Appendix D

Technical Specification Sheets for Sewage Pump-outs



WASTECORP® MARINE PUMP OUTS

MARINA PUMP OUT

FEATURES

MUD SUCKER PUMP TECHNOLOGY STANDARD

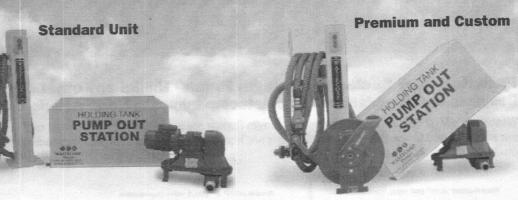
PUSH BUTTON CONTROLS

PREMIUM CRUSH PROOF HOSING

LOCKABLE WHEN NOT IN USE

DESIGNED WITH UNIVERSAL FITTINGS FOR ANY VESSEL

DESIGNED FOR COMMERCIAL OR LEISURE MARINAS



Wastecorp Mud Sucker Pumping Stations for Leisure and Commercial Marine Pumping Applications.

Wastecorp's heavy duty marina pumping systems offer a complete solution for marinas of all sizes. Select from several standard packages shown below or design your own with our team of pump out experts. Our standard package includes the industry leading patented Mud-Sucker Diaphragm pump, hoses, attachments, control panel and enclosure. Our premium package includes everything in the standard package, plus your choice of Mud-Sucker pump and either an automated or non-automated hose reel. For customers with specific pump motor specifications we offer gas, single or three phase electric, DC motor and explosion proof motors.

Marine Pump Out Station Specifications

Pump Type & Performance	Mud Sucker model 1.5FA-EC = 25 GPM (94.6 lpm) at 60 rpm - Dry suction lift up to 20 ft (6.1 m) - Discharge head up to 50 ft (15.2 m) vertical or 300 ft (91.4 m) horizontal.	
Pump Construction	Marine grade aluminum castings - Buna fabric reinforced diaphragm & flappers - OSHA approved safety guard Measures 24"L x 16"W x 18"H (609 mm x 406 mm x 457mm). Approx weight: 110 Lbs (49 kg)	
Enclosure Construction	Reinforced solid fiberglass molded enclosure - 43"L x 36"W x 22"H (1092 mm x 914 mm x 558 mm) - Stainless steel hinges and draw latch with pad-lock - 11" (279 mm) polyurethane steel corded lifting handle. Approx weight: 54 Lbs (24 kg)	
Control Panel Construction	Fabricated steel with hose support arm, foot mounted with in- tegral suction pipe - Push button On / Off /+ master key switch for security. Measures 48" H x 12"W (1219 mm x 304 mm). Approx Weight 86 Lbs (39 kg)	
Hose Assembly Construction	Rugged polyethylene copolymer hose reinforced with an integral polyethylene helix - double helix design for superior flexibility & durability - Smooth interior assures efficient flow - Complete with Polypropylene ball valve with cam-lock fittings + universal marine adapter and clear swing check valve. 1.5" x 20 ft (38 mm x 6.1 m) (standard length)	

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WASTECORP® MARINE PUMP OUT SYSTEMS

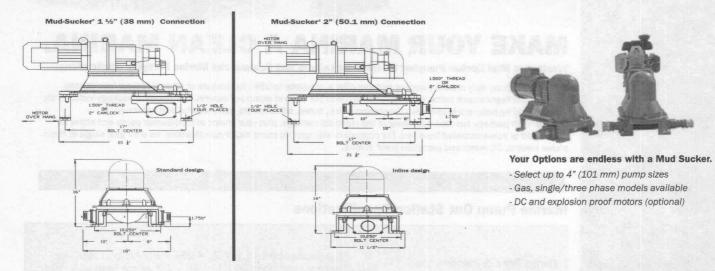
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WASTECORP® MARINE PUMP OUTS MARINA PUMP OUT

WASTECORP. Pumps

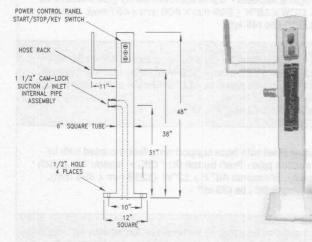
Patented Mud Sucker Diaphragm Pump - Unlike any other diaphragm pump. Designed and Manufactured by Wastecorp Pumps in North America.

Wastecorp's Mud Sucker Marine Series Diaphragm Pumps are available in 1.5" (38 mm) or 2" (50.1 mm) sizes. Select from our standard and in-line designs. Mud Sucker's are known to pump almost anything including bilge waste, personal hygiene products, sticks, stones and much more



Control Panel - Designed for Performance and Security

Available in standard white powder coated fabricated steel, aluminum and optional stainless steel. 120/240 volt transformer and timer are available.

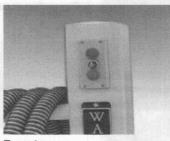


Hose Assembly Specifications

Wastecorp's standard pump out hose assembly includes a premium 20 ft (6.1 m) poly flex crush proof hose. The assembly also includes a heavy duty clear swing check valve, ball valve with handle, camlock fittings and universal marine adapter.

 Standard size:
 1-1/2" (38.1 mm) x 20' (6.1 m)

 Optional size:
 2" (50.1 mm) x 25' (7.6 m)



Easy to use. Built-in on + off switch on control panel stand includes a master key switch for added security during off hours.



DIAPHRAGM PUMP OUT SYSTEM

Complete Pumping Station For Marina Pump Out

Performance Features

- No Clog, No Spill, No Smell
- Dry Start Suction Lift to 12ft (3.65m)
- Discharge Head 15ft (4.57m)
- Pump Rated to 38 GPM (144LPM)
- Dependable Performance
- Automatic Self Priming Starts
 24V Push Button Start/Stop with Shut Off Timer

Design Features

- Easy to Use-Low Maintenance Components
- Modular For Flexibility of Installation
- Pump Bronze, 2" Diaphragm
 Pump Cover Heavy Duty UV
- Protected FiberglassHose Stand White Powder
- Coated Aluminum
 Start/Stop Controls On Hose Stand for Easy Access
- Motor 3/4 HP, 1Ph, 115/230V
- for Convenient Installation
 Optional Motors & Controls For Any Requirements

For Marine, Campground and Industrial Applications. Edson's engineers have combined Edson Single Diaphragm Pump with the hose, fittings and accessories required to provide a trouble-free and efficient Sewage Collection System. The Edson Diaphragm Pump Out will also provide industrial and commercial operations with an environmentally sound method of sewage, oil, and waste liquid collection.

At the "Heart" of the pump out is Edson's powerful diaphragm pump. It is the best choice for the transfer and collection of sewage, sludge, waste oil and high viscosity fluids with suspended solids under low head conditions. Straight-through passages with no impellers insure Edson Pumps will not be stopped or damaged by personal hygiene items, bottle caps, paper, stones, twigs, banana peels, or any materials encountered when collecting waste products.







Edson Diaphragm Pump Out Systems

- PUMP PERFORMANCE: Max. Volume 38GPM / 144 LPM Suction Lift - to 15 ft / 4.57m ● Disharge Head - to 15 ft / 4.57m ● Dry Suction Lift - 12 ft / 3.65m.
- PUMP CONSTRUCTION: Marine Bronze Pump Body Nitrile Diaphragm and Valves ● Stainless Steel Hardware ● Aluminum Frame ● Inlet - 2" Male NPT ● Discharge - 2" Female NPT ● Standard Electric - 3/4 HP, Single Phase, 110/220 Volt, 60 HZ, 55 RPM, TEFC Gearmotor with a Control Panel with Timer and 24 Volt Remote Stop/Start.
- ENCLOSURE CONSTRUCTION: Molded Solid Fiberglass 39" wide x 28" deep x 20" high Stainless Steel Optional
- PUMP OUT HOSE ASSEMBLY: 1 1/2" Polyflex Hose 90° Ball Valve
 Sight Glass/Check Valve Quick Clamp Adapter Complete Set of Deck Adapters 25 ft Length Standard 50ft Optional
- HOSE STAND CONSTRUCTION: White Powder Coated Aluminum with Start/Stop Buttons Installed ● Remote NEMA 4 Start/Stop Control Box Optional ● Stainless Steel Optional
- OPTIONS: 50' Hose Assembly Explosion Proof Motor Motors and Controls for Any Power Requirement ● Explosion Proof On/Off Switch
 ● Bronze Pump Out Hydrant 270BR-150

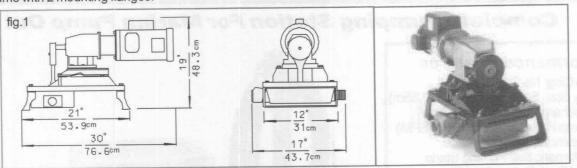
ORDERING INFORMATION

DESCRIPTION See Price List For Other Models	WEIGHT (Lbs / Kgs)	ORDER NO.
Diaphragm Pump Out Station	250 / 112	284EB-40

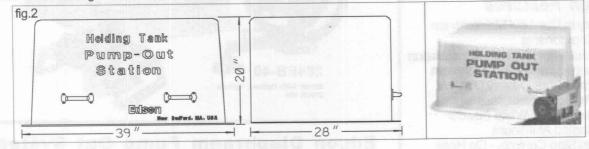
 146 Duchaine Blvd., New Bedford, MA 02745-1292
 Tel. 508-995-9711
 Fax 508-995-5021

 E-Mail pumps@edsonintl.com
 www.edsonpumps.com

Edson Diaphragm Pump Out Systems 284EB-40 Pump: 3/4hp/1ph/115-230v/60hz/tefc gearmotor coupled to a 40 gpm diaphragm pump. All arranged on a painted aluminum frame with 2 mounting flanges.

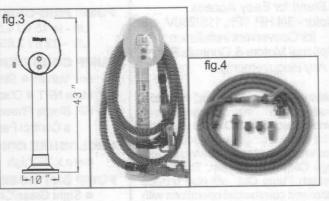


Pump Cover: White Fiberglass with Handles and Pump Out Sign. fig.2



Hose Stand: White Powder Coated Aluminum with Start/Stop Buttons Installed, Operation Instructions Sign and (4) 1/2" X 7" Aluminum Hex Head Mounting Bolts. fig.3

Hose Assembly: 25' X 1 1/2" Polyflex Hose, 90° Ball Valve, Sight Glass/Check Valve, Quick Clamp Adapter, Complete Set of Deck Adapters.fig.4



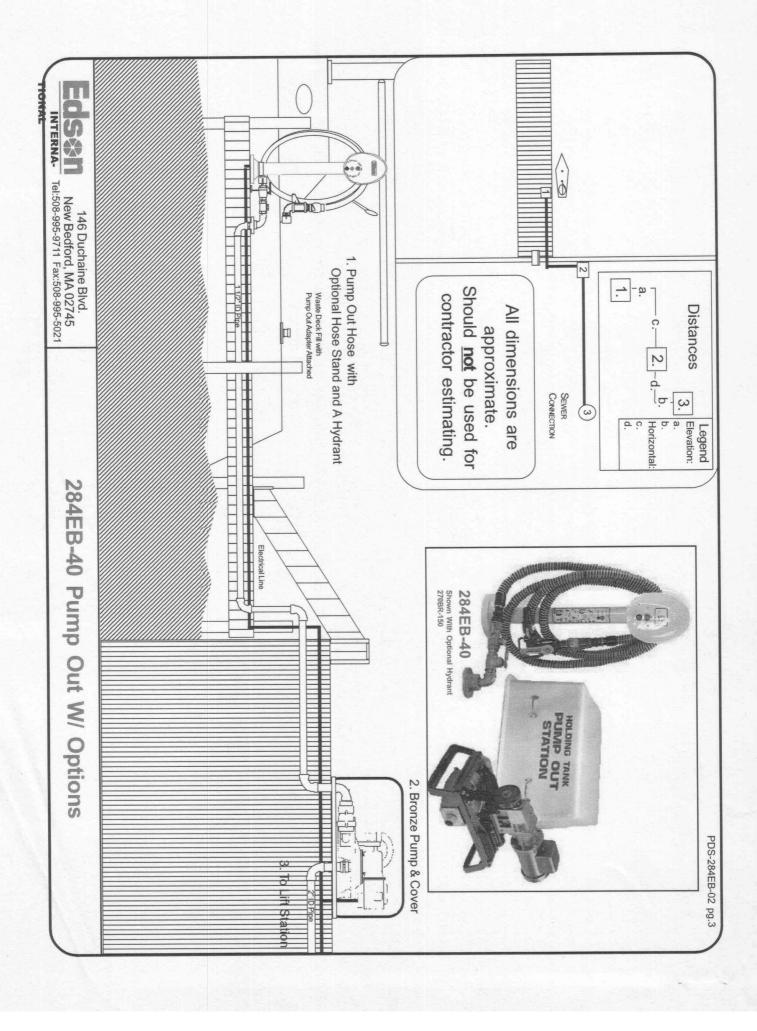
Control Panel with Timer and 24 Volt Remote Stop/Start: The Control Panel includes a 120/240 volt to 24 volt Transformer and a Timer to automatically shut off the pump after a selected time. The Red Stop Switch and the Green Start Switch installed in the Hose Stand operate on 24 volt for safety. Upon request they can be mounted in a separate nema-4 electrical box. fig.5



Hydrant (Optional): 1 1/2" Bronze Check Valve, Bronze Ball Valve and Quick Clamp Hose Adapter with Bronze Elbow and	Tenned 1 1/2" ENIDT	
Close Nipple with Bronze Mounting Flange. fig.6 Order No. 270BR-150		and the second second
Edean	Tapped 1 1/2" FNPT 6 1/2"	

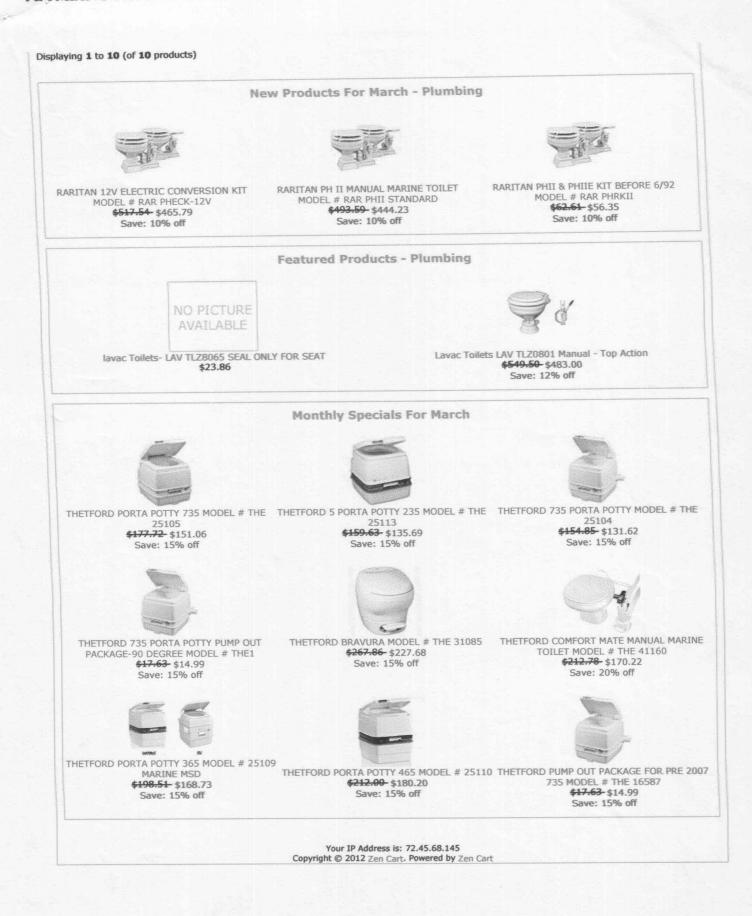
INTERNATIONAL

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FIRST MATE MARINE	
Sales Sales Consulting	
LUMBING THETFORD	
ter Results by: Items starting with	
splaying 1 to 10 (of 10 products)	
Product Image Item Name-	Price \$177.72 \$151.06
THETFORD PORTA POTTY 735 MODEL # THE 25105	Save: 15% off
Porta Potti 735 MODEL # THE 25105COLORS WHITE W/GRAY & BROWN ACCENT BAND Features: Easy-to-clean high-gloss finish Exclusive rotating	Add: 0
	\$159.63 \$135.69
THETFORD 5 PORTA POTTY 235 MODEL # THE 25113	Save: 15% off
Porta Potti 235 MODEL # THE 25113COLORS WHITE/GREY/ OR BROWN Features: Easy-to-clean high-gloss finish Exclusive rotating pour-out spout for	Add: 0
	\$154.85-\$131.62 Save: 15% off
THETFORD 735 PORTA POTTY MODEL # THE 25104	2046: 12% 011
735 Porta Potti MODEL # THE 25104 COLORS WHITE/GREY/ OR BROWN Features: Hooks up easily for dockside discharge Adapts to through-hull	Add: 0
	\$17.63 \$14.99
THETFORD 735 PORTA POTTY PUMP OUT PACKAGE-90 DEGREE MODEL # THE1	Save: 15% off
THETFORD PUMP OUT PACKAGE 90-DEGREEMODEL # THE 16587	Add: 0
	\$267.86- \$227.68
THETFORD BRAVURA MODEL # THE 31085	Save: 15% off
Bravura MODEL # THE 31085DIMENSIONS 20 3/16" L x 16 9/16 W x 17 3/8" H Features: Pulsating flush provides superior, near	Add: 0
THETFORD COMFORT MATE MANUAL MARINE TOILET MODEL # THE	\$212.78 \$170.22
41160	Save: 20% off
ComfortMate [™] MODEL # THE 41160DEPTH 19.2"HEIGHT 14.2"WIDTH 14.8" Features: Residential "just like home" styling Easy	Add: 0
	\$198.51 \$168.7 Save: 15% off
THETFORD PORTA POTTY 365 MODEL # 25109 MARINE MSD Porta Potti 365 MODEL # THE 25109 MARINE MSDDIMENSIONS 16 1/2" H x 16 1/2" D X 15"	
WCOLORS- WHITE/GRAY/BROWN Features: This	Add: 0
	\$212.00- \$180.2
THETFORD PORTA POTTY 465 MODEL # 25110	Save: 15% off
orti Potti 465 MODEL # THE 25110DIMENSIONS 16 1/2" H x 16 1/2' D x 15"W This durable toilet easy to use, and high-gloss finish	is Add: 0
	\$17.63 \$14.9
THETFORD PUMP OUT PACKAGE FOR PRE 2007 735 MODEL # THE 16587	Save: 15% of
THETFORD PUMP OUT ASSEMBLY PRE 2007 735MODEL # THE 16587	Add: 0
	\$17.63- \$14.9
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AVAILABLE THETFORD PUMP OUT PACKAGE FOR 735 MSDMODEL # THE 33123	Add: 0

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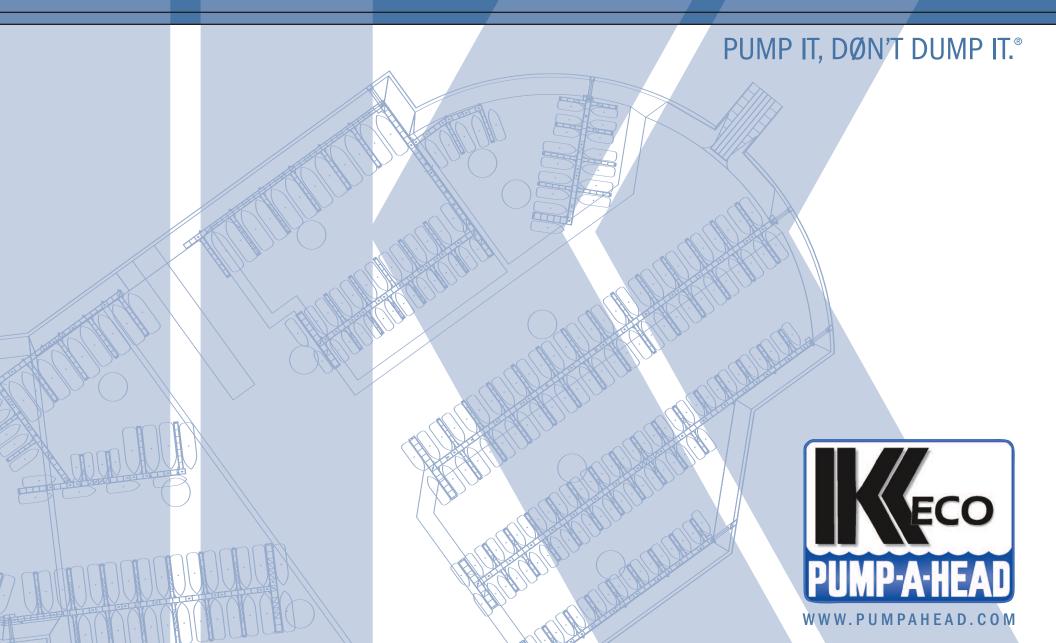
http://firstmatemarine.com/webstore/index.php?main_page=index&cPath=2_41&zenid=1... 24/03/2012

Scaland 1-series discharge pump - \$422.57. Insunate Marine Super Store



http://firstmatemarine.com/webstore/index.php?main_page=product_info&products_id=3 24/03/2012

KECO Pump and Equipment





MULTI-LOCATION SYSTEMS

Hydrants and Remote Pumping Centers. These

are key elements in a well-designed sanitation system. Hydrants and RPCs allow one pump to provide suction to multiple locations throughout your facility. These points of connection combined with pump activation controls allow marinas to manage their central systems effectively.



Centralized Vacuum Systems.

Designed to provide slipside and multilocation pump-out service. Central pumping units (peristaltic or vacuum) are intended to sit in a centralized area, while remote pumping centers or dockside hydrants are installed in convenient locations throughout a marina. Plumbing connects the remote pumping center or hydrants to the centralized system, while wireless transmitters or hard-wired remotes placed throughout the marina activate the pump when desired.















A Peristaltic Pump 900-Series

KECO's peristaltic pumps combine basic physics with modern technology. The 900 series comes standard with stainless steel frame and leak detection auto shutdown. Ideal for long-distance pumpng and high-traffic, high-volume facilities, this pump is clean, simple, and easy to maintain.

B Remote Pumping Center (RPC)

KECO's dockside RPC functions as suction hose storage and pump-activation point. Available in fiberglass or stainless steel, options include a vacuum gauge, hour meter, on-off push button, key switch, token acceptor, credit card reader, and water hose bib.

C Dockside Hydrant

KECO's hydrants allow a low profile connection into a plumbed vacuum line. Hydrants can be placed throughout a marina and connect back to a single pump. These hydrants are ideal for slip-side and multi-location applications. Brass, Swivel, Tamper Resistant hydrants available.

D Vacuum Pump 1000-Series

KECO's unique two-tank vacuum pump provides a constant vacuum with no service interruption. As tank #1 fills, tank #2 discharges. Ideal for large marinas, multiple suction locations, and where high-volume pumping is required, KECO's innovative vacuum system conveniently allows for future expansion.

E Portable Hose Reel

KECO's portable hose reels are designed to transport and store up to 100' of hose. Constructed of marine grade materials, these portable hose reels prolong the life of your suction hose and come standard with vacuum gauge, and outdoor cover. Wireless pump activation available.

F Control Options

Standard 24V low-voltage controls and optional explosion-proof controls ensure safe and reliable operation even on your fuel dock. Push button, security key, wireless signal, and even credit-card activation options are available.





SINGLE-LOCATION SYSTEMS

Diaphragm Pumps

KECO's multi-purpose diaphragm pumps are rugged, easy to maintain, and built to last. Offered in single and double bowl configurations, these efficient and self priming pumps provide impressive flow rates. Available in both gas and electric models, these diaphragm pumps are known for their simple and reliable performance. KECO's diaphragm pumps are built specifically for the harsh marine environment and are put together using all 316 stainless steel hardware. Stainless steel frames are available.





Single Location Pumping. These innovative systems provide high-performance solutions for new or existing docks. Dockside models can be placed on a fuel dock or seawall and allow service to private and public boaters. Single location systems require minimal plumbing and electrical considerations.

G Stationary-Series Model 150/175/200

This self contained dockside station pumps in excess of 20 gallons per minute. It is designed for fuel docks, bulk-heads, and finger piers. The protective fiberglass enclosure integrates pump activation and suction hose storage. Available in a variety of colors.

H 70-Series

This two piece system can be joined together or separated by up to 100' apart. If dock space is limited, placing the pump in a remote location may be the solution. KECO's versatile pedestal can be equipped with a variety of different control options. The 70 series is available in stainless steel, aluminum or fiberglass.

Dockside 140-Series

Complete with pump, suction hose reel, and optional water reel, the 140 Series is a self contained, full-service pump-out center. A choice of spring- or hand-rewind hose reels keep hoses off the ground and out of the way.

J Dockside 800/900-Series

Single location suction with high-volume output. Available in both peristaltic or diaphragm versions, this complete and self-contained system includes a hose rack, pump activation control, and an optional viewing window (not pictured).

K Kleen-A-Pottee 300-Series

A clean and convenient receptacle for boaters with portable toilets. The 300 series is available in fiberglass or stainless steel, comes standard with a fresh water rinse hose and solar-powered fan to reduce odors. Optional automatic rinse ensures a clean interior.

L Specialty Enclosures

KECO strives to offer the most rugged and reliable equipment for todays marinas. While performance is critical, KECO also believes that aesthetics are an important part of any facility. Stainless Steel, Aluminum, and Galvanized steel enclosures are just a few of our most popular sellers.

CALL FOR MORE INFO



PORTABLE SYSTEMS

Trailers and Portable Devices. KECO offers several solutions for the collection and transportation of wastewater materials. If your facility demands a high-quality portable pump-out, KECO will work with you in choosing and/or designing the most appropriate system. KECO's portables are ideal for campgrounds, boatyards, dry-stack storage facilities, and industrial purposes. All of KECO's portable systems are equipped with user-friendly controls and state-of-the-art safety devices.















Custom Solutions. KECO's fabrication specialists have extensive engineering backgrounds and use the most rugged and appropriate components available. If you do not see a model that will suit your needs, call KECO and allow us to help design your custom solution.

M Portable Cart 509/909-Series

KECO's aluminum frame portable cart features stainless steel swivel casters, 18-inch pneumatic tires, heavy duty hose rack, and NEMA 4X controls. Options include peristaltic or diaphragm pump, hour meter, overfill protection, 35/55 gallon tank, and trailer hitch attachment.

N Manual Pumpout Cart Model 425

KECO has developed a manual operated pump-out cart that carries an attractive price tag without compromising reliability. The model 425 has a 25 gallon capacity holding tank that can be gravity or pressure offloaded. Constructed of corrosion resistant materials, this low-profile cart is perfect for private use, or as a marina backup.

0 Skid Mount Systems

KECO offers skids to fit every need. Options include tank size, pump type, hose storage and controls. Available in aluminum, coated, or stainless steel.

P Pump-out Trailers

65-1025 gallon DOT approved pump-out trailers are offered in gas and electric models (available with diaphragm, vacuum, or peristaltic pump). Options include single or double axle and galvanized finish. Gravity and/or pressure offload.

Q 50-Series on Cart

This highly maneuverable cart can be used for septic tank and bilge pump-outs, pools, ponds, and spill clean-ups. The 50-Series is capable of pumping 20 gallons per minute, and runs dry without damage. Available in gas or electric.

R Boat-Mounted Systems

On-water solutions ranging from basic sewage collection pumps to complete turnkey pump-out vessels. Options include fresh water rinse tanks, overfill protection, offload ejector pumps, and a variety of power options including AC/DC, gasoline or diesel.

CALL FOR MORE INFO

We developed the pump-out industry...

...we still head it up today.

The KECO/Pump-A-Head Story

KECO and Pump-A-Head are familiar, reassuring names to anyone in the marine sanitation business. In fact, we developed the familiar orange mushroom shaped pump back in 1954. For over 50 years KECO has earned a reputation for excellence in customer service, manufacturing, distribution, and engineering while proudly serving our worldwide client base. Our customers come back again and again thanks to our knowledgeable sales staff and competitive pricing.

Since then, we have continued our tradition of innovation; part of our warehouse is dedicated to ongoing testing and research. Our peristaltic pump, for example, outperformed the competition as tested by Underwriter Laboratories (UL)*. The simple design and operation of our products make them easy to use and service.

Beyond Marinas to Campgrounds and Industry

Although our products were originally designed for marinas, other businesses have also discovered the KECO advantage. Industrial, commercial & government users have found our pumps to be extremely reliable and cost effective.

Custom Orders Welcome

Over the years, KECO has designed a variety of equipment for many special applications. Like to mount a pumping system on the back of a golf cart? Need a custom 6-wheel-drive pump truck? Our staff and facilities have a "can-do" attitude. If you'd like a customized system, call our experienced sales team and allow them to design what you need.

We're Family

KECO is a family-run business. As such, we take special pride in our work and products. Integrity is the rule, not the exception. KECO products have proven their worth for many years and still set the pace for the industry.

We're dedicated to high quality products, outstanding performance and simplicity. Give us a call today and find out why our customers are always completely satisfied.

CALL FOR MORE 800-900-PUMP

INFO or visit us at www.pumpahead.com

CALL (MAN) SAL STOM

* 2004 Pump-Out equipment life cycle testing.