right of way. All work performed under this permit shall conform to the rules and regulations pertaining to safety established by the California Division of Industrial Safety and Cal-OSHA.

The jobsite shall be kept in a safe condition at all times by the daily removal of any excess dirt or debris which might be a hazard to either pedestrian or automobile traffic. All necessary traffic convenience and warning devices and personnel shall be provided, placed and maintained by and at the sole expense of the Permittee in accordance with the latest edition of the CALTRANS Manual of Traffic Control.

After completion of the work permitted herein, all debris, lumber, barricades, or any excess material shall be removed and the jobsite left in a neat workmanlike manner. Immediately following completion of construction permitted herein, Permittee shall fill out and mail notice of completion (see attached post card) provided by Grantor.

Special Comments:
Traffic Control Per MUTCD****See Attached "Special Conditions"****

FORMS: SS/WW

Est. Permit Fee: $6,500.00

THOMAS M. GAU, Director
Department of Public Works

By: _____
Permit Section

WHITE -Permittee
GOLDENROD -PWD Central File
YELLOW -Field Inspection
PINK -Permit Section

ENCROACHMENT PERMIT GENERAL PROVISIONS

13-1

1. This permit is issued under and subject to all laws and ordinances of agencies governing the encroachment herein permitted. See the following references:
   STREETS AND HIGHWAYS CODE
   1. Division 1, Chapter 3
   2. Division 2, Chapter 2, Section 942
   3. Division 2, Chapter 4, Section 1126
   4. Division 2, Chapter 5.5 and Chapter 6

   SAN JOAQUIN COUNTY ORDINANCES NUMBERED: 324, 441, 648, 662, 672, 695, 700, 860, 892, 3359, and 3675.

2. It is understood and agreed by the Permittee that the performance of any work under this permit shall constitute an acceptance of all the provisions contained herein and failure on the Permittee's part to comply with any provision will be cause for revocation of this permit. Except as otherwise provided for public agencies and franchise holders, this permit is revocable on five days notice.

3. All work shall be done subject to the supervision of and the satisfaction of the grantor. The Permittee shall at all times during the progress of the work keep the County Highway in as neat and clean condition as is possible and upon completion of the work authorized herein, shall leave the County Highway in a thoroughly neat, clean and usable condition.

4. The Permittee also agrees by the acceptance of this permit to properly maintain any encroachment structure placed by the Permittee on any part of the County Highway and to immediately repair any damage to any portion of the highway, which occurs as a result of the maintenance of the said encroachment structure, until such time as the Permittee may be relieved of the responsibility for such maintenance by the County of San Joaquin.

5. The Permittee also agrees by the acceptance of this permit to make, at its own expense, such repairs as may be deemed necessary by the County Department of Public Works.

6. It is further agreed by the Permittee that whenever construction, reconstruction or maintenance work upon the highway is necessary, the installation provided for herein shall, upon request of the County Department of Public Works, be immediately moved or removed by and at the sole expense of the Permittee.

7. No material used for fill or backfill in the construction of the encroachment shall be borrowed or taken from within the County right of way.

8. All work shall be planned and carried out with as little inconvenience as possible to the traveling public. No material shall be stacked within eight feet (8') of the edge of the pavement or traveled way unless otherwise provided herein. Adequate provision shall be made for the protection of the traveling public. Traffic control standards shall be utilized including barricades; approved signs and lights; and flagmen, as required by the particular work in progress.

9. The Permittee, by the acceptance of this permit, shall assume full responsibility for all liability for personal injury or damage to property which may arise out of the work herein permitted or which may arise out of the failure of the part of the Permittee to properly perform the work provided under this permit. In the event any claim of such liability is made against the County of San Joaquin or any department, official or employee thereof, the Permittee shall defend, indemnify, and hold each of them harmless for such claim.

10. All backfill material is to be moistened as necessary and thoroughly compacted with mechanical means. If required by the County Director of Public Works, such backfill shall consist of gravel or crushed rock. The Permittee shall maintain the surface over structures placed hereunder as may be necessary to insure the return of the roadway to a completely stable condition and until relieved of such responsibility by the County Department of Public Works. Wherever a gravel, crushed rock or asphalt surface is removed or damaged in the course of work related to the permitted encroachment, such material shall either be separately stored and replaced in the roadway as nearly as possible in its original state or shall be replaced in kind, and the roadway shall be left in at least as good a condition as it was before the commencement of operations of placing the encroachment structure.

11. Whenever it becomes necessary to secure permission from abutting property owners for the proposed work, such authority must be secured by the Permittee prior to starting work.

12. The current and future safety and convenience of the traveling public shall be given every consideration in the location and methods of construction utilized.

13. The Permittee is responsible for the preservation of survey monuments within the work herein permitted. If any are disturbed, the Permittee is required to tie out each location and re-establish them after completion of work, using a licensed land surveyor. A corner record must be filed in accordance with state law for any re-set monuments.

14. Prior to any excavation, the Permittee shall notify USA North (Underground Service Alert of Northern California and Nevada) at 811 or 800-227-2600 forty-eight (48) hours in advance.

SPECIAL CONDITIONS FOR CITY OF STOCKTON – TUXEDO AVE. ENCROACHMENT PERMIT

1. Maintain traffic controls for all roads. Traffic control delays shall not exceed 15 minutes. Two-way traffic shall be maintained during non-working hours with excavated areas backfilled or plated. During working hours, two-way traffic control shall be maintained using appropriate flaggers.

2. Access to all properties shall be maintained at all times except when work is occurring at the access point. Minimal delays will be allowed to provide access within the work zone area. Driveway access shall be fully restored at the end of each workday.

3. Contractor shall ensure driveways are not blocked with the placement of the traffic control signs.

4. Residents and businesses shall be notified in writing, as approved by the County 48-hours in advance of any impacts to their access.

5. Contractor shall publish notification of the project and its impacts in The Record seven days prior to starting work. Provide a copy of the notification to San Joaquin County Public Works.

6. Any areas where parking is to be restricted shall have signs noticing the time period placed at least 48 hours in advance of the work.

7. The contractor shall continuously monitor and maintain the temporary above ground bypass piping and pumps.

8. Any leaks or spills shall be immediately contained or disposed.

9. No trench cutting of County roads shall occur.

10. All pipe and pipeline related facilities including, but not limited to, valves, utility boxes and vaults, and frames and covers shall be maintained by the City of Stockton. The City shall be responsible for any and all costs associated with the relocation and/or adjustment of these facilities as determined by the County at the City's expense. (Streets and Highways Code 1463)

11. All future maintenance of the pipeline and related facilities within the County right-of-way will require a San Joaquin County Encroachment Permit.

12. Any repair to roadways and adjacent areas shall match existing grades.

13. School buses shall be passed through the work zone with minimal delays.

14. County roads shall be kept clean from mud and debris at all times along the access points and work zone areas during entire project. All standard roadway striping and signage shall be clearly visible, maintained and restored throughout the construction zone during and after the project.

15. In addition to standard dust control measures, streets shall be maintained in a clean condition, free of dirt, mud and debris during construction activities. The contractor shall provide daily, or as needed, street sweeping using a modern mechanical or vacuum-assisted street sweeper.

16. The contractor shall not conduct construction operations in rain or heavy fog conditions.

APPLICATION FOR ENCROACHMENT PERMIT

PLEASE PRINT:

Date 06-02-2014

To: San Joaquin County
Department of Public Works

C.O.S. Public Works Dept.: Attn: Rosa Alvarez
(Applicant Name)

22 E. Weber Avenue, Room 301
(Mailing Address)

Stockton, CA 95202
(City, State, Zip Code)

209-937-8134
(Area Code - Telephone Number)

OFFICE USE ONLY

JOB #	760164	REF #	
APN		CR #	
EXP. DATE	10/15/14		
VALID	7/25/14 TO 10/15/14		DRIVEWAYS:
STREET	TUXEDO AVENUE		*
AREA	STOCKTON QUAD CC		*
TYPE	TRAFFIC CONTROL DEVICES		*
FORMS	SS/WW		
NOTES			

Sketch (Detailed plans may be submitted)

The undersigned hereby applies for permission to excavate, construct and/or otherwise encroach on County Highway Right-of-Way on the west side of Pershing Avenue approximately 6,300 feet/mile 36" of sewer line, , by performing the following work (description of work):
Rehabilitate existing sewer line by cured-in-place pipe along Tuxedo Avenue between Pershing Avenue and Interstate 5. Portion of the sewer line is in County right-of-way.

Work will commence on or about July 28 2014 for approximately ~~35~~ 10/15/14 ~~days~~.

I, the undersigned, certify that I am the owner of the respective property, or am qualified to represent the owner and agree to do the work described above in accordance with the rules and regulations of San Joaquin County and subject to inspection and approval.

Rosa Alvarez - Associate Engineer
Signature of Applicant - Title

06-02-14
Date

SAK Construction

OWNER: City of Stockton, CA
PROJECT: Tuxedo Avenue Sewer Rehabilitation Project, Project No. M04014

SHOT NUMBER	SHEET	DWG	U/S MH	D/S MH	LOCATION	DIAM.	CIPP LENGTH	LATS	SHOT LENGTH	SHOT LATS	TOTAL SHOT HRS	NO. OF DAYS
1	12	PP-6	Exist SSMH-380	Exist SSMH-370	Pershing Ave - @ S. Tuxedo Ave	36	125	0	125	0	14.0	1.0
2	12 & 11	PP-6 & PP-5	Exist SSMH-370	Exist SSMH-360	S. Tuxedo Ave - Pershing Ave to Grange Ave	36	1,301	1	1,301	1	36.0	2.0
3	11 & 10	PP-5 & PP-4	Exist SSMH-360	Exist SSMH-350	S. Tuxedo Ave - Grange Ave to Mission Rd	36	1,160	0	1,160	0	36.0	2.0
4	10	PP-4	Exist SSMH-350	Exist SSMH-341A	S. Tuxedo Ave @ Mission Rd to Lake Dr s/o S. Tuxedo Ave	36	379	0				
4	10 & 9	PP-4 & PP-3	Exist SSMH-341A	Exist SSMH-340	Lake Dr s/o S. Tuxedo Ave to Marine Ave s/o Canal Dr	36	544	0	923	0	36.0	2.0
5	9	PP-3	Exist SSMH-340	Exist SSMH-330	Marine Ave s/o Canal Dr to Carlton Ave s/o S. Tuxedo Ave	36	652	1	652	1	30.0	2.0
6	9 & 8	PP-3 & PP-2	Exist SSMH-330	Exist SSMH-327	Carlton Ave s/o S. Tuxedo Ave to Esmt @ 2007 Franklin Ave	36	373	0				
6	8	PP-2	Exist SSMH-327	Exist SSMH-324	Easement from 2007 Franklin Ave to 2252 Canal Dr	36	340	0				
6	8	PP-2	Exist SSMH-324	Exist SSMH-323	Easement from 2252 Canal Dr to 2374 Canal Dr	36	519	0	1,232	0	36.0	2.0
7	8 & 7	PP-2 & PP-1	Exist SSMH-323	Exist SSMH-321	Easement from 2374 Canal Dr to 2020 Plymouth Rd	36	418	2				
7	7	PP-1	Exist SSMH-321	Exist SSMH-320	Easement @ 2020 Plymouth Rd	36	366	0				
7	7	PP-1	Exist SSMH-320	Exist SSMH-310	Easement @ 2020 Plymouth Rd	36	13	0	797	2	36.0	2.0
8	7	PP-1	Exist SSMH-310	Exist SSMH-300	Easement from 2020 Plymouth Rd to 2130 Fontana Ave (crosses under I-5)	48	272	0	272	0	36.0	2.0
9	7	PP-1	Exist SSMH-300	Exist SSMH-298	Easement @ 2130 Fontana Ave	30	184	0	184	0	14.0	1.0
							6,646	4	6,646	4	274.0	16.0

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Flow Diversion / Bypass Plan/ Emergency Response Plan

City of Stockton

Tuxedo Ave. Sewer Rehabilitation Project

1. Introduction

It is necessary that active flow be diverted from or pumped around the section of pipe being rehabilitated. Typical bypass will be accomplished by plugging a manhole upstream of the inversion manhole. Temporary piping is laid between this upstream manhole and a manhole downstream of the inversion. A pump, positioned at the upstream manhole is used to pump flow around the inversion. The pump and the entire length of the bypass are continually monitored. Once the inversion is complete, the ends are cut, and post television inspection is finished, active flow will be reintroduced to the line.

2. Site Description

This project is located in the City of Stockton, along S. Tuxedo Ave and Canal Drive.

3. Preliminary Inspection & Assessment

Prior to any bypasses activity a thorough inspection of the main line and all tributaries and laterals are completed.
3.1 Review all project documents to identify tributaries and laterals.
3.2 Inspect and verify all dimensions and elevations.
3.3 Estimate flow.

4. Calculations

Once all of the information has been verified, Calculations are made to determine the plugging and pumping requirements.

4.1Upon completion of the calculations the appropriate plugs and pumps are delivered to the site.

5. Piping

Based on the amount of flow, the type and size of pump, suitable piping will be positioned around the section of pipe being rehabilitated.

5.1 The pipe will be inspected for damage.
5.2 The pipe will be connected to form a continuous length.
5.3 The downstream end of the piping will terminate inside the downstream manhole, where flow will be returned to the system.

6. Plugging

Manholes are plugged based on the type of plug and pump to be used. If the manhole is to be used as a wet well the plug is positioned on the downstream side of the manhole.

6.1 Plugs are inspected for damage.
6.2 Plugs are fitted with the appropriate hold back equipment (typically rope for small diameter pipe and wire rope or chain for large diameter pipe)
6.3 Plugs are equipped with hoses to fill them with air and gauges to monitor pressure.
6.4 Plugs are lowered and positioned inside the pipe at the bottom of the manhole.
6.5 The hold back rope is secured either directly to the manhole or to a large timber placed on top of the manhole.
6.6 The plugs are inflated to the recommended pressure with an air compressor.

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7. Pumping

Based on the flow calculations and the holding capacity of the line the appropriate sized pump is positioned at the upstream manhole.

7.1 The suction and discharge hoses are fitted to the pump
7.2 The discharge hose is connected to the piping either directly or through a manifold.
7.3 The suction hose is lowered into the manhole and secured.
7.4 The pump is primed and started.

8. Monitoring

Once the bypass is operational the plugs and pumps are manned and monitored continually.

8.1 A monitor is positioned at the upstream manhole to monitor the plugs and pumps.
8.2 The plugs are checked frequently to ensure the proper pressure is maintained.
8.3 Pumps are continuously checked to ensure they are keeping up with flows.
8.4 A radio or cell phone is available to the operator, so that in case of a problem he can call for assistance.

9. Completion

When the rehabilitation is complete and the line is ready for active flow to be reintroduced the pumps are turned off and the plugs removed.

9.1 The pumps are turned off and removed from the site.
9.2 The plugs are relieved in a controlled manner so that flooding does not occur downstream.
9.3 The plugs are removed from the line.
9.4 The piping is removed from the area.
9.5 If necessary, the manhole will be washed to remove any residue from the surcharge.

10. Inversion 1 MH 380 to MH 370 (IN THE CITY OF STOCKTON)

A Plug will be installed upstream of MH 380 and in the existing 18" and 6" coming into MH 380.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.
The flow from the 24" at MH 370 will be plugged and pumped to MH 22.

11. Inversion 2 MH 370 to MH 360 (IN THE CITY OF STOCKTON)

A Plug will be installed in the existing 24" coming into MH 370 then connected to the 30" headed south.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.

12. Inversion 3 MH 360 to MH 350

A Plug will be installed upstream of MH 360 and in the existing 12" and 6" coming into MH 360 then connected together.
These lines will be connected together allowing the flow to backup and discharge into the 30" on S. Tuxedo Ave.

13. Inversion 4 MH 350 to MH 340

A Plug will be installed upstream side of MH 350 allowing the flow to backup and discharge into the 30" on S. Tuxedo Ave.
The flow from the 8" at MH 350 will be plugged and connected to the 15" line headed North and discharge to a 48" line located on County Club Drive.
The 12" line at MH 341A will be plugged and pumped to the 15" line located on Mission Rd.
All road crossing or driveways will have ramps or hose capable of being driven over.

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14. Inversion 5 MH 340 to MH 330
A Plug will be installed upstream side of MH 340 and in the existing 8" coming into MH 340 then connected together.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.

15. Inversion 6 MH 330 to MH 323 (IN THE CITY OF STOCKTON)
A Plug will be installed upstream side of MH 330 and in the existing 12" & 6" coming into MH 330 then connected together.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.
The flow from the 8" at MH 327 will be picked up with a vacuum truck and discharge to sewer line on S. Tuxedo Ave.
The flow from the 8" at MH 324 will be plugged and pumped to a 6" line located on Canal Dr. and Delaware Ave.
All road crossing or driveways will have ramps or hose capable of being driven over.

16. Inversion 7 MH 323 to MH 320 (IN THE CITY OF STOCKTON)
A Plug will be installed upstream side of MH 323 and in the existing 8" coming into MH 323 then connected together.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.
The flow from the 6" at MH 321 will be plugged and pumped to MH 310 if needed.
All road crossing or driveways will have ramps or hose capable of being driven over.

17. Inversion 8 MH 320 to MH 300 (IN THE CITY OF STOCKTON)
A Plug will be installed upstream side of MH 320.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.
The flow from the 15" at MH 320 will be plugged and pumped to a 48" line located on Plymouth Rd.
All road crossing or driveways will have ramps or hose capable of being driven over.

18. Inversion 9 MH 300 to MH 298 (IN THE CITY OF STOCKTON)
A Plug will be installed Downstream side of MH 320.
This will allow the flow to be directed to the 30" line on South Tuxedo Ave and North Orange St.
The flow from the 18" at MH 300 will be plugged and pumped to a 48" line.
All road crossing or driveways will have ramps or hose capable of being driven over.

Lateral Bypass

- Pump from existing or newly installed cleanout using 2" Diaphragm pump discharged through 2" double-jacketed cam-locked fire hose. It shall be connected with other lateral bypasses and then discharge into the nearest discharge manhole.
- Second option is to have a vacuum truck periodically vacuum the laterals out from the cleanouts and discharge the water into the nearest discharge manhole.

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Emergency Response Plan

Onsite at all times will be a backup/ standby pump, extra discharge hose, extra fitting and Spill Kit.

Onsite personnel will immediately shut down the bypass pumping system and connect the standby pump then the Onsite personnel will contain (using berms, sandbags or mats at the nearest downgrade storm drain inlet) to the greatest extent possible to with the available equipment and resources. If the bypass discharge pipe is damaged and leaking The onsite crew will shut down the bypass system and repair/replace the damaged pipe and refire the bypass system.

If a spill does occur the crew will implement the containment system and begin vacuuming up the liquid by using a Vactor/ Vacuum Truck or shop vacuum. Once all the liquid is disposed of the area will be disinfected and returned back to normal.

If needed onsite personnel will call PSC Industrial Outsourcing (Environment Cleaning Company) to assist with the spill clean up. The following is the contact information for PSC:

Erik Halden @ 707-333-0097
Dispatch @ 707-333-2287
Office @ 707-746-8287
24 Hour # 800-800-7472

- Spill Kit shall contain

Cellulose Filled Absorbent Socks	3" x 12'	4 each
Absorbent Pads 15" x 19"	30 each	
Absorbent Industrial Rug rolls	36" x 15'	1 each
Shovel		
Granular absorbent	2 bags	
Disinfectant	3 Gals	
Trash bags	20 each	
Roll of Plastic	48" x 100'	

ACDEU

Prime® Aire

VARIOUS PATENTS APPLY

Priming Assisted Centrifugal Enclosed Silent Pump w/Autostart

Model PA4A60C-4024T-ESP

Size 4" x 4"

Total Head		Capacity of Pump in U.S. Gallons per Minute (GPM) at Continuous Performance			
P.S.I.	Feet				
52.9	122	180	180	180	180
52.0	120	220	220	220	220
47.7	110	395	475	475	475
43.4	100	415	565	670	715
39.0	90	420	575	690	805
34.7	80	425	575	705	820
30.3	70	430	580	710	830
26.0	60	435	585	715	835
Suction Lift		25'	20'	15'	10'

SHOWN WITH OPTIONAL WHEEL KIT

PUMP SPECIFICATIONS

Size: 4" x 4" (102 mm x 102 mm) Flanged.
Casing: Gray Iron No. 30. Maximum Operating Pressure 87 psi (600 kPa).*
Semi-Open Type, Two Vane Impeller: Ductile Iron No. 65-45-12. Handles 3" (76,2 mm) Diameter Spherical Solids.
Impeller Shaft: Stainless Steel No.17-4.
Replaceable Wear Plate: Carbon Steel No. 1015.
Intermediate Bracket: Gray Iron No. 30.
Seal Plate: Gray Iron No. 30.
Seal: Cartridge Type, Mechanical, Oil-Lubricated, Double Floating, Self-Aligning. Silicon Carbide Rotating and Stationary Faces. Stainless Steel No. 316 Stationary Seat. Fluorocarbon Elastomers (DuPont Viton® or Equivalent). Stainless Steel No. 18-8 Cage and Spring. Maximum Temperature of Liquid Pumped 160°F (71°C).*
Shaft Sleeve: Alloy Steel No. 4130.
Priming Chamber: Gray Iron No. 30 Housing w/Stainless Steel Float and Linkage.
Discharge Check Valve: 125# Ductile Iron Housing w/Buna-N Flapper.
Radial Bearing: Open Single Row Ball.
Thrust Bearing: Open Double Row Ball.
Bearing and Seal Cavity Lubrication: SAE No. 30 Non-Detergent Oil.
Flanges: Gray Iron No. 30.
Gaskets: Buna-N, Cork, and Vegetable Fiber.
O-Rings: Fluorocarbon (DuPont Viton® or Equivalent).
Hardware: Standard Plated Steel.
Bearing and Seal Cavity Oil Level Sight Gauges.
**Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.*
Standard Equipment: Soundproof (EPA Average 68 dBA at 23 feet [7 meters] Under Load) Lightweight Aluminum Enclosure - Removable for Maintenance of Pump or Engine - w/Padlockable Door Panels. Combination Skid Base w/Fuel Tank. Strainer. Belt-Driven Air Compressor. Single Ball Type Float Switch.**
***50 Ft. (15 m) Standard Length; Dual Switches and Alternate Cable Lengths Available From the Factory.*
Optional Equipment: Battery. High Speed (55 MPH/89 KM/H) Wheel Kit with ST225/75R14 Pneumatic Tires. Over-the-Road Trailer (Meets D.O.T. and Transport Canada Requirements) Available w/Either Electric or Hydraulic Surge Brakes, Running Lights, Two Trailer Jack Stands and Safety Chains. EPS w/Submersible Transducer Liquid Level Sensor (50 Ft. [15 M] Cable Standard, Alternate Lengths Available).

WARNING!
Do not use in explosive atmosphere or for pumping volatile flammable liquids.

ENGINE SPECIFICATIONS

Model: John Deere 4024T "Power Tech".
Type: Four Cylinder, Four Cycle, Liquid Cooled Diesel Engine.
Displacement: 149 Cu. In. (2,4 Liters).
Governor: Mechanical.
Lubrication: Forced Circulation.
Air Cleaner: Dry Type.
Oil Reservoir: 8.5 U.S. Qts. (8 Liters) Dry; 7.6 U.S. Qts. (7.2 Liters) Refill.
Fuel Tank: 42 U.S. Gallons (159 Liters).
Full Load Operating Time: 23.2 Hours.
Starter: 12 Volt Electric.

Standard Features: Low Oil Pressure and High Coolant Temperature Safety Shut Down Switches. Autostart Instrumen Panel Includes: Tachometer, Voltmeter, Hourmeter, Coolant Temperature Gauge, Oil Pressure Gauge, Manual/Stop/Auto Key Switch, 10 Amp Pushbutton Circuit Breaker, Startup Warning Delay. Muffler w/Guard and Weather Cap. Throttle Control.

JOHN DEERE PUBLISHED PERFORMANCE:
Maximum Continuous B.H.P. 52 (38.8 kW) @ 2800 RPM

GR GORMAN-RUPP PUMPS

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO
GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA
www.grpumps.com
Specifications Subject to Change Without Notice
Printed In U.S.A.

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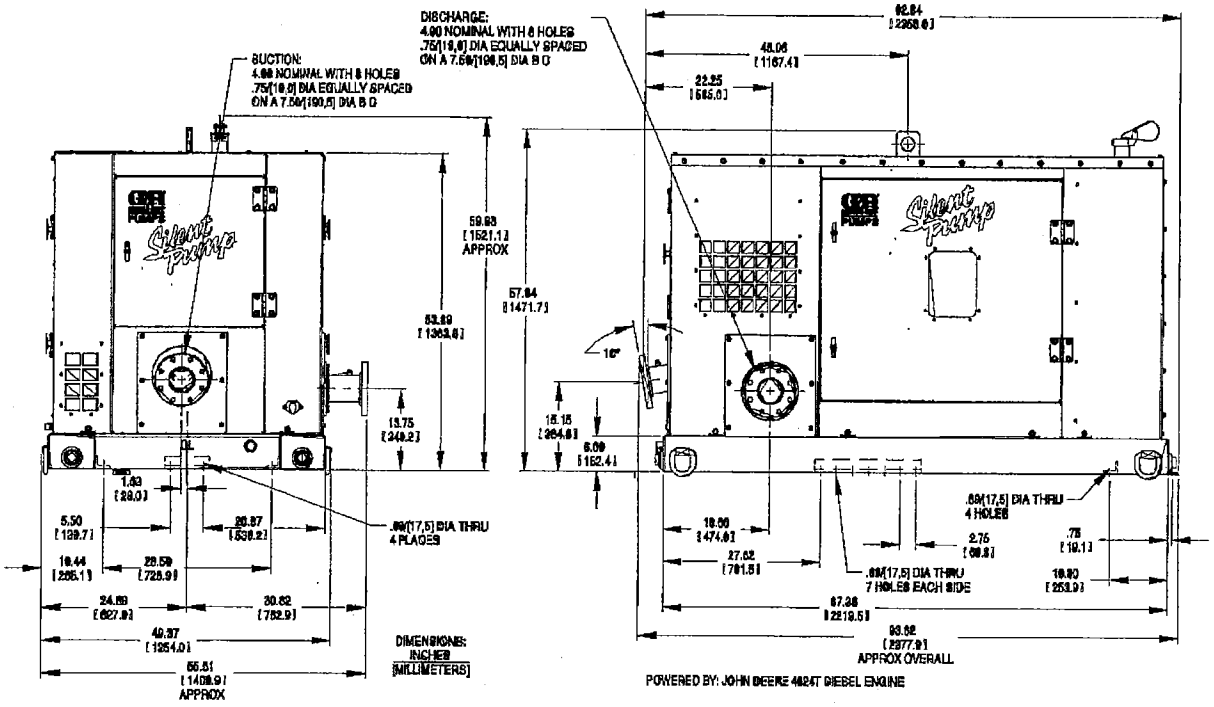
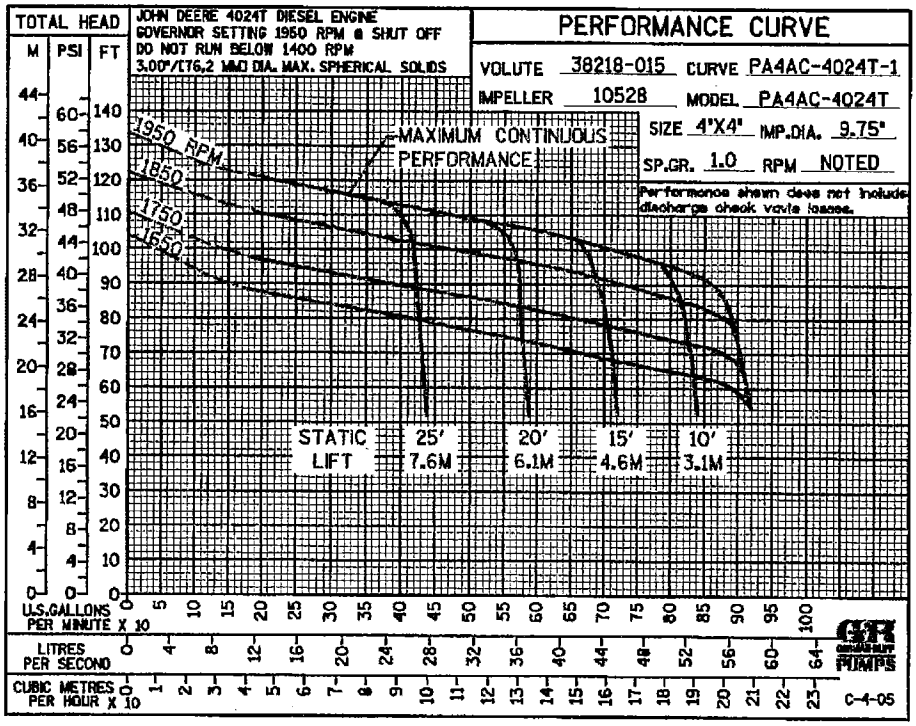
Specification Data	APPROXIMATE DIMENSIONS and WEIGHTS		SKID BASE	2-WHEEL
SECTION 42, PAGE 316		NET WEIGHT:	2495 LBS. (1132 KG.)	3150 LBS. (1429 KG.)
		SHIPPING WEIGHT:	2795 LBS. (1267 KG.)	3150 LBS. (1429 KG.)
		EXPORT CRATE SIZE:	234 CU. FT. (6,6 CU. M.)	





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ACDEU

Diesel Engine Driven/Sound Attenuated

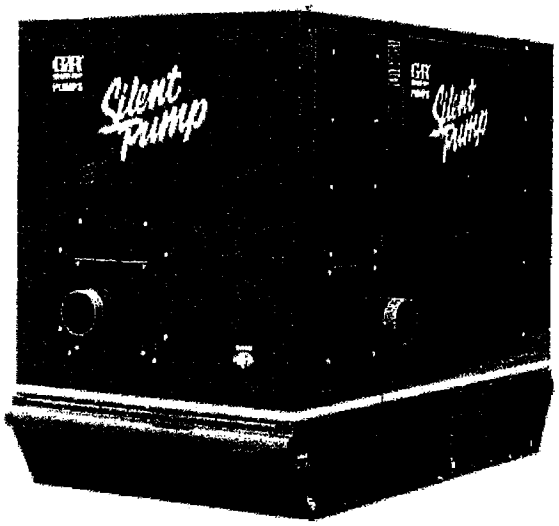
Priming Assisted Centrifugal Environmental Silent Pump w/Autostart

Model PA6C60–4045D–ESP

Size 6" x 6"

Prime® Aire

Total Head		Capacity of Pump in U.S. Gallons per Minute (GPM) at Continuous Performance				
P.S.I.	Feet					
63.3	146	200	200	200	200	200
60.7	140	400	400	400	400	400
52.0	120	820	1000	1000	1000	1000
43.4	100	960	1380	1420	1420	1420
34.7	80	1040	1500	1770	1770	1770
26.0	60	1100	1510	1815	2050	2050
17.4	40	1140	1505	1820	2120	2250
8.7	20	1200	1550	1820	2150	2360
Suction Lift		25'	20'	15'	10'	5'



PUMP SPECIFICATIONS

Size: 6" x 6" (152 mm x 152 mm) NPT - Male.
Casing: Ductile Iron No. 65-45-12. Maximum Operating Pressure 100 psi (690 kPa).*
Open Type, Two Vane Impeller: Ductile Iron No. 65-45-12. Handles 3" (76,2 mm) Diameter Spherical Solids.
Impeller Shaft: Stainless Steel No. 17-4 PH.
Replaceable Wear Plate: Ductile Iron No. 80-60-03.
Removeable Cleanout Cover Plate: Carbon Steel Plate.
Intermediate: Gray Iron No. 30.
Seal Plate: Gray Iron No. 30.
Seal: Mechanical, Oil-Lubricated. Silicon Carbide Rotating and Stationary Faces. Stainless Steel No. 316 Stationary Seat. Fluorocarbon Elastomers (DuPont Viton® or Equivalent). Stainless Steel No. 18-8 Cage and Spring. Maximum Temperature of Liquid Pumped, 160°F (71°C).*
Shaft Sleeve: Stainless Steel No. 17-4 PH.
Priming Chamber: Gray Iron No. 30.
Discharge Check Valve: Gray Iron No. 30 Housing w/Buna-N Flapper.
Radial and Thrust Bearings: Open Double Ball.
Bearing and Seal Cavity Lubrication: SAE No. 30 Non-Detergent Oil.
Gaskets: Resistant Synthetic Rubber, Cork, PTFE, Vegetable Fiber, and Compressed Synthetic Fibers.
Hardware: Standard Plated Steel.
Bearing and Seal Cavity Oil Level Sight Gauges.

**Consult Factory for Applications Exceeding Maximum Pressure and/or Temperature Indicated.*

Standard Equipment: Soundproof (EPA Average 67 dBA at 23 feet [7 meters] Under Load per CPB Standards) Lightweight Aluminum Enclosure - Removable for Maintenance of Pump or Engine - w/Padlockable Door Panels. Spill Containment Base w/Integral Drains and Fork Lift Pockets. Gear-Driven Air Compressor. Strainer. Single Ball Type Float Switch.**

***50 Ft. (15 m) Standard Length; Dual Switches and Alternate Cable Lengths Available From the Factory.*

Optional Equipment: Battery. Suction Vacuum and Discharge Pressure Gauge Kit. Over-the-Road Trailer (Meets D.O.T. and Transport Canada Requirements) Available w/Either Electric or Hydraulic Surge Brakes, Running Lights, Two Trailer Jack Stands and Safety Chains. EPS w/Submersible Transducer Liquid Level Sensor (50 Ft [15 M] Cable Standard, Alternate Lengths Available).

⚠ WARNING!
Do not use in explosive atmosphere or for pumping volatile flammable liquids.

ENGINE SPECIFICATIONS

Model: John Deere 4045D "Power Tech."
Type: Four Cylinder, Four Cycle, Liquid Cooled Diesel Engine.
Displacement: 276 Cu. In. (4,5 liter).
Governor: Mechanical.
Lubrication: Forced Circulation.
Air Cleaner: Dry Type.
Oil Reservoir: 9 U.S. Qts. (8,5 liter) Dry; 8 U.S. Qts. (7,5 liter) Refill.
Fuel Tank: 84 U.S. Gal. (318 liter).
Full Load Operating Time: 28 Hrs.
Starter: 12V Electric.

Standard Features: Low Oil Pressure, High Coolant Temperature and Start Failure Safety Shut Down Switches/Indicators. Throttle Control. Autostart Instrument Panel Includes: Tachometer, Voltmeter, Hourmeter, Coolant Temperature and Oil Pressure Indicators, Manual/Stop/Auto Key Switch, 10 Amp Fuse, Audible Startup Warning Delay. Muffler w/Guard and Weather Cap.

JOHN DEERE PUBLISHED PERFORMANCE:

Maximum Continuous BHP 76 (57 kW) @ 2500 RPM
Maximum Dynamic BHP 80 (60 kW) @ 2500 RPM

G·R GORMAN-RUPP PUMPS

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO
GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA
www.grpumps.com
Specifications Subject to Change Without Notice
Printed in U.S.A.

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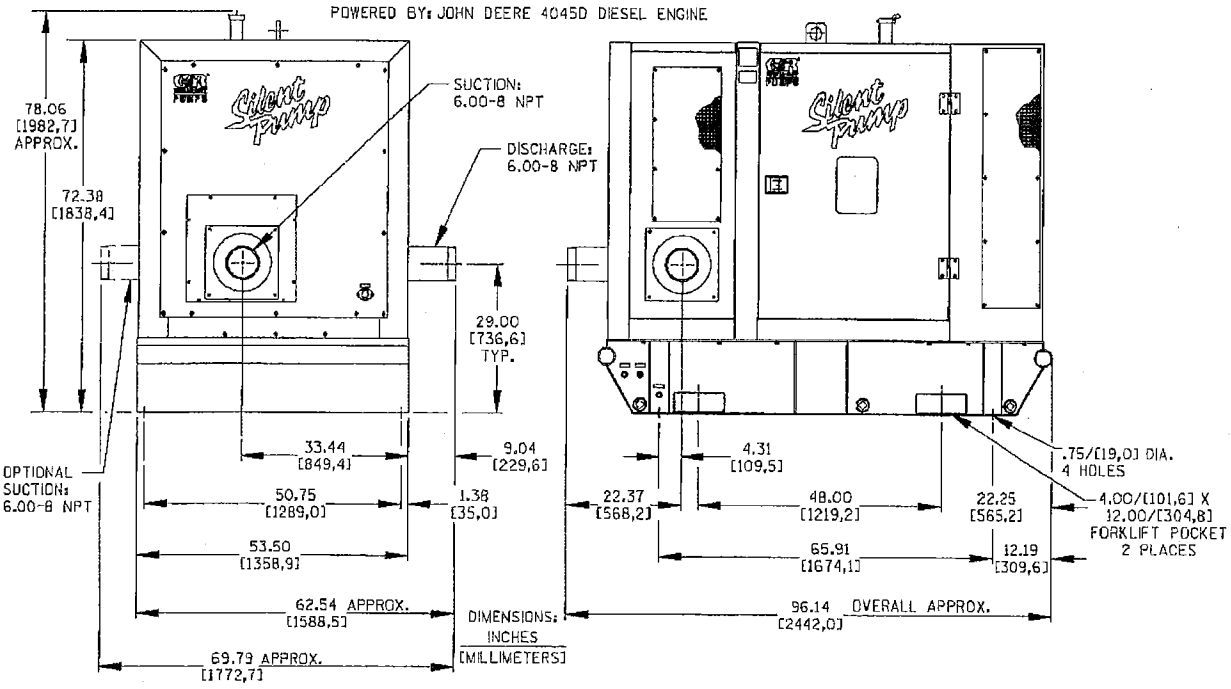
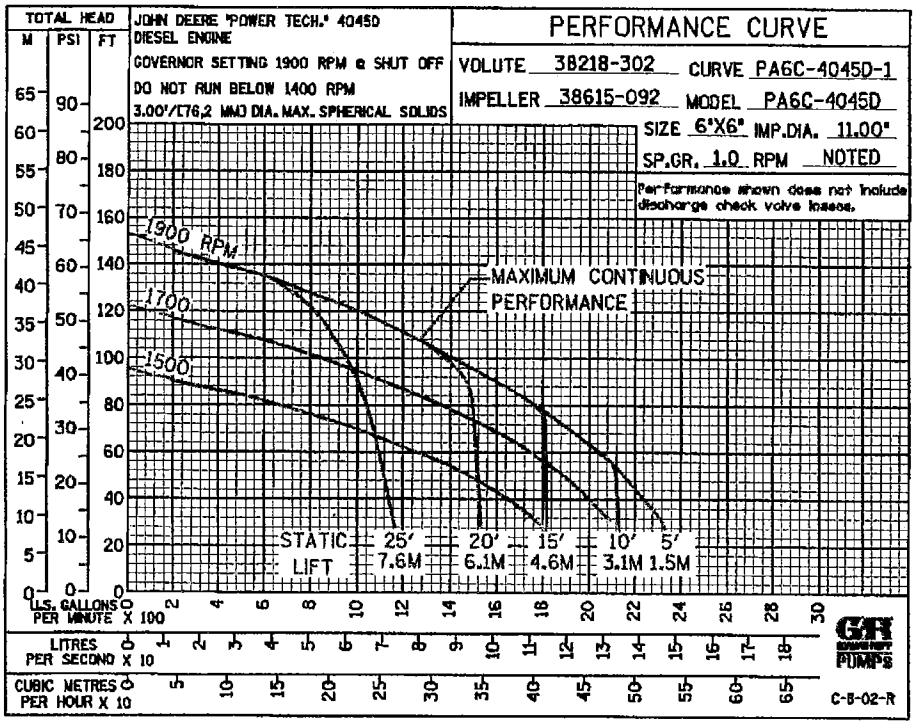
Specification Data	APPROXIMATE DIMENSIONS and WEIGHTS		SKID BASE	HIGHWAY TRAILER
SECTION 42, PAGE 1120		NET WEIGHT:	4430 LBS. (2009 KG.)	6105 LBS. (2769 KG.)
		SHIPPING WEIGHT:	4660 LBS. (2114 KG.)	6105 LBS. (2769 KG.)
		EXPORT CRATE SIZE:	397 CU. FT. (11.2 CU. M.)	





GORMAN-RUPP PUMPS

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO

GORMAN-RUPP OF CANADA LIMITED • ST. THOMAS, ONTARIO, CANADA

Specifications Subject to Change Without Notice

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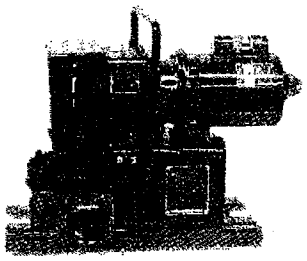
GORMAN-RUPP PUMPS

Self-Priming Diaphragm Pumps

- *Aluminum Construction (Except 2D models which are Cast Iron)*
- *Self-priming to 25 Ft.*
- *Neoprene or "DuraBlue 1000™" Diaphragm Material*
- *2", 3" and 4" NPT Port Sizes*
- *Solids Handling Capabilities to 2-1/4" Diameter*
- *Driver Options: ODP Electric Motor, Explosion-Proof Electric Motor, Gasoline Engine, or Basic Unit (less driver)*
- *Delivers up to 130 GPM*
- *Two (2) Wheel Truck Assembly Standard (Except 2D Models - Which are Furnished with a Stationary Base.*



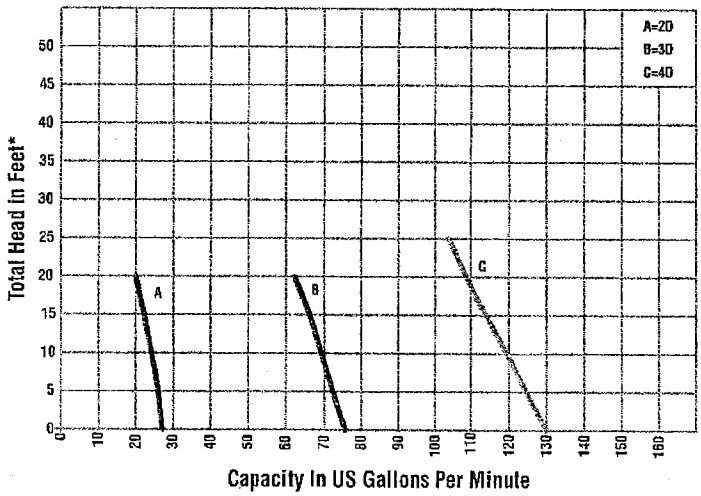
Model 2D

The Gorman-Rupp line of diaphragm pumps is designed to pump sludge, sewage, mud, and other heavy liquids that have the ability to flow. All models are self-priming, have built-in flap valves, and include a suction strainer. The 3" and 4" models are furnished with a two wheel truck assembly. Models are available with an explosion-proof motor, ODP electric motor, gasoline engine, or as a basic model, less driver (furnished with a flex coupling). Standard diaphragms are "DuraBlue 1000™" in 3" and Neoprene in 2" pump and 4" pumps.

PREMIUM HEAVY DUTY

Model 3D-X1.5 1P

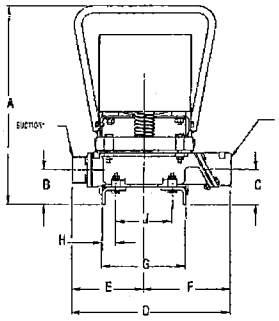
Composite of Performance Curves



*Convert to PSI, divide by 2.31

Liquid-Water specific gravity 1.0

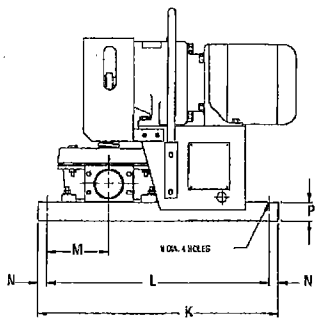
Diaphragm Pumps

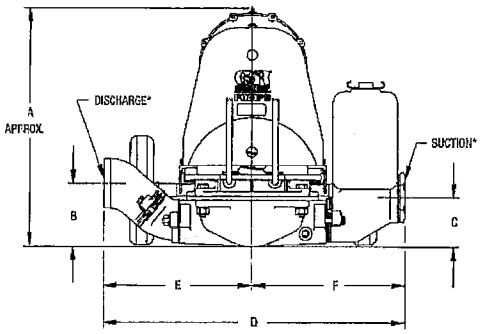


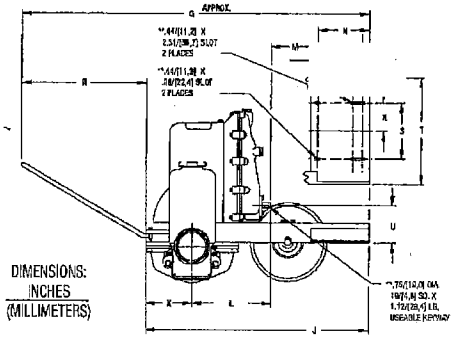
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	SUCT*	DISCH*
2D-E.50 1P	17.25 (438.2)	3.00 (76.2)	3.00 (76.2)	13.52 (343.4)	6.00 (152.4)	7.39 (187.7)	7.00 (177.8)	1.12 (28.4)	4.75 (120.6)	19.25 (489.0)	17.75 (450.9)	5.00 (127.0)	0.75 (19.0)	1.50 (38.1)	0.41 (10.4)	2.00	2.00
2D-E.50 3P	17.25 (438.2)	3.00 (76.2)	3.00 (76.2)	13.52 (343.4)	6.00 (152.4)	7.39 (187.7)	7.00 (177.8)	1.12 (28.4)	4.75 (120.6)	19.25 (489.0)	17.75 (450.9)	5.00 (127.0)	0.75 (19.0)	1.50 (38.1)	0.41 (10.4)	2.00	2.00
2D-X.75 1P	17.25 (438.2)	3.00 (76.2)	3.00 (76.2)	13.52 (343.4)	6.00 (152.4)	7.39 (187.7)	7.00 (177.8)	1.12 (28.4)	4.75 (120.6)	19.25 (489.0)	17.75 (450.9)	5.00 (127.0)	0.75 (19.0)	1.50 (38.1)	0.41 (10.4)	2.00	2.00
2D-E.75 3P	17.25 (438.2)	3.00 (76.2)	3.00 (76.2)	13.52 (343.4)	6.00 (152.4)	7.39 (187.7)	7.00 (177.8)	1.12 (28.4)	4.75 (120.6)	19.25 (489.0)	17.75 (450.9)	5.00 (127.0)	0.75 (19.0)	1.50 (38.1)	0.41 (10.4)	2.00	2.00

(*) STANDARD NPT PIPE THREADS

2" MOTOR DRIVEN & BASIC DIAPHRAGM PUMPS







DIMENSIONS:
INCHES
(MILLIMETERS)

MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	SUCT*	DISCH*
3D-B	22.26 (565.4)	5.69 (144.5)	3.63 (92.1)	28.25 (717.6)	13.69 (347.7)	14.56 (369.9)	49.4 (1255.7)	19.50 (495.3)	29.94 (760.4)	6.50 (165.1)	12.31 (312.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.00/ 3.00	3.00
3D-E1.5 1P	22.26 (565.4)	5.69 (144.5)	3.63 (92.1)	28.25 (717.6)	13.69 (347.7)	14.56 (369.9)	49.4 (1255.7)	19.50 (495.3)	29.94 (760.4)	6.50 (165.1)	12.31 (312.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.00/ 3.00	3.00
3D-E1.5 3P	22.26 (565.4)	5.69 (144.5)	3.63 (92.1)	28.25 (717.6)	13.69 (347.7)	14.56 (369.9)	49.4 (1255.7)	19.50 (495.3)	29.94 (760.4)	6.50 (165.1)	12.31 (312.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.00/ 3.00	3.00
3D-X1.5 1P	22.26 (565.4)	5.69 (144.5)	3.63 (92.1)	28.25 (717.6)	13.69 (347.7)	14.56 (369.9)	49.4 (1255.7)	19.50 (495.3)	29.94 (760.4)	6.50 (165.1)	12.31 (312.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.00/ 3.00	3.00
3D-X1.5 3P	22.26 (565.4)	5.69 (144.5)	3.63 (92.1)	28.25 (717.6)	13.69 (347.7)	14.56 (369.9)	49.4 (1255.7)	19.50 (495.3)	29.94 (760.4)	6.50 (165.1)	12.31 (312.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.00/ 3.00	3.00
3D-13	22.26 (565.4)	5.69 (144.5)	3.63 (92.1)	28.25 (717.6)	13.69 (347.7)	14.56 (369.9)	49.4 (1255.7)	19.50 (495.3)	29.94 (760.4)	6.50 (165.1)	12.31 (312.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.00/ 3.00	3.00
4D-B	26.32 (668.5)	6.96 (176.8)	5.47 (138.9)	33.60 (853.4)	16.73 (424.9)	16.87 (428.5)	54.25 (1378.0)	19.25 (489.0)	35.00 (889.0)	7.38 (187.4)	12.38 (314.2)	7.25 (184.2)	8.00 (203.2)	7.00 (177.8)	5.50 (139.7)	5.50 (108.0)	5.50 (215.9)	5.50 (412.80	5.50 (133.4)	3.00/ 4.00	4.00
4D-E3 3P	26.32 (668.5)	6.96 (176.8)	5.47 (138.9)	33.60 (853.4)	16.73 (424.9)	16.87 (428.5)	51.66 (1378.0)	19.25 (489.0)	32.38 (889.0)	7.38 (187.4)	12.38 (314.2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.00/ 4.00	4.00
4D-X3 1P	26.32 (668.5)	6.96 (176.8)	5.47 (138.9)	33.60 (853.4)	16.73 (424.9)	16.87 (428.5)	51.66 (1378.0)	19.25 (489.0)	32.38 (889.0)	7.38 (187.4)	12.38 (314.2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.00/ 4.00	4.00
4D-X3 3P	26.32 (668.5)	6.96 (176.8)	5.47 (138.9)	33.60 (853.4)	16.73 (424.9)	16.87 (428.5)	51.66 (1378.0)	19.25 (489.0)	32.38 (889.0)	7.38 (187.4)	12.38 (314.2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.00/ 4.00	4.00

(*) STANDARD NPT PIPE THREADS (**) MODELS 4D ONLY

3" & 4" MOTOR DRIVEN & BASIC DIAPHRAGM PUMPS

Model No.	Curve	Description/ Type of Pump	Ship Wt (Lbs)	Driver Type & HP	Port size Suc x dis (NPT)	Basic Construc-tion	Seal Type & Elastomer/ Faces	VAC or Tank Size	FL Amps or Run time	Motor Enclosure
2D-E-50 1P	A	Diaphragm Pumps	120	Electric Motor	2" x 2"	C.I.	Neoprene	115/230 1P		ODP
2D-E-50 3P	A	Diaphragm Pumps	120	Electric Motor	2" x 2"	C.I.	Neoprene	230/460 3P		ODP
2D-X.75 1P	A	Diaphragm Pumps	120	Electric Motor	2" x 2"	C.I.	Neoprene	115/230 1P		Exp. Proof
2D-X.75 3P	A	Diaphragm Pumps	120	Electric Motor	2" x 2"	C.I.	Neoprene	230/460 3P		Exp. Proof
3D-B	B	Diaphragm Pumps	181	N/A	3" or 2" x 3"	Alum.	DuraBlue™ Elastomer	N/A		For 145T
3D-E1.5 1P	B	Diaphragm Pumps	260	Electric Motor	3" or 2" x 3"	Alum.	DuraBlue™ Elastomer	115/230 1P		ODP
3D-E1.5 3P	B	Diaphragm Pumps	260	Electric Motor	3" or 2" x 3"	Alum.	DuraBlue™ Elastomer	230/460 3P		ODP
3D-X1.5 1P	B	Diaphragm Pumps	300	Electric Motor	3" or 2" x 3"	Alum.	DuraBlue™ Elastomer	115/230 1P		Exp. Proof
3D-X1.5 3P	B	Diaphragm Pumps	300	Electric Motor	3" or 2" x 3"	Alum.	DuraBlue™ Elastomer	230/460 3P		Exp. Proof
3D-13	B	Diaphragm Pumps	204	B&S 5HP	2" x 3"	Alum.	DuraBlue™ Elastomer	3 Gal.	1.88	N/A
4D-B	C	Diaphragm Pumps	345	N/A	4"or 3"x4"	Alum.	Neoprene	N/A	N/A	For 182T & 184T
4D-E3 3P	C	Diaphragm Pumps	420	Electric Motor	4"or 3"x4"	Alum.	Neoprene	230/460 3P		ODP
4D-X3 1P	C	Diaphragm Pumps	440	Electric Motor	4"or 3"x4"	Alum.	Neoprene	115/230 1P		Exp. Proof
4D-X3 3P	C	Diaphragm Pumps	440	Electric Motor	4"or 3"x4"	Alum.	Neoprene	230/460 3P		Exp. Proof

Standard Features

- Built-in flapper valves
- Includes suction strainer
- Models 3D-B & 4D-B are basic pumps less motor (furnished with flexible coupling)

WARNING: Do not use in explosive atmosphere or for pumping volatile flammable liquids.

OFF THE SHELF PUMPS

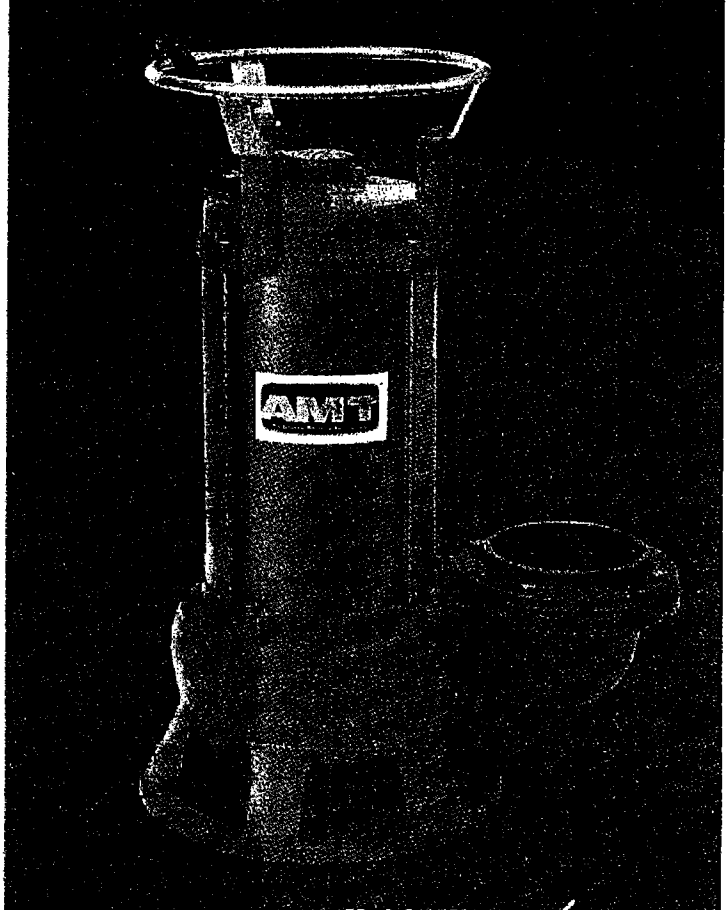
See price book page 14

The German-Rupp Company reserves the right to discontinue any model or change specifications at any time without incurring any obligation.

Submersible Shredder Sewage Pump

- *Cast Iron w/Stainless Steel Motor Housing*
- *Carbide Tipped Shredder Impellers*
- *Spiral Shredder Mechanism Plate Surface Hardened for Enhanced Cutting Ability*
- *Triplex Seal System: Double Mechanical Seals Plus Shaft Seal*
- *Silicon Carbide Lower Seal*
- *115, 230 or 460 VAC @ 60 Hz Available*
- *Single or 3 Phase Available*
- *2", 3" or 4" NPT*
- *1 to 5 Horsepower*
- *Max Temperature 104° F*
- *UL/CSA Listed*

INDUSTRIAL DUTY



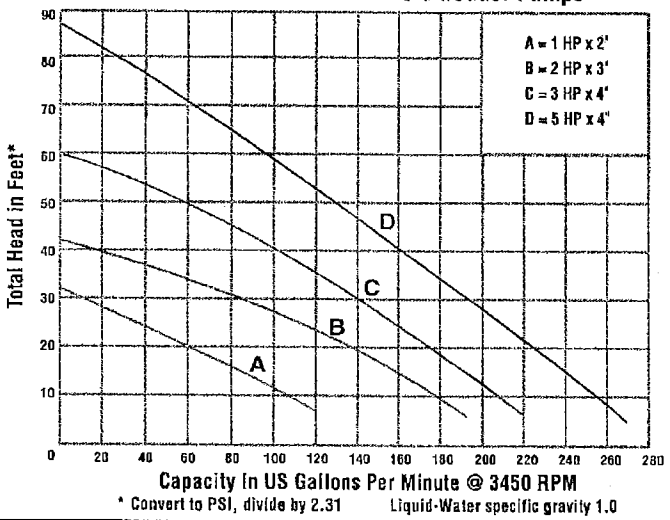
Model 5765-95

AMT Submersible Shredder Sewage pumps feature an enhanced spiral shredder mechanism plate and carbide tipped impeller to prevent clogging and reduce maintenance when cutting through stringy, fibrous and sludge type waste. Applications include sewage pumping stations, septic tanks, sewage treatment plants, dirty water drainage, flood and emergency. Motors are rated continuous duty and single phase models have thermal overload protection.

AMT Submersible Shredder Sewage Pumps are reliable, cost effective, low maintenance and many are readily available "**Off-the-shelf**" for fast 24 hour shipment. Minimum liquid requirements must be above 85%. Failure to do so may cause pump damage and void warranty. For use with non-flammable liquids compatible with pump component materials.

Maximum 15% Solids

Performance of Submersible Shredder Pumps



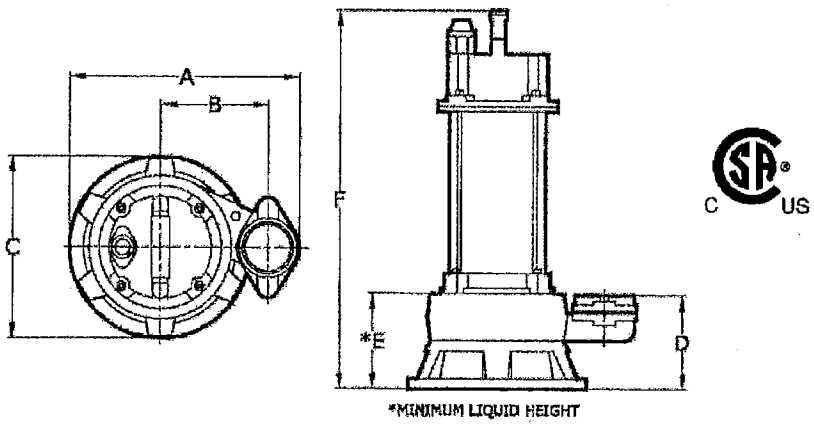
* Convert to PSI, divide by 2.31 Liquid-Water specific gravity 1.0

SUBMERSIBLE SHREDDER SEWAGE PUMPS

AMT P/N	Curve	Port +NPT	HP	PH	VAC @ 60 Hz	Full Load Amp	Ship Wt (Lbs)	A	B	C	D	E*	F	Max. Solids Dia.	Cord Length
5760-95	A	2"	1	1	115	13.5	50	11.5	5.4	8.9	5.8	4.6	18.5	1"	18' w/plug
5761-95	A	2"	1	1	230	6	50	11.5	5.4	8.9	5.8	4.6	18.5	1"	18'
5762-95	A	2"	1	3	230	3	50	11.5	5.4	8.9	5.8	4.6	18.5	1"	18'
576B-95	A	2"	1	3	460	1.5	50	11.5	5.4	8.9	5.8	4.6	18.5	1"	18'
5763-95	B	3"	2	1	230	12	82	14.0	6.5	10.5	6.6	5.6	21.7	1.1"	32'
5764-95	B	3"	2	3	230	6	68	14.0	6.5	10.5	6.6	5.6	17.6	1.1"	32'
576C-95	B	3"	2	3	460	3	68	14.0	6.5	10.5	6.6	5.6	17.6	1.1"	32'
5765-95	C	4"	3	1	230	16	120	16.2	7.6	10.5	6.7	5.6	22.9	1.1"	32'
5766-95	C	4"	3	3	230	8.5	105	16.2	7.6	10.5	6.7	5.6	18.9	1.1"	32'
576D-95	C	4"	3	3	460	4.3	105	16.2	7.6	10.5	6.7	5.6	18.9	1.1"	32'
5767-95	D	4"	5	3	230	14	110	16.2	7.6	10.5	6.7	5.6	19.7	1.2"	32'
576E-95	D	4"	5	3	460	7	110	16.2	7.6	10.5	6.7	5.6	19.7	1.2"	32'

+Standard Female NPT
NOTE: Dimensions are in inches and have a tolerance of ± 1/8"
NOTE: Electric Supply for ALL motors must be within ± 10% of nameplate voltage (Ex: 230V = 203 to 253)

Pump Dimensional and Specification Data



Standard Features

- Cast Iron Construction
- Stainless Steel Motor Housing
- Double Mechanical Seal with Carbide Lower Seal
- Carbide Tipped Impeller
- UL/CSA Listed
- Suction Screen
- Carrying Handle
- 104° F Max. Temperature

See price book page 40

The Gorman-Rupp Company reserves the right to discontinue any model or change specifications at any time without incurring any obligation.

Godwin Pumps® Temporary Road Ramps

For use with 4-, 6-, 8-, 12- and 18-inch pipelines, Godwin road ramps provide a temporary crossing for low-traffic industrial, mining, commercial and residential areas where vehicular access over a pipeline is required.

With everything from pumps, valves and hoses to light towers, generators and road ramps, Godwin Pumps can completely outfit your temporary and long-term project site needs.

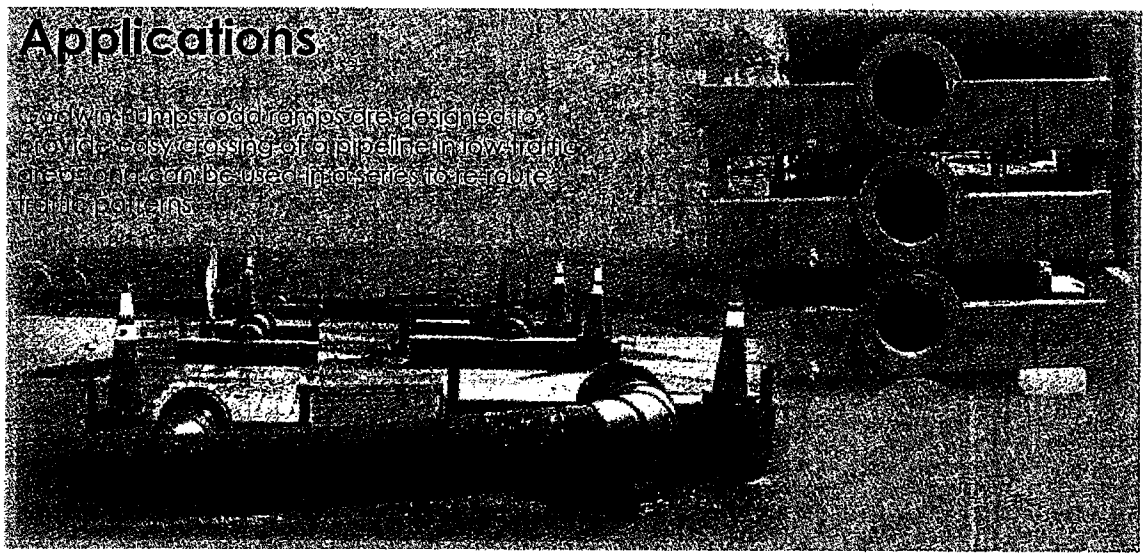
Features

- Sturdy structural steel construction.
- Passable vehicle width of 12'.
- Low profile for easy crossing.
- Capable of passing solids and fitted with 150 lb. flanged inlet and outlet connections.
- Drain valve provides capability to drain ramp after use.
- Maximum pressure rating of 80 psi.
- Sturdy, stackable construction enables easy storage.

godwin pumps

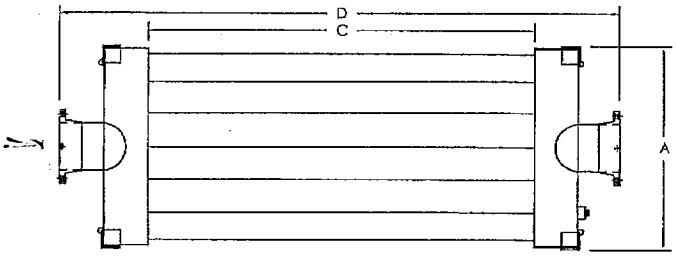
Road Ramps

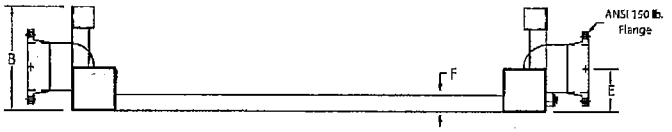
Applications



Godwin Pumps road ramps are designed to provide easy crossing of a pipeline in low traffic areas. Ramps can be used in a series to route traffic patterns.

Drawing





Ramp to be used

Size	A	B	C	D	E	F	Max. Capacity (GPM)	Solids Passing Capability	Approx. Weight (lbs.)	Est. Equiv. Length
4"	24.75"	14.5"	144"	166"	6.125"	3"	500	2.5"	650	60'
6"	30.75"	15.5"	144"	172"	6.125"	3"	1,000	2.5"	850	90'
8"	36.5"	19"	144"	176"	8"	3"	2,000	2.5"	1,900	120'
12"	61"	24"	144"	180.5"	10.5"	3"	4,000	2.5"	2,300	180'
18"	95"	30.25"	144"	188.5"	13.625"	4"	7,000	3.5"	5,000	270'

- Maximum load capacity of 21,600 pounds per axle.
- Maximum crossing speed is 5 MPH.

Home Office:
Godwin Pumps of America, Inc.
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Bridgeport, NJ 08014 USA
(856) 467-3636 • Fax: (856) 467-4841
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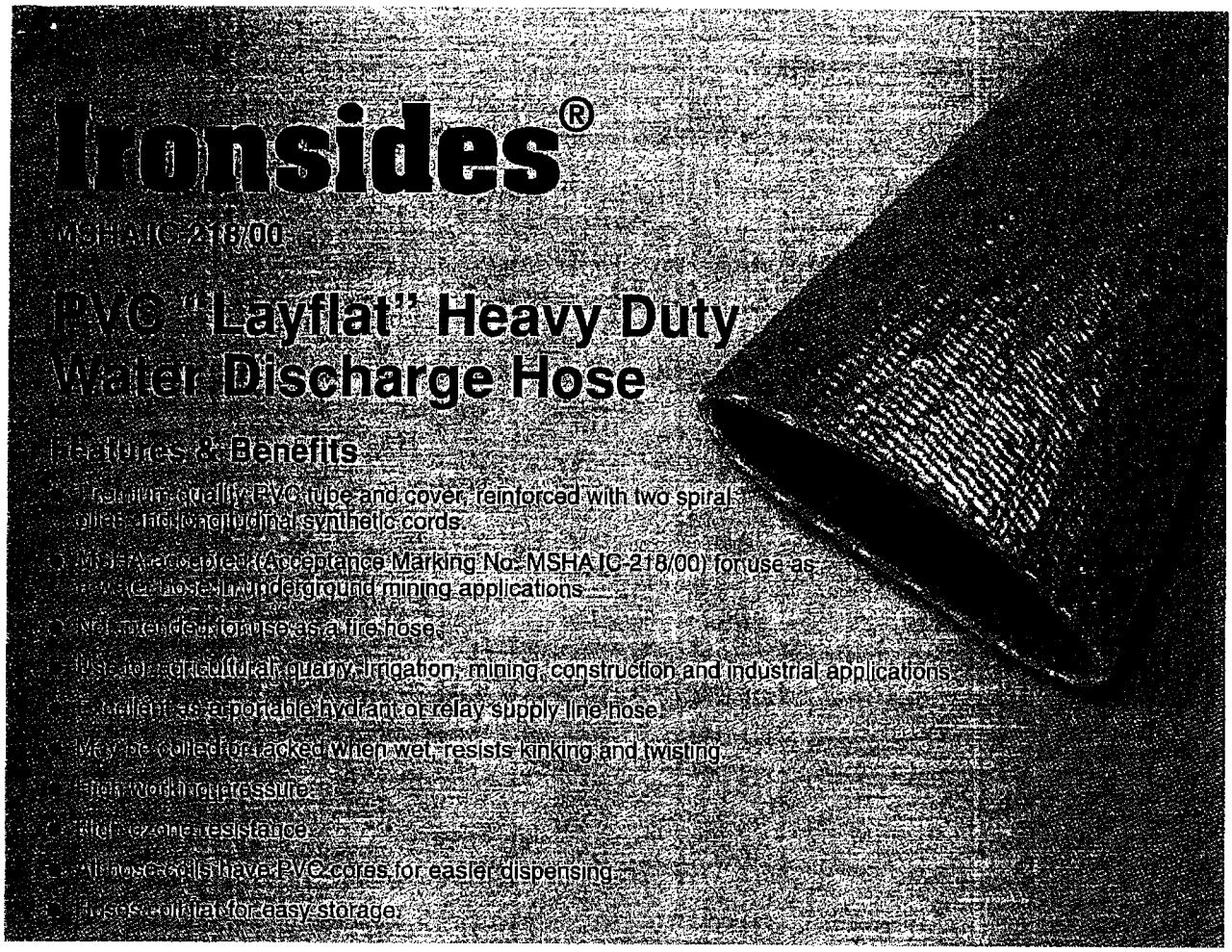
Specifications and illustrations are subject to revision without notice.



Please see page 11 for friction Loss/Elongation Information.

Service Temperature: -5° F (-20° C) to 170° F (+76° C)

IRONSIDES® PVC "Layflat" Heavy Duty Discharge Hose

Series No.	Nominal Size (In.)	Hose ID (In.)	Approximate Wall Thickness (In.)	Working Pressure (PSI)	Coil Length (ft.)	Approx. Weight (lbs./coil)
IS150	1½	1.61	.0866	150	300	69.0
IS200	2	2.09	.0906	150	300	96.0
IS250	2½	2.58	.0945	150	300	123.0
IS300	3	3.09	.0984	150	300	156.0
IS400	4	4.10	.1102	125	300	228.0
IS600	6	6.16	.1181	115	300	363.0
IS800	8	8.15	.1220	70	100/300	162/486

MSHA ACCEPTED

★ **Kuriyama offers a full line of quick-couplings, pin lug shank couplings and combination nipples. Refer to current Kuriyama Couplings and Accessories Catalog for type and pricing.**

BECAUSE WE CONTINUALLY EXAMINE WAYS TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO ALTER SPECIFICATIONS WITHOUT PRIOR NOTICE.

Lansas® PRODUCTS

MANUFACTURED BY VANDERLANS AND SONS, INC.

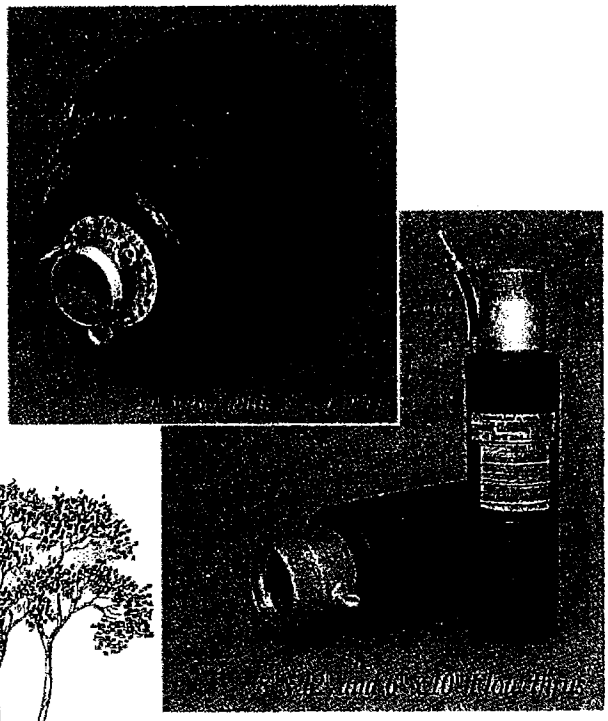
Multi-Size Flow-Thru™

The multi-size Flow Thrus™ are built with the same patented designs as our multi and single-size Domehead™ plugs. (See pgs. 1-2 for design characteristics.)

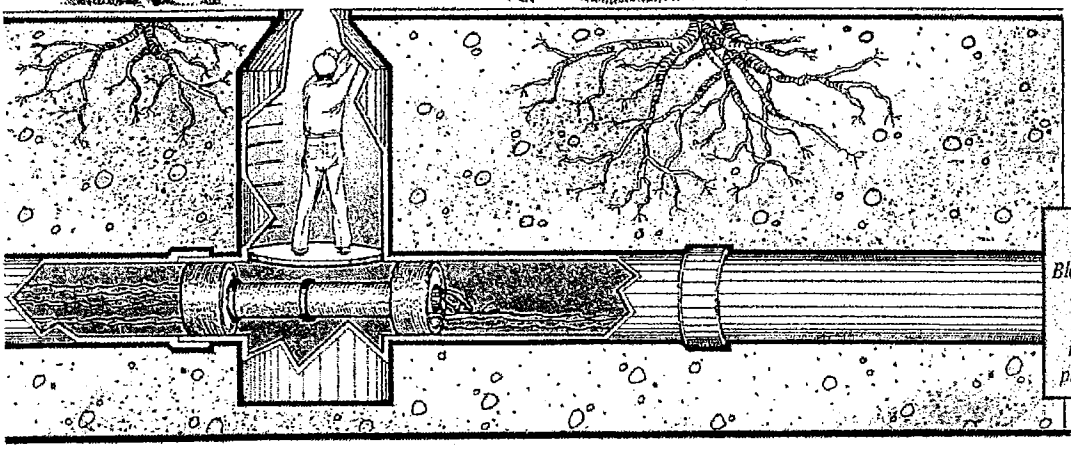
The Flow-Thru™ plug goes one step further by offering a large bypass within the pipe plug. The bypasses are ideal for doing a water test or sewer bypass. Lansas® flow-thru plugs are available with standard bypasses up to 8" NPT. 12" threaded connections and larger flanged connections can be special ordered.

As with any Lansas® plug, the multi-size Flow-Thru's™ can be manufactured with nitrile or neoprene rubber and stainless steel components for use in chemical and petroleum applications.

Test caps are available to convert your Flow Thru™ pipe plugs over to use in air testing applications (see pg. 36). A PVC cap is supplied with each plug with up to a 6" NPT by-pass.



Patent #
4,079,755 5,785,090 3,874,926



CAUTION:
Block plugs to prevent moving. See Safety Instructions on page 40. Full safety information sent with each plug or see www.lansas.com.

VANDERLANS AND SONS, INC.
1320 S. Sacramento Street • Lodi, CA 95240
Phone 209-334-4115 • **Toll Free 1-800-452-4902** • Fax 209-339-8260
www.lansas.com • E-mail: information@lansas.com

MULTI-SIZE FLOW-THRU PLUG

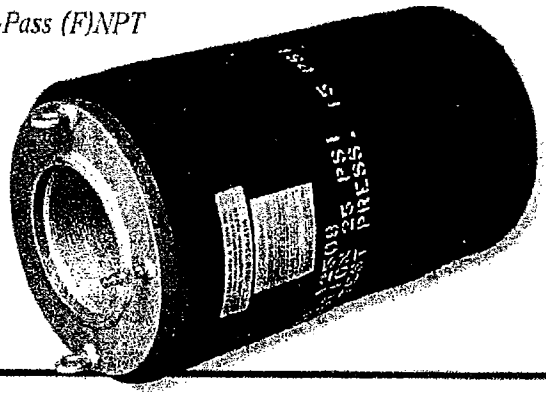
PRICE SHEET ITEM 9

PART #	FOR PIPE SIZE	MIN. PIPE DIA.	MAX. PIPE DIA.	REQUIRED INFLATION PRESSURE	MAXIMUM BACK/TEST PRESSURE	BY-PASS SIZE	PRODUCT DIMENSIONS		
							LENGTH	DIAMETER	WEIGHT
092-48	4"-8"	3.8"	6.25"	30 PSI	15 PSI	2"	14.0"	3.5"	6.5 LBS.
093-610	6"-10"	5.7"	10.25"	30 PSI	15 PSI	3"	20.0"	5.0"	11.0 LBS.
094-812	8"-12"	7.0"	12.25"	30 PSI	15 PSI	4"	20.0"	6.0"	18.0 LBS.
092-1016	10"-16"	9.5"	16.25"	25 PSI	15 PSI	2"	30.0"	9.3"	29.0 LBS.
094-1016	10"-16"	9.5"	16.25"	25 PSI	15 PSI	4"	24.0"	9.0"	37.0 LBS.
096-1016	10"-16"	9.5"	16.25"	25 PSI	15 PSI	6"	28.0"	9.0"	40.0 LBS.
092-1218	12"-18"	11.5"	18.25"	25 PSI	15 PSI	2"	30.0"	11.0"	30.0 LBS.
094-1218	12"-18"	11.0"	18.25"	25 PSI	15 PSI	4"	28.0"	10.5"	45.0 LBS.
096-1218	12"-18"	11.0"	18.25"	25 PSI	15 PSI	6"	28.0"	10.5"	48.0 LBS.
098-1218	12"-18"	11.0"	18.25"	25 PSI	15 PSI	8"	32.0"	10.5"	50.0 LBS.
092-1521	15"-21"	14.0"	21.25"	20 PSI	10 PSI	2"	24.0"	13.0"	33.0 LBS.
094-1521	15"-21"	14.0"	21.25"	20 PSI	10 PSI	4"	28.0"	13.5"	75.0 LBS.
096-1521	15"-21"	14.0"	21.25"	20 PSI	10 PSI	6"	28.0"	13.5"	87.0 LBS.
098-1521	15"-21"	14.0"	21.25"	20 PSI	10 PSI	8"	28.0"	13.5"	89.0 LBS.
092-1530	15"-30"	14.0"	30.25"	20 PSI	8 PSI	2"	55.0"	13.7"	51.0 LBS.
094-1530	15"-30"	14.3"	30.25"	20 PSI	8 PSI	4"	56.0"	14.0"	58.0 LBS.
096-1530	15"-30"	14.3"	30.25"	20 PSI	8 PSI	6"	52.0"	14.0"	115.0 LBS.
098-1530	15"-30"	14.3"	30.25"	20 PSI	8 PSI	8"	52.0"	14.0"	120.0 LBS.
092-1824	18"-24"	16.0"	24.25"	20 PSI	10 PSI	2"	36.0"	15.0"	54.0 LBS.
094-1824	18"-24"	17.0"	24.25"	20 PSI	10 PSI	4"	28.0"	16.0"	??.? LBS.
096-1824	18"-24"	17.0"	24.25"	20 PSI	10 PSI	6"	28.0"	16.0"	??.? LBS.
098-1824	18"-24"	17.0"	24.25"	20 PSI	10 PSI	8"	28.0"	16.0"	??.? LBS.
092-2036	20"-36"	19.0"	36.25"	20 PSI	8 PSI	2"	64.0"	18.5"	89.0 LBS.
094-2036	20"-36"	19.0"	36.25"	20 PSI	8 PSI	4"	64.0"	18.5"	102.0 LBS.
096-2036	20"-36"	19.0"	36.25"	20 PSI	8 PSI	6"	56.0"	18.5"	160.0 LBS.
098-2036	20"-36"	19.0"	36.25"	20 PSI	8 PSI	8"	56.0"	18.5"	163.0 LBS.
092-2448	24"-48"	22.0"	48.25"	15 PSI	8 PSI	2"	84.0"	21.5"	102.0 LBS.
094-2448	24"-48"	22.0"	48.25"	15 PSI	8 PSI	4"	94.0"	21.5"	112.0 LBS.
096-2448	24"-48"	22.0"	48.25"	15 PSI	8 PSI	6"	94.0"	21.5"	159.0 LBS.
098-2448	24"-48"	22.0"	48.25"	15 PSI	8 PSI	8"	94.0"	21.5"	174.0 LBS.
092-3660	36"-60"	34.5"	60.25"	10 PSI	6 PSI	2"	84.0"	29.5"	160.0 LBS.
094-3660	36"-60"	34.5"	60.25"	10 PSI	6 PSI	4"	98.0"	29.5"	165.0 LBS.
096-3660	36"-60"	34.5"	60.25"	10 PSI	6 PSI	6"	98.0"	29.5"	190.0 LBS.
098-3660	36"-60"	34.5"	60.25"	10 PSI	6 PSI	8"	98.0"	29.5"	210.0 LBS.
092-4278	42"-78"	37.0"	78.25"	10 PSI	6 PSI	2"	101.0"	35.0"	290.0 LBS.
094-4278	42"-78"	37.0"	78.25"	10 PSI	6 PSI	4"	108.0"	35.0"	300.0 LBS.
096-4278	42"-78"	37.0"	78.25"	10 PSI	6 PSI	6"	108.0"	35.0"	320.0 LBS.
098-4278	42"-78"	37.0"	78.25"	10 PSI	6 PSI	8"	108.0"	35.0"	350.0 LBS.
092-4872	48"-72"	46.0"	72.25"	10 PSI	6 PSI	2"	84.0"	43.5"	350.0 LBS.
094-4872	48"-72"	46.0"	72.25"	10 PSI	6 PSI	4"	110.0"	43.5"	360.0 LBS.
096-4872	48"-72"	46.0"	72.25"	10 PSI	6 PSI	6"	110.0"	43.5"	380.0 LBS.
098-4872	48"-72"	46.0"	72.25"	10 PSI	6 PSI	8"	110.0"	43.5"	410.0 LBS.
092-6096	60"-96"	58.0"	96.25"	10 PSI	6 PSI	2"	110.0"	56.0"	575.0 LBS.
094-6096	60"-96"	58.0"	96.25"	10 PSI	6 PSI	4"	120.0"	56.0"	585.0 LBS.
096-6096	60"-96"	58.0"	96.25"	10 PSI	6 PSI	6"	120.0"	56.0"	605.0 LBS.
098-6096	60"-96"	58.0"	96.25"	10 PSI	6 PSI	8"	120.0"	56.0"	625.0 LBS.

See pages 5 and 10 for Single-Size By-Pass Plugs.

Custom Designs Always™ Available

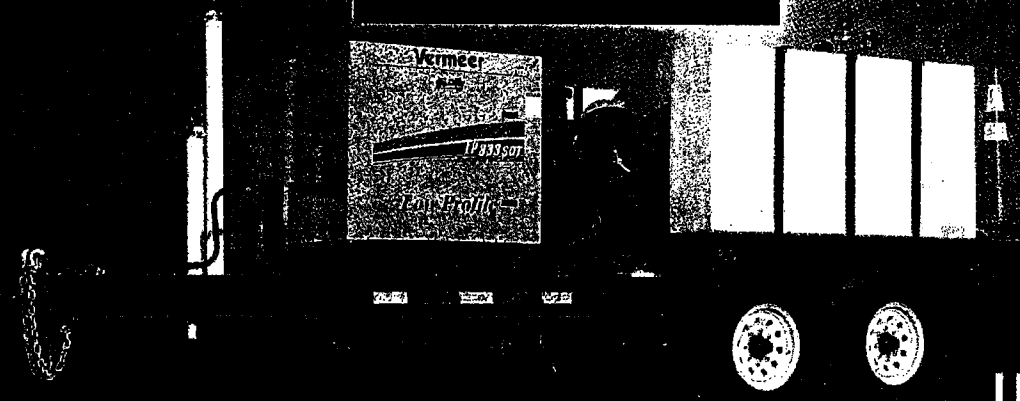
20" x 30" with 6" By-Pass (F)NPT



36" x 48" with 8" By-Pass

See pages 35-38 for accessories;
See page 33 for Protective Sleeves.

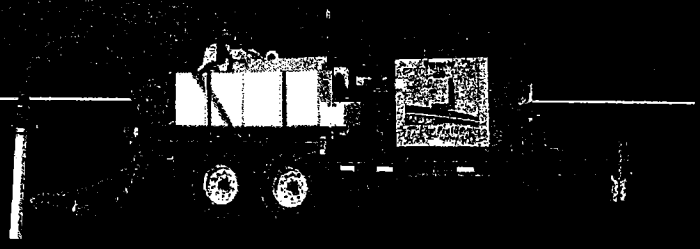
Vermeer Vacs by VAC-TRON EQUIPMENT



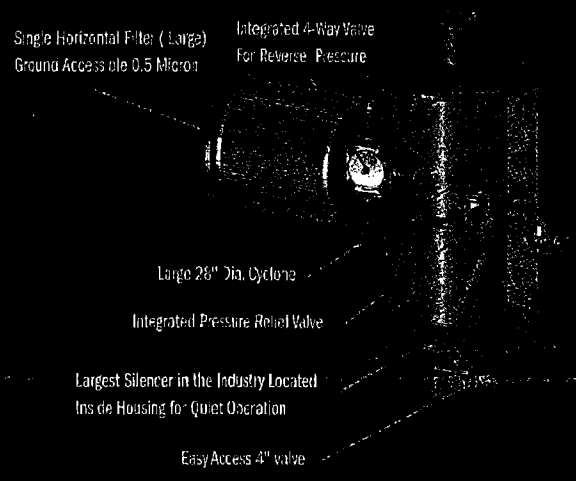
LP533/833

LOW PROFILE 33 SERIES

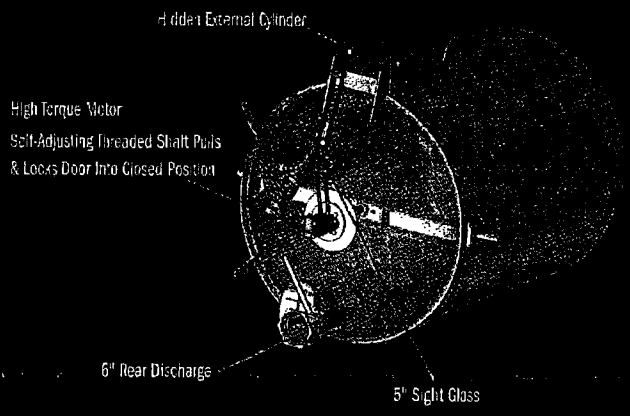
MOVING THE INDUSTRY FORWARD

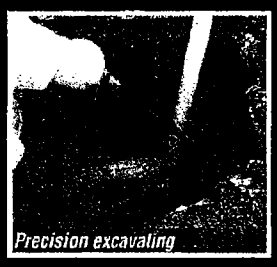


CVS FILTRATION
(Cyclone - Valve - Silencer - Filtration)
*** patent pending**



VAC-TRON SERIES 33HSR
(Hydraulic Screw Rear Door)





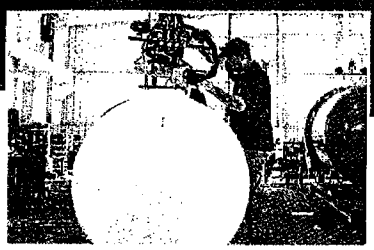
INTRODUCING LP 33 SERIES:
Low Profile is Safer, User-friendly and Quiet

Featuring reduced operating noise levels, an all-hydraulic rear door and an overall operator experience that is safer and more user-friendly, Vac-Tron is pleased to roll out its new Low Profile 33 Series.

Call 1-888-VAC-TRON or visit www.vactron.com for a spec sheet, information on our full range of industrial vacuum solutions, or to arrange a free demo.

Vermeer

VAC-TRON EQUIPMENT
We Made Digging Safer™



LP 533/833 DT (Trailer-Mounted)

- 36 hp (26.8 kW) Yanmar water-cooled diesel engine
- 580 cfm vacuum pump capable of 15" (38.1 cm) of mercury
- Reverse pressure to off-load liquids and dislodge debris in hose
- 500/800 gal (1892.7/3028.3 L) debris tank with hydraulic lift dump
- Hydraulically operated full-open rear door
- 33' (10 m) of 3" (7.6 cm) lightweight smooth bore rubber suction hose – (industrial rated); 4" (10.7 cm) hose option available
- Two 3" (7.6 cm) lightweight dielectric suction wands – 4' (1.2 m) & 6' (1.8 m)
- Empty weight of LP533 unit with trailer: 5940 lb (2694.3 kg)
- Empty weight of LP833 unit with trailer: 6190 lb (2807.7 kg)

LP 533/833 SDT (Trailer-Mounted)

- 49 hp (36.5 kW) Yanmar water-cooled diesel engine
- 1000 cfm vacuum pump capable of 15" (38.1 m) of mercury
- Reverse pressure to off-load liquids and dislodge debris in hose
- 500/800 gal (1892.7/3028.3 L) debris tank with hydraulic lift dump
- Hydraulically operated full-open rear door
- 33' (10 m) of 3" (7.6 cm) lightweight smooth bore rubber suction hose – (industrial rated); 4" (10.7 cm) hose option available
- Two 3" (7.6 cm) lightweight dielectric suction wands – 4' (1.2 m) & 6' (1.8 m)
- Empty weight of LP533 unit with trailer: 6140 lb (2785.1 kg)
- Empty weight of LP833 unit with trailer: 6340 lb (2875.8 kg)

GENERAL

- Lockable curbside remote controls
- Hydraulic pump and hydraulic cylinders with remote controls to raise tank 60 degrees
- Suction hose storage on rear door of debris tank [33' (10.1 m)]
- 6" (15.2 cm) stainless steel portal shutoff in top of vacuum tank
- 30 gal (113.6 L) fuel tank
- 6" (15.2 cm) amber strobe with two adjustable halogen work lights
- (2) DOT safety cones
- Battery with nationwide warranty

ENGINE ENCLOSURE

- Fully enclosed and insulated to reduce noise and vibration using 2/3 open-cell attenuation material
- Both sides of engine enclosure open on hinges for ease of maintenance and service
- All service points for engine are accessible from curbside
- High-pressure water and vacuum pumps inside engine enclosure

FILTRATION

- Bag House (Big Red) – with 100 sq. ft. (30.5 sq. m) filtration media, combined with 60 gal (227.1 L) cyclone/water trap
- Integrated silencer not to exceed 80 dba at full performance
- Filtration cylinder is washable and removable
- WET or DRY industrial filters rated at 5:1 air cloth ratio and grain loading of 30-g/acf using 0.5-micron silica dust emissions of .0060 g/acf

WATER

- 4000 psi (275 bar) at 4 gpm (15.1 L/min) water pump powered by same engine
- Electric clutch with on/off control and low-water automatic shutdown
- 200 gal (757.1 L) total water capacity [2 poly water tanks 100 gal (378.5 L) each, plumbed to high-pressure pump]
- 50' (15.2 m) of high-pressure hose
- Manual hose reel
- 5' (1.5 m) roto wand and control handle
- 3' (.9 m) variable nozzle wand for cleanup
- 8 gal (30.3 L) semi-automatic antifreeze system
- LP Heavy – optional/upgraded water package – 300 gal (1135.6 L) total water, heavier axles, heavier tires and rims
- LP Lite – optional 9995 lb (4533.7 kg) GVWR (CDL) 100 gal (378.5 L) total water, 400 gal (1514.2 L) debris load

CONTROL PANEL

- Waterproof and lockable
- Integrated into the engine stand (curbside for easy operation)
- Key switch
- Electronic throttle switch
- Water pump switch
- Lights and DOT strobe controls
- Volt meter
- Hour meter
- Breakers for water pump and electronic throttle
- Oil pressure gauge
- Water temperature gauge
- Fuel gauge

TANK

- Full-open rear door
- Hydraulically opened rear door with push-button controls
- UHMW polymer tank liner on bottom of debris tank
- 6" (15.2 cm) brass rear discharge valve with dust cap
- Large 6" (15.2 cm) stainless steel portal shutoff (stops vacuum when debris tank is full)
- Twin hydraulic cylinders for dumping

TRAILER

- Dual "DEXTER" torsion axles rated at 6000 lb (2721.6 kg) each on LP 533 and 7000 lb (3175.1 kg) on LP 833
- GVWR at 12,000 lb (5443.1 kg) on LP 533 and 14,000 lb (6350.3 kg) GVWR on LP 833
- 10,000 lb (4535.9 kg) jack stand with spring-loaded foot
- I-beam constructed heavy-duty trailer
- Pintle hitch
- Electric brakes on both axles, with safety breakaway
- 4 – LT235/75R16 tires with 8 lug wheels (533);
- 4 – LT235/85R16 tires with 8 lug wheels (833)
- LP833 Heavy – 19,000 lb (8618.3 kg) GVWR;
- LP533 Heavy – 14,000 lb (6350.3 kg) GVWR,
- LP533 Light – 9,995 lb (4533.7 kg) GVWR

BOOM (OPTIONAL)

- 4" (10.2 cm) pickup hose
- 6-way movement
- Completely self-contained
- Hydraulically powered in/out and up/down
- Hydraulic rotating optional
- Optional wireless remote
- Safe tank-mounted nesting area
- 360 degree movement
- 15' reach

DIMENSIONS

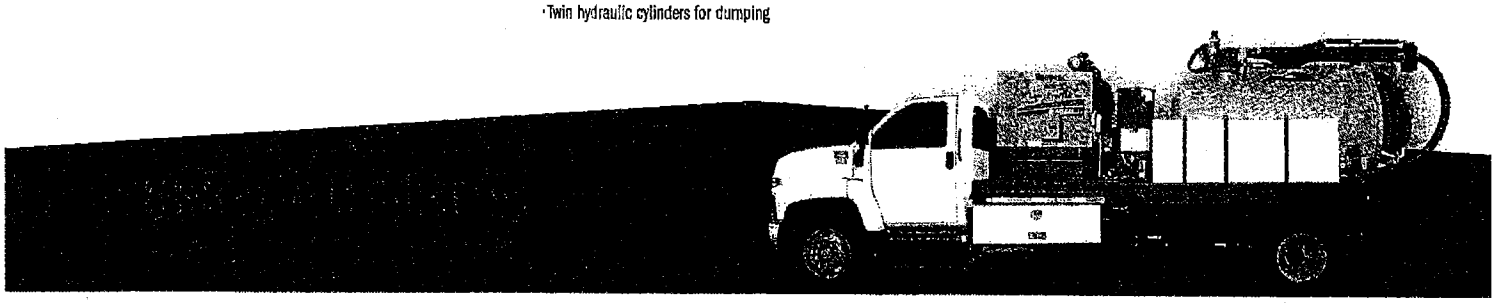
- LP 533 - Length: 18.5' (5.6 m), Width: 90" (228.6 cm), Height: 83" (210.8 cm)
- LP 833 - Length: 21.5' (6.6 m), Width: 90" (228.6 cm), Height: 83" (210.8 cm)

Vermeer

VACTRON EQUIPMENT

We Made Digging Safer℠

www.vactron.com



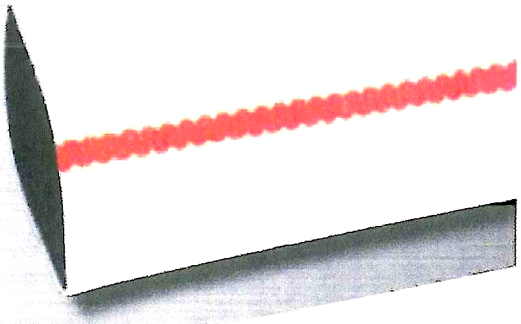
MILL DISCHARGE

Single Jacket & Double Jacket "Contractor Grade" Hose

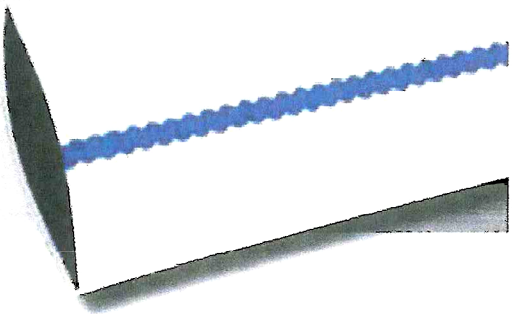
For pump water discharge, wash down service on ships and in factories, plant clean-up and construction pumps.

Features & Benefits

- **100% polyester single jacket or double jacket with all-synthetic yarn** — water- and mildew-resistant cover will not rot, even if the hose is stored wet.
- **Double Jacket** — provides greater abrasion resistance.
- **Smooth natural rubber tube** — provides strength and flexibility. Hose may be rolled easily for storage.
- **Wide range of operating temperatures** — hose may be used in temperatures ranging from -25°F to 185°F without stiffening.
- **White cover with single stripe** — red stripe indicates single jacket; blue stripe indicates double jacket... provides easy identification.
- **Packaging** — Individually packaged in cartons for ease of handling and shipping.



Single Jacket Mill Discharge Hose.



Double Jacket "Contractor Grade" Mill Discharge Hose.

Service Temperature: -25° F (-31° C) to 185° F (+85° C)

MILL DISCHARGE HOSES

Series No.	Nominal ID		Tolerance ID (mm)	Max W.P. (PSI)	Coupling Bowl Size (in.)	Approx. Wt. per 100ft. (lbs.)	Std. Length in Carton (ft.)
	Inches	mm					
SJMD 150X100	1½"	40	+2.0, -0	150	1 11/16"	14	100*
SJMD 200X100	2"	53	+2.0, -0	150	2 1/4"	20	100*
SJMD 250X100	2½"	66	+2.0, -0	150	2 3/4"	26	100*
SJMD 300X100	3"	79	+2.0, -0	150	3 1/4"	32	100*
SJMD 400X100	4"	103	+2.0, -0	150	4 9/32"	50	100*
DJMD 150X100	1½"	39.0	+1.0, -0	200	1 13/16"	22	100*
DJMD 250X100	2½"	64.5	+1.0, -0	200	2 13/16"	44	100*

* NOTE: Each 100 foot length has a mark at 50 feet to eliminate the need for measuring when cutting into 50 ft. lengths.

Note: Not intended for use as a fire hose.

★ **Kuriyama offers a full line of quick-couplings, pin lug shank couplings and combination nipples. Refer to current Kuriyama Couplings and Accessories Catalog for type and pricing.**

BECAUSE WE CONTINUALLY EXAMINE WAYS TO IMPROVE OUR PRODUCTS, WE RESERVE THE RIGHT TO ALTER SPECIFICATIONS WITHOUT PRIOR NOTICE.