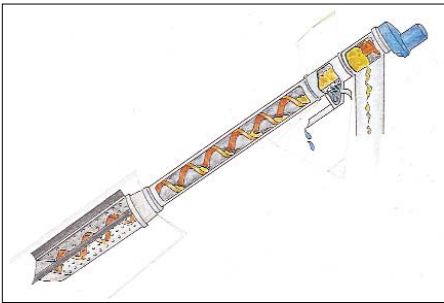


APPENDIX D

PRODUCT INFORMATION

Hycor® Helisieve® In-Channel Fine Screen Model HLS



Combines screening, conveying and dewatering into one reliable, automatic, cost-efficient system.



Durable spiral brush keeps the screen clean.



Close-up view of the new drain box with optional explosion-proof wiring.

All-in-one screening, conveying and dewatering system



The Helisieve system uses shaftless spiral technology to perform screening, solids conveying and dewatering in one cost efficient operation. The heart of the system is a heavy-duty carbon steel spiral that conveys screenings to the dewatering zone and dewateres them to acceptable landfill requirements. The spiral is fabricated in a continuous flight to assure a strong, stable structure. It is surrounded by a stainless steel tube that encloses screenings, minimizes odors and provides clean, hygienic operation.

The Helisieve's shaftless core handles a greater volume of solids than shafted screw designs. Fibrous and bulky solids have a clear, barrier-free path to the dewatering zone. The shaftless design also eliminates the need for maintenance-intensive bottom support bearings and intermediate hanger bearings.

The Helisieve system performs three operations in one:

Screening. Influent moves into the fine screening area where the perforated screen removes solids. A spiral-mounted brush keeps the screen surface clean.

Conveying. The spiral moves the screenings upward through the transport area. There is no shaft to restrict flow or become entangled with long, stringy solids.

Dewatering. Solids are dewatered by compression against a plug of material formed in the flightless zone. Liquid is discharged through a perforated screen. A removable drain box simplifies access to the screen and solids plug. Solids at 40% dry weight are common.

Put Hycor® shaftless spiral technology to work for you!



- Cost-effective — integrates three processes: screening, conveying and dewatering, in one compact unit.
- Efficient — the shaftless spiral provides greater conveying capacity and eliminates entanglement of solids around a shaft.
- Lowers disposal costs — dewatering reduces weight and volume. Forty percent dry weight solids are common.
- Hygienic — screens are enclosed by the stainless steel tube and can be discharged directly into sealed containers to minimize odor and handling. Optional bagger assemblies simplify disposal.
- Designed to last — rugged steel alloy spiral fabricated in a continuous flight to tight manufacturing tolerances.

- Compact and easy to install — shipped assembled, with flexible seals, for quick channel positioning, or in its own tank housing.
- Economical — one low horsepower gearmotor drives the entire system.
- Up-front serviceability — pivots out for easy access for above-channel maintenance.
- Low maintenance — no troublesome submerged end bearings or intermediate hanger bearings.

Screen openings

0.125" and 0.250" (6 mm) diameter and .040" x .4" perforated slots. Other opening sizes are possible.



Shown with optional hydraulic drive design and heat trace jacket.

Helisieve Plus® in-tank system for pumped flows



Screens, conveyors and dewaterers like the Helisieve unit, but is self-contained in a stainless steel tank. Suitable for industrial and municipal processes.

PARKSON CORPORATION

www.parkson.com

2727 NW 62nd Street
 P.O. Box 408399
 Fort Lauderdale, FL 33340-8399
 P(954) 974-6610 • F(954) 974-6182

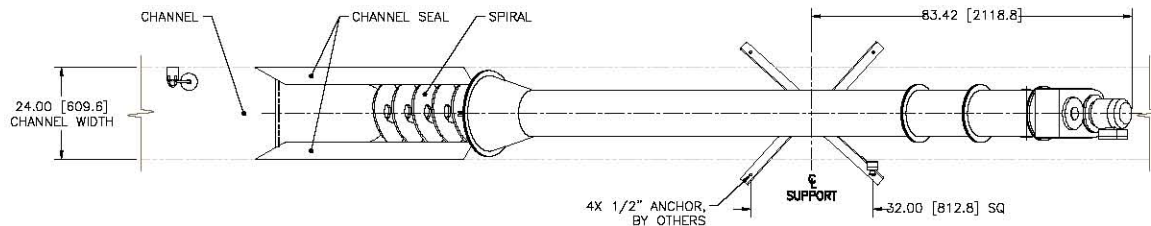
29850 N. Skokie Hwy. (U.S. 41)
 Lake Bluff, IL 60044-1192
 P(847) 473-3700 • F(847) 473-0477

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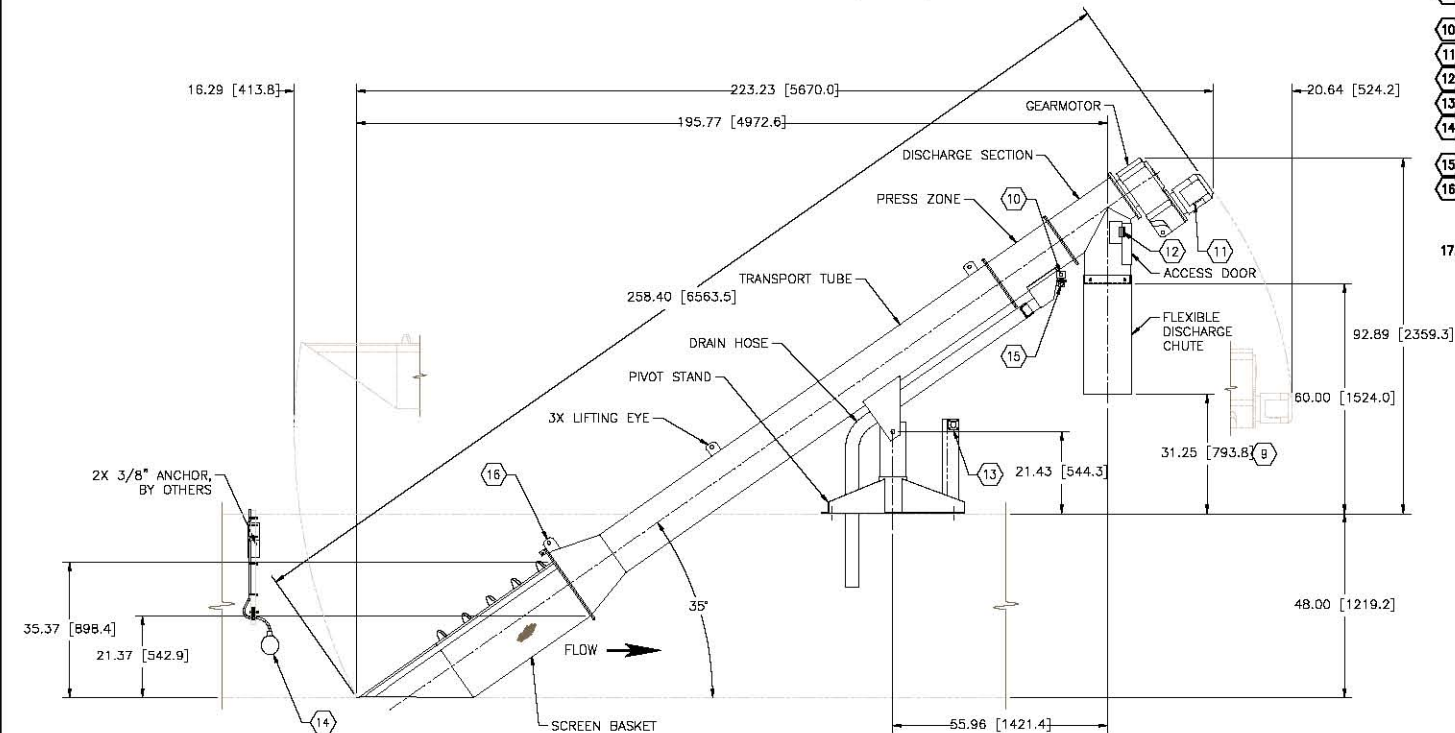
AN AXEL JOHNSON INC. COMPANY

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TOP VIEW



SIDE VIEW
(CHANNEL SEALS NOT SHOWN)

NOTE:

1. ALL 304L STAINLESS STEEL CONSTRUCTION EXCEPT FOR REDUCER, MOTOR, SPIRAL, ELECTRICAL FIXTURES, DISCHARGE CHUTE, AND CHANNEL SEALS.
2. GEARMOTOR: 1.5 HP [1.1 kW], 1800 RPM, 230/480 V, 3 PH, 60 HZ, TEFC, SEVERE DUTY.
3. SPIRAL SPEED: 7.4 RPM.
4. SCREEN OPENING: #25 [#6.4].
5. RECOMMENDED CLEARANCE TO BE 38.00 [914.4] AROUND AND ABOVE UNIT.
6. WEIGHT: 1,755 LB [795 kg].
7. DIMENSIONS WRITTEN IN INCHES [mm] UNLESS OTHERWISE SPECIFIED.
8. PROVIDE SUFFICIENT FLEXIBILITY IN WATER AND ELECTRICAL CONNECTIONS TO ALLOW THE UNIT TO PIVOT OUT OF THE CHANNEL. ALL INTERCONNECTING WIRING, CONDUIT AND PIPING FROM UNIT MOUNTED DEVICES WILL BE SUPPLIED BY OTHERS.
9. GROUND CLEARANCE FOR DISCHARGE RECEPTACLE. DO NOT REMOVE FLEXIBLE DISCHARGE CHUTE/GUARD.
10. NEMA 4X SOLENOID VALVE: 1/2" NPT CONDUIT CONNECTION.
11. MOTOR: 2X 1/2" NPT CONDUIT CONNECTION.
12. NEMA 4X INTERLOCK SWITCH: 6 FOOT [1.8 M] LONG INTEGRAL CABLE.
13. NEMA 4X LOCAL E-STOP: 1/2" NPT CONDUIT CONNECTION.
14. FLOAT SWITCH: 20 FOOT [8.1 M] LONG INTEGRAL CABLE (MOUNTING BRACKET INCLUDED; 1" PIPE PROVIDED BY OTHERS).
15. 3/4" NPT WATER SPRAY CONNECTION.
16. UNIT IS BASKET END HEAVY. CUSTOMER MUST PROVIDE LIFTING DEVICE TO PIVOT UNIT OUT OF CHANNEL. LIFTING CAPABILITY MUST EQUAL A MINIMUM OF 60% OF UNIT WEIGHT, APPLIED AT LIFTING POINT SHOWN. CHANNEL MUST BE EMPTY AND SCREEN BASKET CLEAR OF SOLIDS.
17. STANDARD UNIT SHOWN. CONSULT PARKSON CORPORATION OR YOUR LOCAL HYCOR PRODUCTS REPRESENTATIVE FOR AVAILABLE OPTIONS.

PARKSON CORPORATION

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REV	DESCRIPTION	DATE	BY

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CHECKED BY	DATE	
SCALE		
1/32" = 1"		INFORMATION ONLY

PROJECT NAME

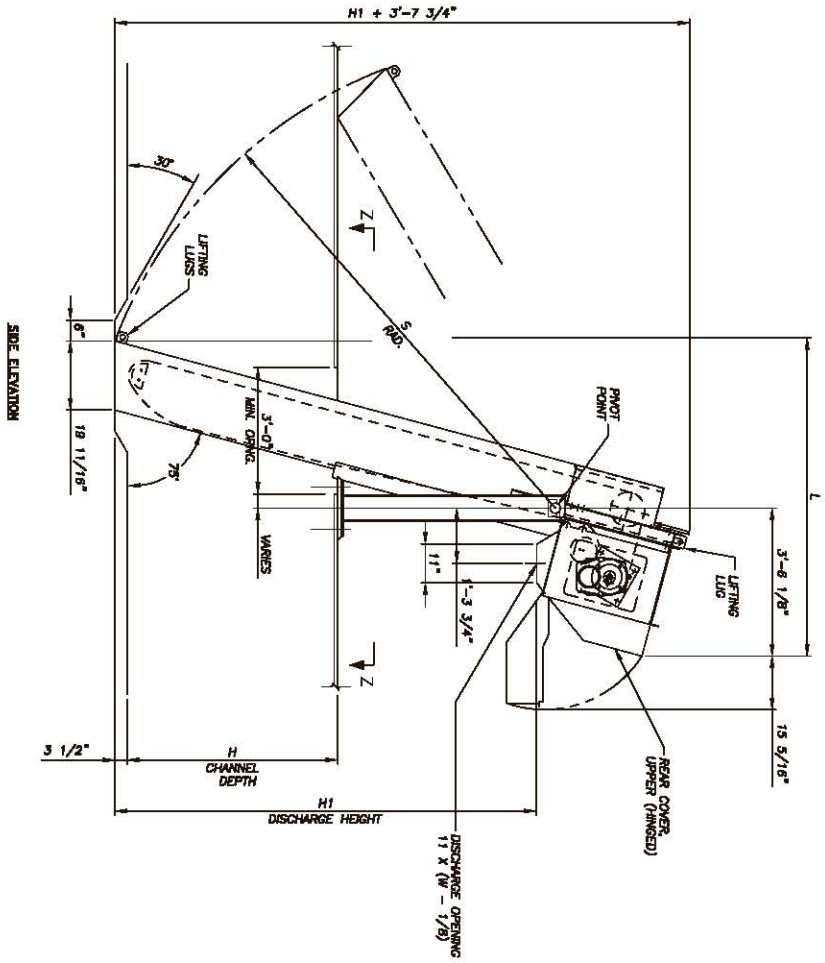
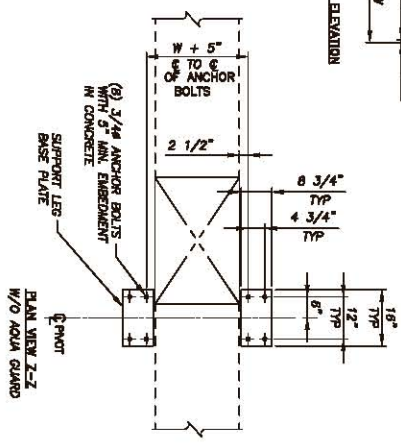
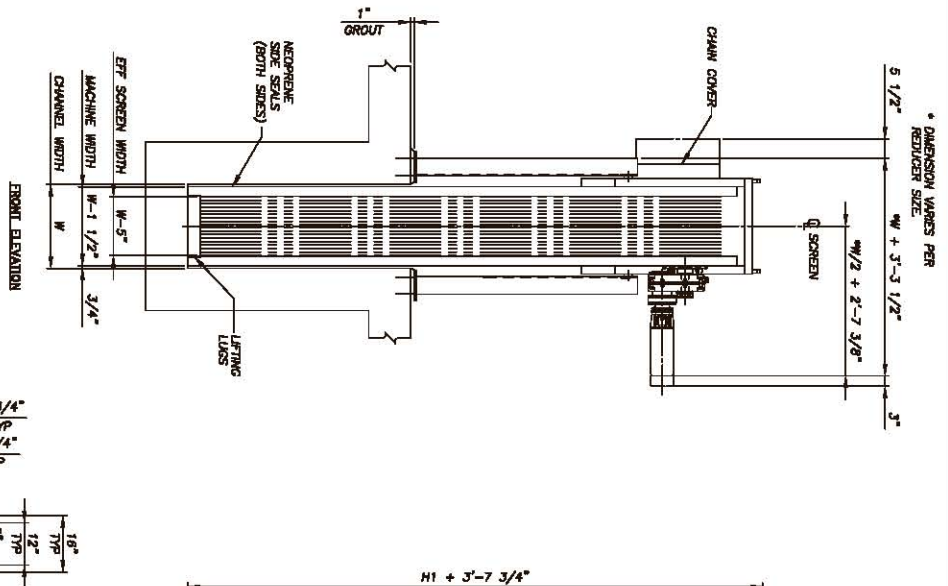
TITLE
HLS500 HYCOR HELISIEVE UNIT
DRAWING NO
REV

Copy of document found at www.NoNewWipTax.com

INSERT “APP D Aqua Guard”

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H1
H
S

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	CHECKED:		
	APPROVED:		
DATE:	BY:	CHECKED:	SCALE: NONE
APPROVED:	DESCRIPTION		

PARKSON CORPORATION
Aqua Guard Screen

GENERAL ARRANGEMENT

AG-MN-A 75°

PROJECT NUMBER:	DRAWING FILE NUMBER:	REVISION:
PROJECT NAME:	SHEET NUMBER: 1 OF 1	

Jones+Attwood® JetAir

The New Advanced Grit Removal System



A new circular, vortex grit trap that introduces air floatation to enhance the in-tank classification of the mineral solids.

Patents applied for

Jones+Attwood® JetAir

Introduction

The circular chamber, vortex flow and tangential entry grit traps are now an established method of grit removal from waste water. They form an integral part of the headworks to the waste water treatment plant.

Pista SA of Switzerland introduced the original circular grit trap in 1960. Jones + Attwood were given a world wide selling agreement by Pista for the life of the patent. Jones + Attwood have installed thousands of grit traps throughout the world and lead the field with grit removal technologies.

The new Jetair is the third generation of 'grit traps'. Each in its own right has expanded the boundaries of efficiency for performance and reliability.

Now, the functions of the mechanism have been analysed further and this new development allows the two most fundamental features to be enhanced separately and therefore achieve a maximum result for both.

All grit traps currently available include a means of achieving the rotary motion around the chamber, thus inducing the vortex that encourages solids to migrate to the centre of the chamber for collection. The impeller or propeller is so shaped and sized (and in some cases adjustable) to perform classification of the solids.

Combining these two important functions inevitably results in compromises being made and one or both features will have their effectiveness reduced.

The Jetair provides an impeller that is designed to create the rotary motion only. The correct flow pattern is therefore achievable with this new fixed geometry impeller. Classification of the grit is achieved by the continuous aeration that surrounds the periphery of the impeller.

Low pressure air is delivered to the impeller which expels it in a controlled way from its periphery. The rotation of the impeller drags the air and increases its flow path. This results in the annulus between the edge of the impeller and the grit hopper wall being filled with small air bubbles. The solids that will normally find their way to the hopper with the grit particles are now rejected by the floatation provided by the bubbles. The unwanted solids, rags, paper and other light materials are floated upwards where the surface currents move these solids out of the trap.

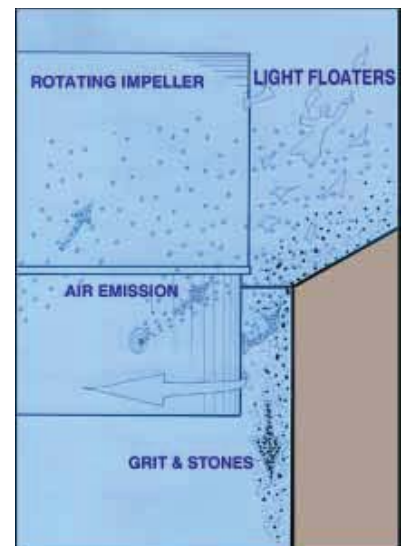
This innovation provides the ideal vortex inducing flow pattern, whilst every solid particle that will enter the 'trapped zone' will pass through the selective air curtain. Therefore the two main features of a grit trap, circular flow and classification, are satisfactorily provided.

The continuous aeration of the incoming flow at this location in the headworks is beneficial to the treatment process.

The illustration shows the importance of providing a controlled aperture for the passage of grit and stones to the collection hopper. The whole of the aperture (annulus) is filled with air bubbles.

There are no fixed supports or pipes to interfere with the passage of the heavy solids.

The vanes of the impeller are now independent of the classification and serve the purpose only of generating the vortex flow.



Pumping of the grit/water mixture can be performed by air-lift pump or motorised grit pumps.

Eimco Water Technologies manufacture and supply the full range of grit separation and grit processing equipment.



Civil construction and installation.



The effects of the continuous aeration can be clearly seen on the tank surface.



The completed Jetair installation.

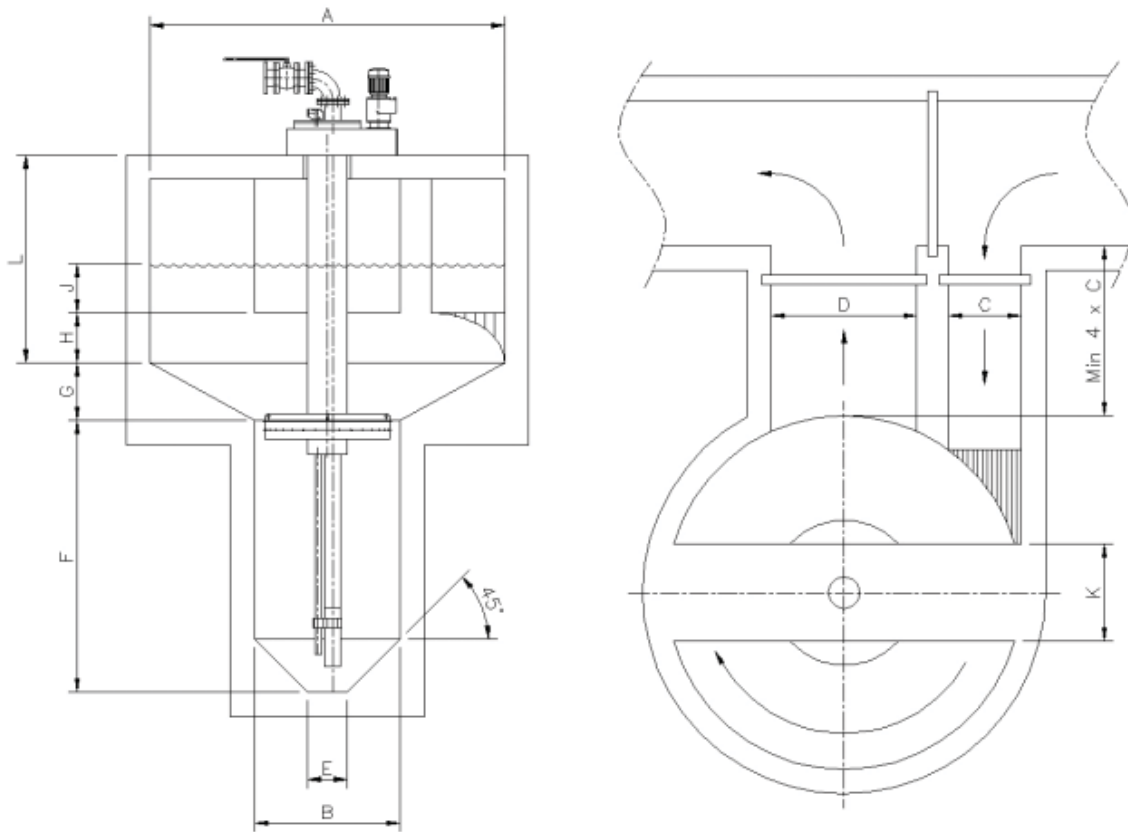


The small additional blower is designed for quiet operation.



The new Jetair Grit Trap will be supplied with the conventional methods of grit transfer.

Jones+Attwood® JetAir



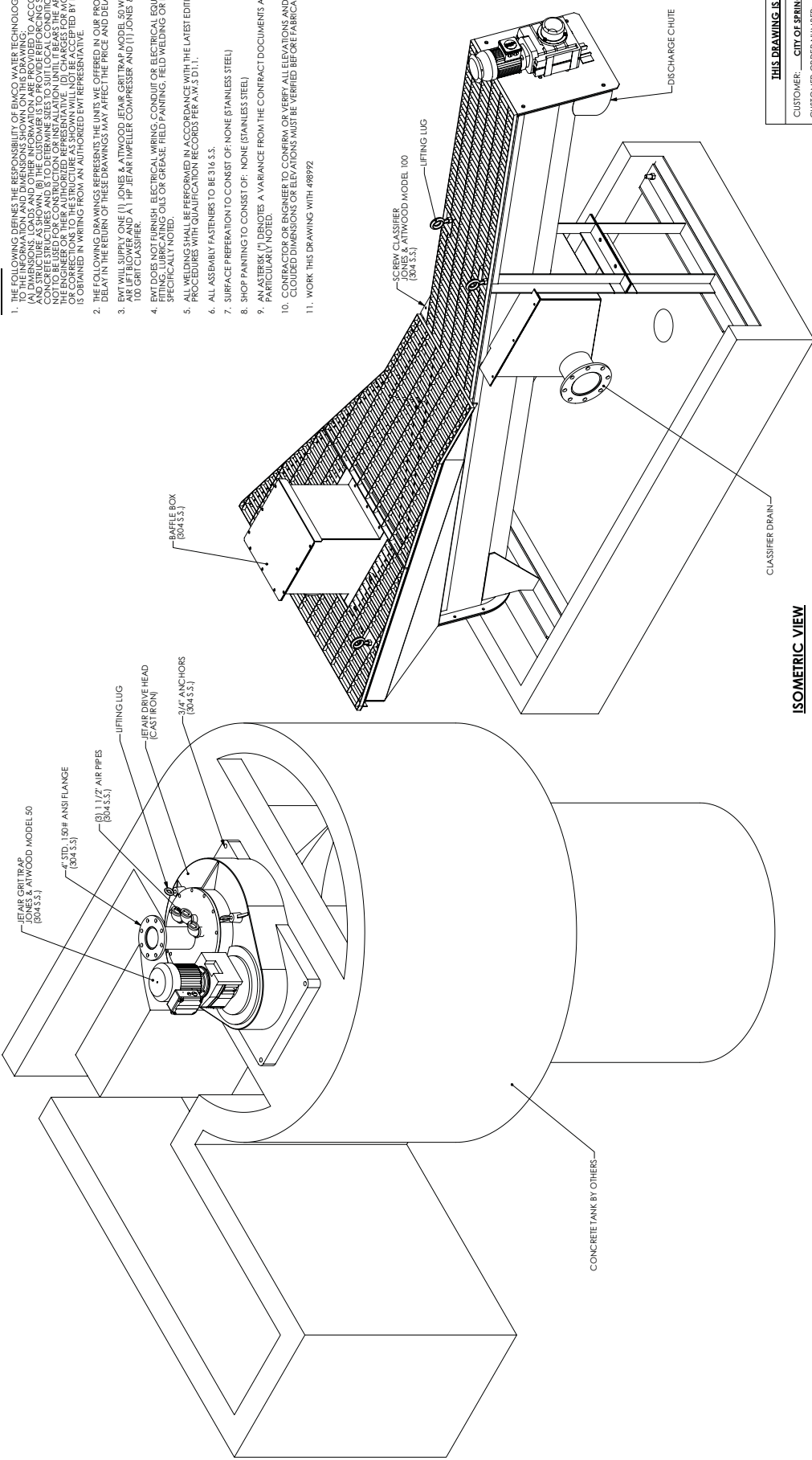
JetAir Grit Trap dimensions in metres

Jetair Size	Flow 1/sec	A	B	C	D	E	F	G	H	J	K	L
A50	50	1.83	1.0	0.305	0.61	0.30	1.40	0.30	0.30	0.20	0.80	1.10
A100	110	2.13	1.0	0.380	0.76	0.30	1.40	0.30	0.30	0.30	0.80	1.10
A200	180	2.43	1.0	0.450	0.90	0.30	1.35	0.40	0.30	0.40	0.80	1.15
A300	310	3.05	1.0	0.610	1.20	0.30	1.55	0.45	0.30	0.45	0.80	1.35
A550	530	3.65	1.5	0.750	1.50	0.40	1.70	0.60	0.51	0.58	0.80	1.45
A900	880	4.87	1.5	1.00	2.00	0.40	2.20	1.00	0.51	0.60	0.80	1.85
A1300	1320	5.48	1.5	1.10	2.20	0.40	2.20	1.00	0.61	0.63	0.80	1.85
A1750	1750	5.80	1.5	1.20	2.40	0.40	2.50	1.30	0.75	0.70	0.80	1.95
A2000	2200	6.10	1.5	1.20	2.40	0.40	2.50	1.30	0.89	0.75	0.80	1.95

Please note – larger sizes are available. Request details if required.

NOTES:

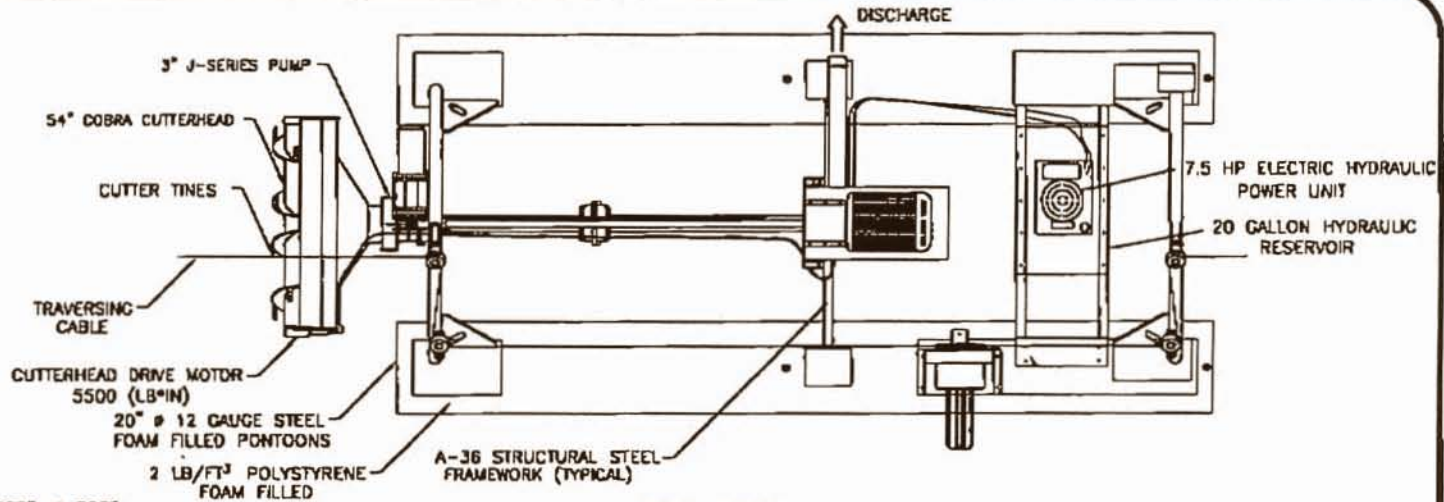
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4. EWT DOES NOT FURNISH ELECTRICAL WIRING, CONDUIT OR ELECTRICAL EQUIPMENT, PIPING, VALVES OR FITTING, LUBRICATING OILS OR GREASE, FIELD PAINTING, FIELD WELDING OR ERECTION EXCEPT AS SPECIFICALLY NOTED.
5. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF A.W.S. WELDING PROCEDURES WITH QUALIFICATION RECORDS PER AWS D11.1.
6. ALL ASSEMBLY FASTENERS TO BE 316 S.S.
7. SURFACE PREPARATION TO CONSIST OF: NONE (STAINLESS STEEL)
8. SHOP PAINTING TO CONSIST OF: NONE (STAINLESS STEEL)
9. AN ASTERISK (*) DENOTES A VARIANCE FROM THE CONTRACT DOCUMENTS AND SHOULD BE PARTICULARLY NOTED.
10. CONTRACTOR OR ENGINEER TO CONFORM OR VERIFY ALL ELEVATIONS AND DIMENSIONS. CLOUDED DIMENSIONS OR ELEVATIONS MUST BE VERIFIED BEFORE FABRICATION.
11. WORK THIS DRAWING WITH 488992



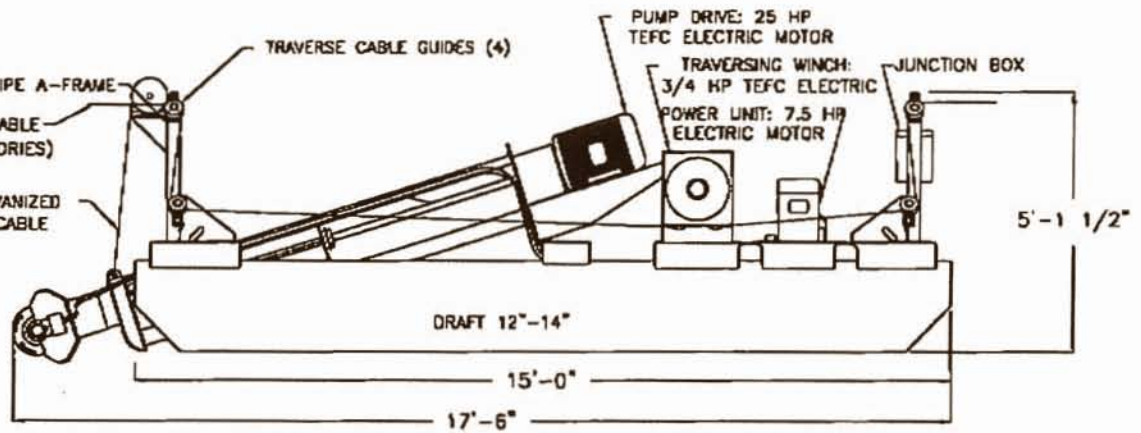
ISOMETRIC VIEW

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 CUSTOMER ORDER NUMBER: 001206
 EWT ORDER NUMBER: CSW0000028
 PROJECT: CITY OF SPRINGFIELD WWTF
 PROJECT LOCATION: SPRINGFIELD, GA
 CONSULTING ENGINEER: NONE
 BY: KURT BOUWHUIS DATE: JULY 7, 2008

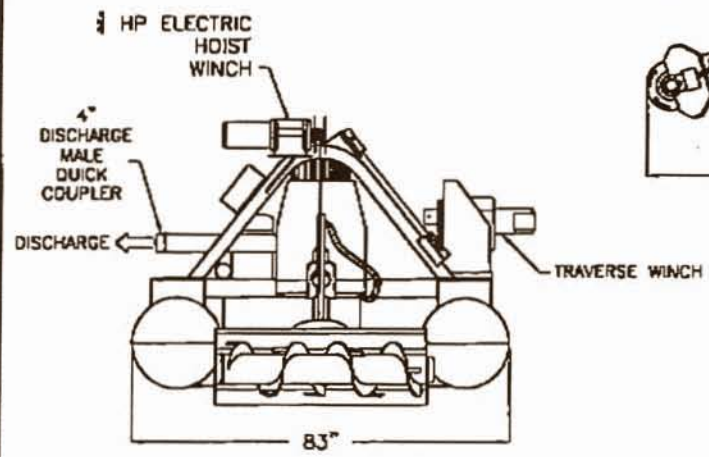
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GENERAL ARRANGEMENT MODEL NO. JET AIR WOOD MODEL 100 CLASSIFIER			



TOP VIEW



SIDE VIEW



FRONT VIEW

AVAILABLE ACCESSORIES:

- TRAVERSE SYSTEMS.....2 POST, 4 POST
- CONTROL PANEL.....NEMA 3R STANDARD
- CONTROL CABLE.....TYPE SD
- FLOATING DISCHARGE SYSTEMS.....ALUMINUM INTEGRAL FLOATLINE, BALL TYPE FLOATS, FOAM

REV. 3 MDM 1/8/03

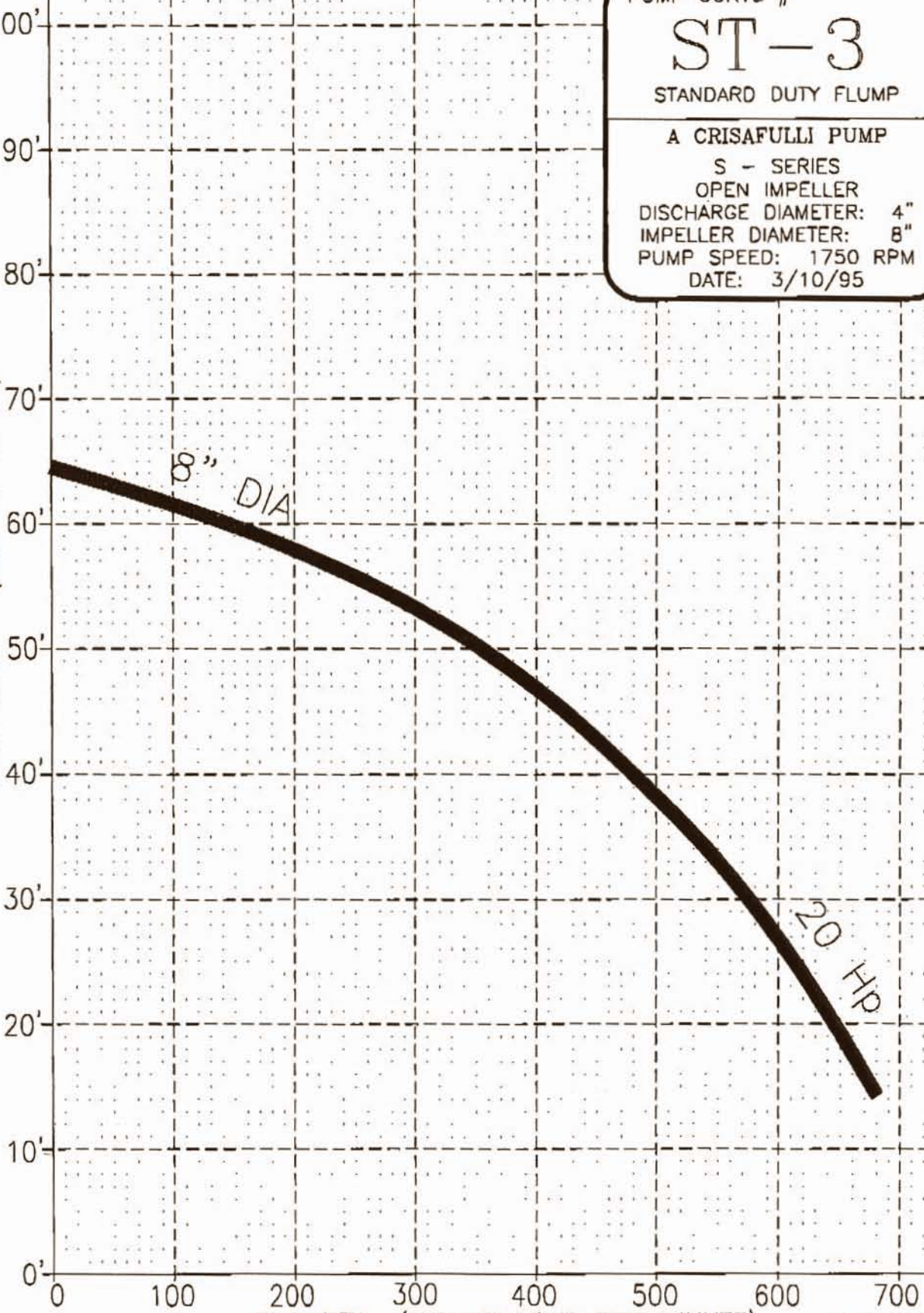
	PHONE: (406) 365-3393
	FAX: (406) 365-8088
Sludge Removal Systems	
STANDARD DUTY FLUMP	
Dwn By: MWB	Ckd.: D.R.T. Date: 4-8-95 Dwg.#: CPC 94524

PUMP CURVE #
ST-3
STANDARD DUTY FLUMP
A CRISAFULLI PUMP
S - SERIES
OPEN IMPELLER
DISCHARGE DIAMETER: 4"
IMPELLER DIAMETER: 8"
PUMP SPEED: 1750 RPM
DATE: 3/10/95

TOTAL HEAD (FEET OF WATER)

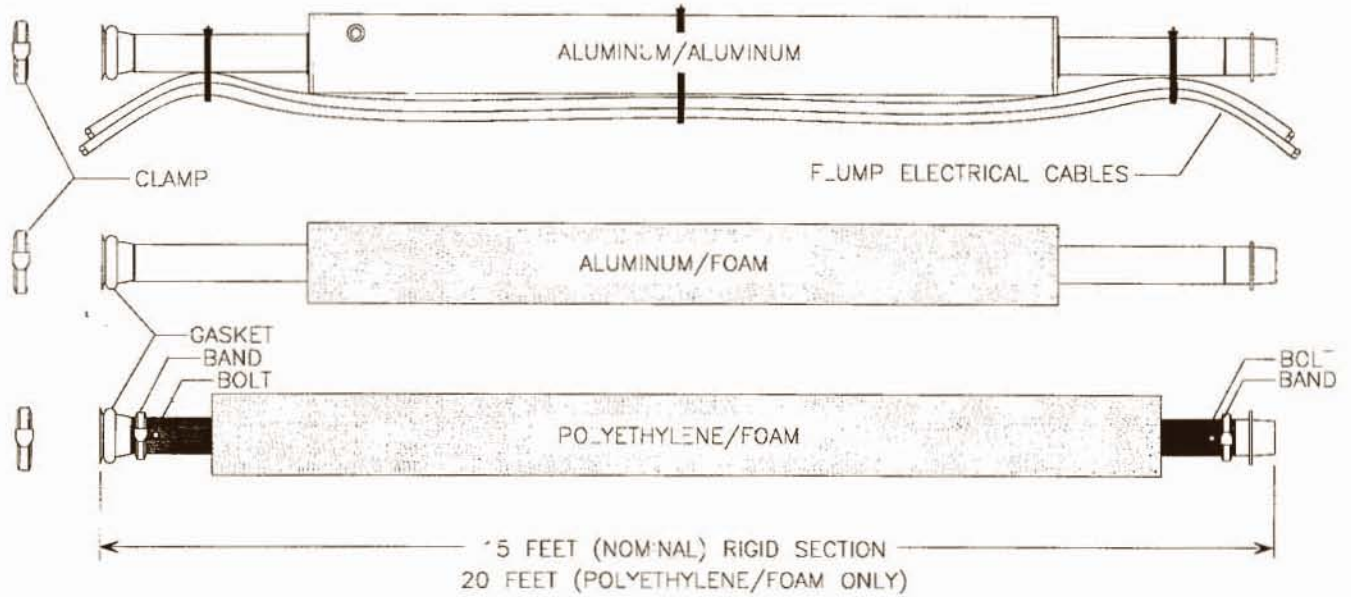
8" DIA

20 HP



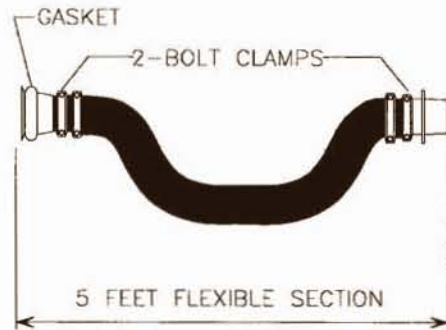
CAPACITY (U.S. GALLONS PER MINUTE) CPC-95158

LIGHTWEIGHT • FLOATING • SLUDGE/SLURRY TRANSFER • BOLTLESS



*FEATURES

- ASSEMBLED LENGTH 20 FEET (6.1 METERS)
- RIGID SECTION 15 FEET LONG (4.57 METERS)
- RIGID PIPE SECTION WITH MALE/FEMALE IRRIGATION QUICK COUPLERS BANDED** & BOLTED (POLY ONLY) ON EACH END, RUBBER GASKET, LOCKING CLAMP, AND AN INTEGRAL 10 FOOT FLOAT.
- MATERIALS OF CONSTRUCTION RIGID SECTION: ALUMINUM OR PE3408 UHMW POLYETHYLENE
- FLEXIBLE SECTION 5 FEET LONG (1.52 METERS)
- FLEXIBLE 100 PSI HOSE SECTION WITH MALE/FEMALE IRRIGATION QUICK COUPLERS (2) 2-BOLT CLAMPS*** ON EACH END, RUBBER GASKET, AND A LOCKING CLAMP.
- MATERIALS OF CONSTRUCTION FLEXIBLE SECTION: AN ABRASION RESISTANT CORE, NYLON (OR VYTACORD) REINFORCING AND AN EXTERIOR ABRASION RESISTANT COVER.
- QUICK COUPLERS GALVANIZED STEEL AND/OR ALUMINUM IRRIGATION QUICK COUPLERS.
- CABLE CLAMPS ADJUSTABLE ELASTOMERIC HOSE/CABLE CLAMPS (2 PER FLOAT ASSEMBLY)



LIGHTWEIGHT FLEXIBILITY

THE CRISAFULLI INTEGRAL FLOATING DISCHARGE LINE SOLVES THE PROBLEM GENERALLY ASSOCIATED WITH STANDARD DISCHARGE SYSTEMS. THE SYSTEM IS DESIGNED TO ALLOW MAXIMUM FLEXIBILITY WITHOUT HOSE KINKING OR WITHOUT FRETTING THE HOSE. THE INTEGRAL FLOATS REDUCE THE AMOUNT OF DRAG CAUSED BY THE FLOATS AS THEY MOVE THROUGH THE LIQUID OR SLUDGE. THE INTEGRAL FLOATS ALSO ALLOW THE SECTIONS TO BE STACKED WITHOUT THE QUICK DISCONNECTS BEING DAMAGED. EACH SECTION CAN BE HANDLED EASILY AND QUICKLY SET UP.

OPTIONAL FEATURES

- CORROSION RESISTANT STAINLESS STEEL FASTENERS AND COUPLERS
- ASSEMBLY LENGTH 10 FEET TO 40 FEET

*THESE FEATURES MAY CHANGE WITHOUT NOTICE. ** STAINLESS STEEL
 *** MILD STEEL ZINC COATED

REV. 2 (JLB) 6-27-96

NOMINAL DIAMETER	RIGID SECTION						FLEX SECTION LBS.
	ALUM/ALUM		ALUM/FOAM		POLY/FOAM		
	RATED PSI	LBS.	RATED PSI	LBS.	RATED PSI	LBS.	
3"	125	30	125	30	160	40	10
4"	125	35	125	35	110	50	15
6"	125	40	125	40	80	90	20
8"	95	65	95	55	65	125	30
10"			75	75	50	165	45
12"			75	105	50	235	55

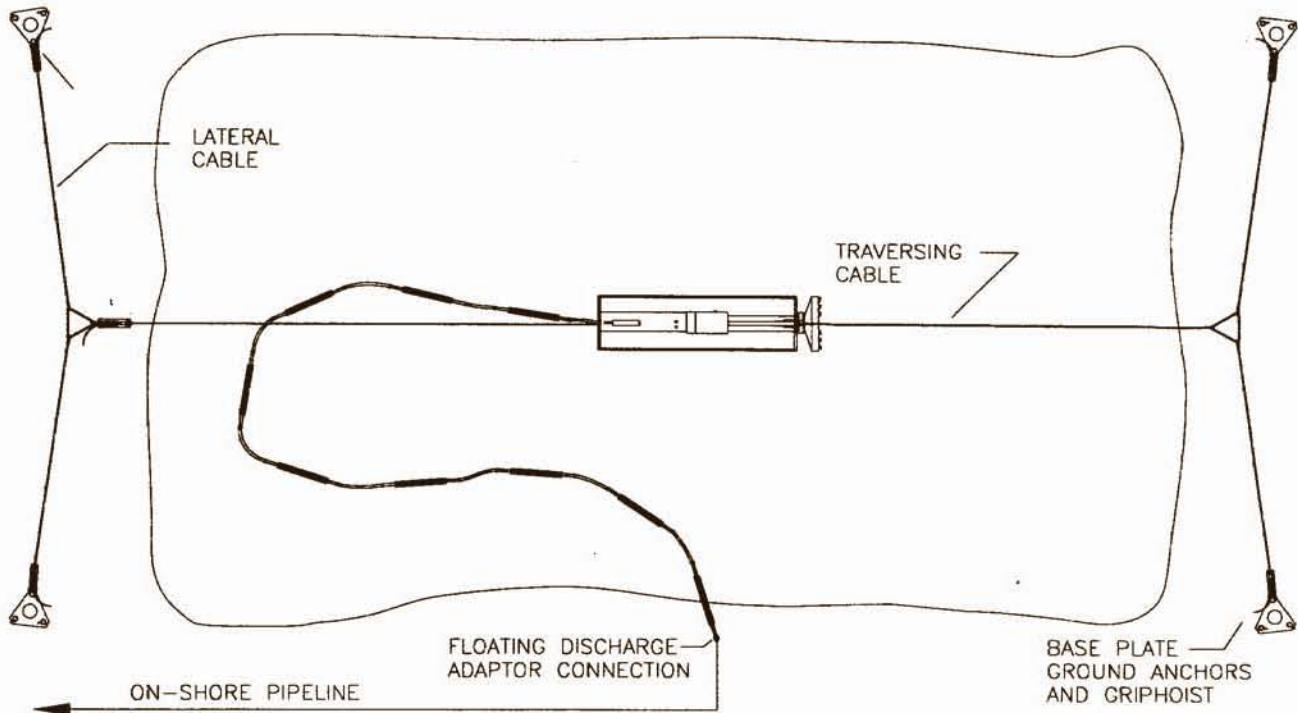


Crisafulli

Sludge Removal Systems

INTEGRAL FLOATING DISCHARGE PIPELINE

PROPULSION • POSITIONING • TRAVERSING • DREDGING



***FEATURES**

TRaversing CABLE	400' STANDARD, 3/8" DIAMETER 7X19 GALVANIZED STEEL CABLE (OPTIONAL LENGTHS AVAILABLE)
TENSION TRIANGLES	(2) 1/2" DIAMETER A36 STEEL TENSION TRIANGLES WITH FULL PENETRATION WELDS
LATERAL CABLES	210' STANDARD, C-16 GALVANIZED STEEL CABLE (OPTIONAL LENGTHS AVAILABLE)
GRIPHOISTS (TM)	(5) TWO TON GRIPHOIST CABLE TENSIONERS WITH HANDLES
BASE PLATES	(4) 3/16" STEEL TRIANGLE BASE PLATES
GROUND ANCHORS	(12) 48" LONG A36 STEEL ANCHORS, POINTED WITH D-RING HANDLES



OPTIONAL FEATURES

CORROSION RESISTANT STAINLESS STEEL COMPONENTS
(EXCEPT GRIPHOISTS)

GROUND ANCHORS

THE 4 LATERAL CABLES MAY EITHER BE ANCHORED WITH 3 GROUND ANCHORS & TRIANGLE BASE PLATE, A TREE, A ROCK OR ANYTHING SOLID.



Crisafulli

Sludge Removal Systems

DREDGE

4-POST MANUAL TRAVERSING
CABLING SYSTEM

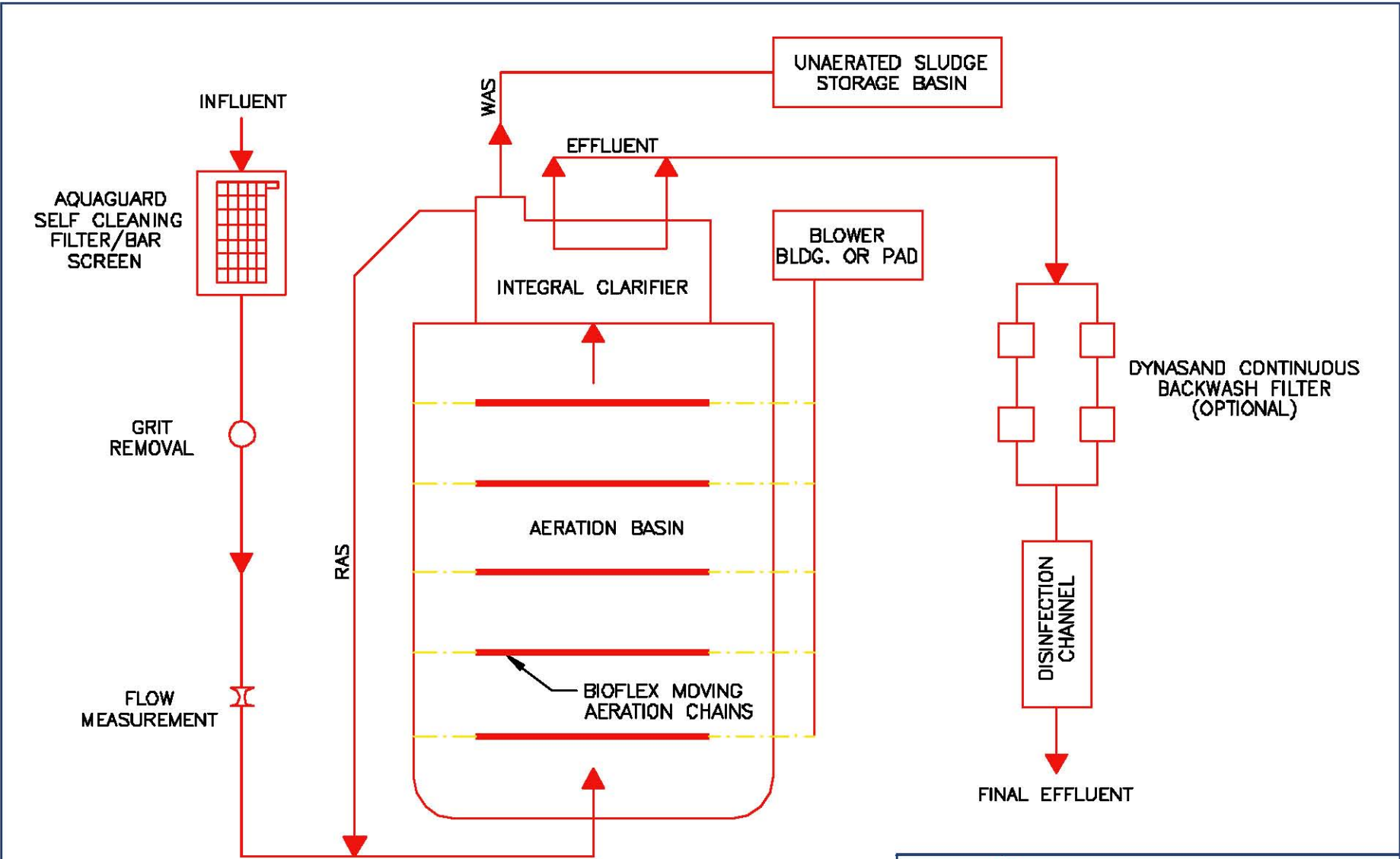
* THESE FEATURES MAY CHANGE WITHOUT NOTICE

REV. (4) BY J.L.B. 10-19-95

Dwn By: ckr Ckd: Date: 7/10/91 Dwg.#: CPC-91344

Insert “APP D Biolac”

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PARKSON CORPORATION					
BIDLAC LONG SLUDGE AGE SYSTEM FLOW DIAGRAM					
Drawn By G.C.	Checked By	Approved By	Micro Rev.	CAD No. SD1	Loc. status SD1
Date 2/1/96	Date	Date	Date	DWG Scale NONE	CAD Plt scale 1
Location			Dwg. No.	Rev.	
			SD-1	A	

INTRODUCING THE CARROUSEL® 3000

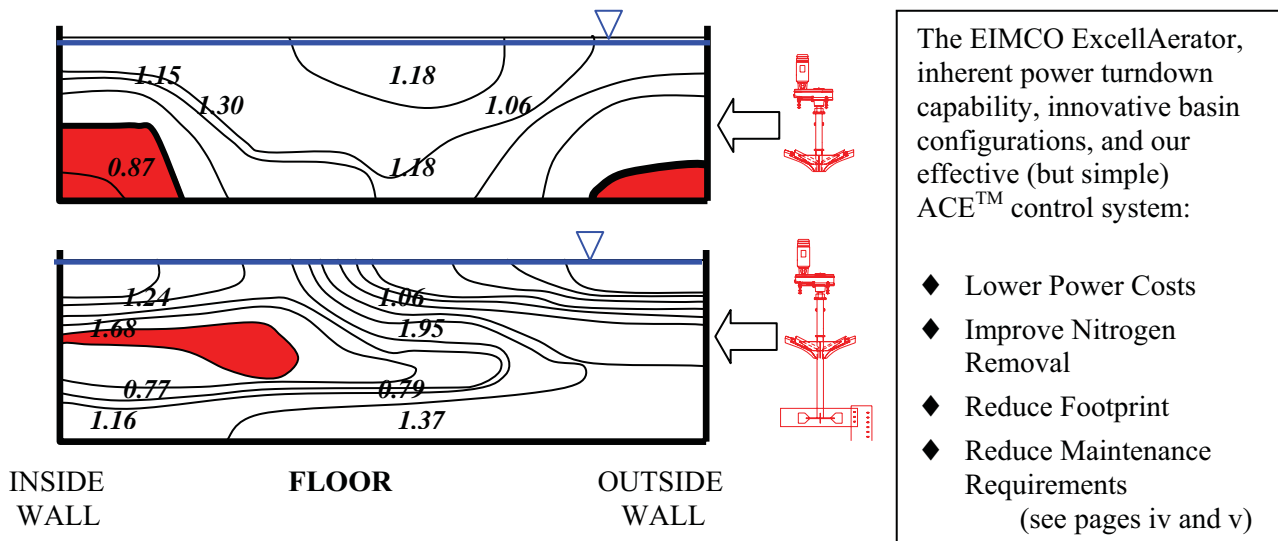
When EIMCO introduced the Carrousel System in the 1970s, most communities were simply trying to achieve secondary treatment—20/20 (BOD/TSS) permits. Over the last three decades, permits have become more stringent (usually requiring nutrient removal), the desire to save power more important, and space available for new plants more limited. The Carrousel 3000, the culmination of more than 29 years of continuous improvement of the Carrousel System, has responded to these market changes. Some milestones in the Carrousel process are shown below:

- 1976 - EIMCO brings the Carrousel® oxidation ditch to the U.S
- 1979 - EIMCO installs the first BNR plant in the U.S. designed on process kinetics
- 1987 - EIMCO introduces the DenitIR® Carrousel® system for free internal recycle
- 1989 - EIMCO introduces the dual-impeller aerator
- 1990 - EIMCO introduces the A²C process, reducing the biological nutrient removal process from five stages to three.
- 2000 - EIMCO introduces the Deep Tank Carrousel for depths greater than 20 ft.
- 2001 - EIMCO introduces the ACE™ control system to control power use 24-hours/day.
- 2004 - EIMCO introduces the ExcellAerator for maximum process control & energy savings



EIMCO's pilot-scale plant in Salt Lake City, Utah

The EIMCO ExcellAerator incorporates a lower turbine system on a common shaft with the surface aerating impeller. Velocity enhancing baffles (patent pending) are installed near the lower turbine. The ExcellAerator allows 70-85% power turndown while maintaining sufficient mixing throughout the basin.



VELOCITY PROFILE IN A FULL-SCALE OXIDATION DITCH

Numbers are velocities in feet per second in the channel cross-section from a full-scale test. The low velocities are shown in red. The low floor velocities along the inside and outside walls are eliminated with the addition of the EIMCO lower turbine system.

The EIMCO Carrousel® System Description

Award Winning Process For Biological Treatment



KEY FEATURES

- **BOD, TSS, AND NH₃-N REMOVAL**
- **FEWER PIECES OF EQUIPMENT MEANS LOWER INSTALLED COST**
- **SIMPLE AND EASY TO OPERATE**
- **WON OVER 70 EPA, STATE AND LOCAL AWARDS SINCE 1988**
- **HYDRAULICALLY EFFICIENT SO 70-85% POWER TURNDOWN IS POSSIBLE**
- **ON SITE PROCESS TRAINING AND EIMCO'S TECHNICAL SUPPORT**

Background

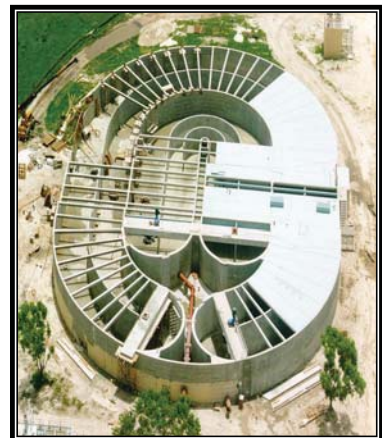
The EIMCO Carrousel System is one of the most successful and widely accepted processes available for biological wastewater treatment. More than 619 treatment plants in the United States and 950 worldwide depend on Carrousel Systems to remove organic contaminants and provide biological nutrient removal. Among owners and operators, the Carrousel System is universally praised for its stability, simplicity, ease of operation and maintenance, low operating cost, and consistent effluent quality.

Developed by DHV Consulting Engineers of the Netherlands, the Carrousel System is unique in that every installation is custom engineered using a proprietary hydraulic model. Eimco Water Technologies engineers use this model to evaluate the energy requirements of a proposed design, to efficiently match treatment capacity to actual requirements, and to define the most affordable layout for a specific site.

As a result, Carrousel System plants display extraordinary operating flexibility and energy economy. Their hydraulic efficiency provides full solids suspension with minimal mixing energy, allowing aeration input to be varied from full power to 15% -30% of the installed power. The ability to actively manage energy use in response to daily, seasonal and service life demand cycles offers the owner significant opportunities to minimize operating expense while maintaining strict permit compliance.

Physical Description

The Carrousel System is a closed loop, oxidation ditch reactor that provides the aerobic component of a very efficient activated sludge system. The layout is a typically a “hotdog” (schematic next page) or “folded over” (photo at top) design. Internal partition walls define flow channels. More creative design configurations are possible as shown in the picture to the right. Vertically mounted, large diameter, low-speed surface aerators are installed at the channel turns, slightly offset in the direction of flow from the centerline of internal partition walls. This arrangement allows the aerators to function as large-scale pumps, driving mixed liquor from upstream to downstream channels and establishing a constant flow velocity. It also divides the basin volume into complete mix and plug flow hydraulic environments, where short intervals of intense aeration and mixing alternate with longer intervals of relatively quiescent, but fully mixed conditions.

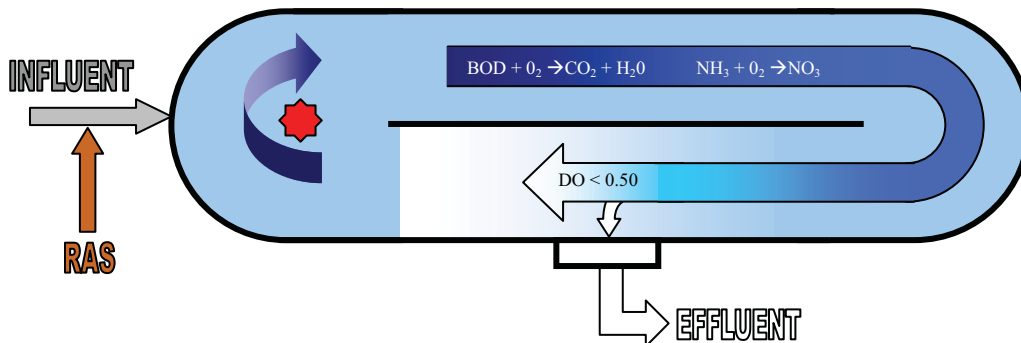


The EIMCO Carrousel® System Description (cont'd)

Award Winning Process For Biological Treatment

Operating Description

In the aeration zone, influent wastewater and returned activated sludge (RAS) are introduced under intense, concentrated mixing action, providing immediate dilution in a mixed liquor volume of 50 to 100 times the influent flow and eliminating the possibility of short circuiting. The concentration of aeration power in a confined volume enhances oxygen transfer efficiency and establishes a uniform dissolved oxygen profile throughout the channel depth.



As mixed liquor enters the downstream channel, the complete mix conditions give way to a plug flow environment in which the channel velocity maintains an energy level high enough to keep solids suspended, but low enough to allow progressive bioflocculation of the mixed liquor solids. In the channels, natural respiration of the biomass produces a gradual drop in DO concentration, which can be managed for various process objectives, including denitrification. The low DO entering the aeration zone also increases oxygen transfer. An overflow weir is located upstream of the aeration zone to take maximum advantage of oxygen management practices and bioflocculation in the downstream channels.

By concentrating the input of mixing and aeration energy in a small portion of the basin volume, and by using the channel velocity to maintain solids suspension in the larger volume, the Carrousel System provides more flexible, efficient aeration with fewer aerators than other oxidation ditch systems and with significantly lower overall power requirements than complete mix systems. The reduced number of aerators and their convenient location simplify and greatly reduce mechanical maintenance requirements.

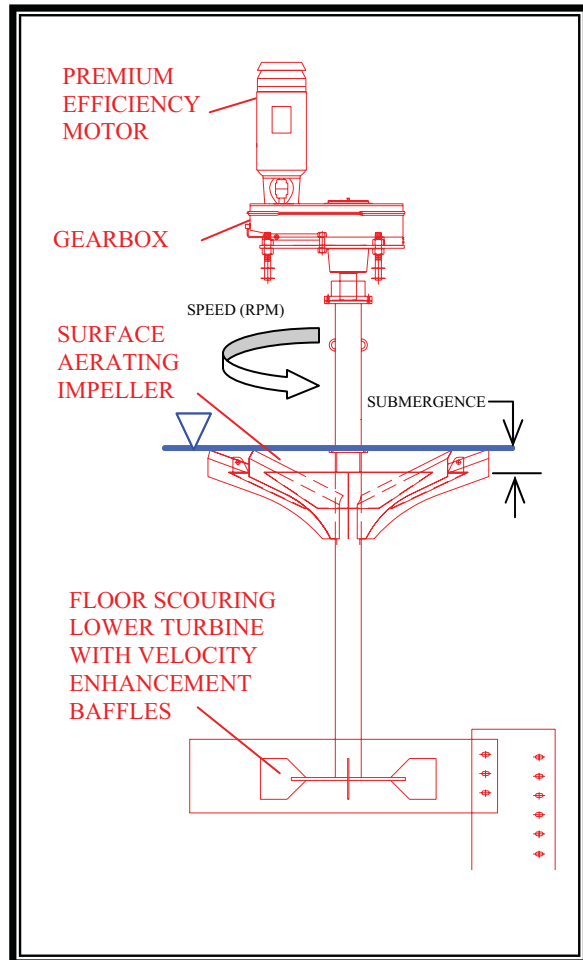
Maximum Mixing, Minimum Power

The operating economies described above depend on a reactor basin where channel velocity is maintained with **the smallest possible input of aeration energy**. All dimensions and specifications that influence this capability are evaluated using the DHV Carrousel System hydraulic model, including impeller type, impeller diameter, aerator rotational speed, aeration zone depth, channel depth and width. The resulting hydraulic efficiency ensures that solids remain in suspension using only a fraction of the installed power.

A Proposal of Excellence

The EIMCO Carrousel System proposed in this document will ensure your client of wastewater treatment performance that will reliably meet the plant's specified effluent discharge limits. In addition, it will provide the owner with a treatment system that is simpler, more stable, easier to operate and maintain and less expensive to operate than any other oxidation ditch configuration. It will provide a flexible platform for future upgrades should they be required by service area growth or more restrictive discharge regulations. Eimco engineers provide process training and start-up technical support so that Carrousel systems perform to their specifications from Day 1. For these reasons, the Carrousel system is a responsible technology investment for you and your client.

THE EXCELL™ AERATOR AND ACE™ CONTROL SYSTEM



**MAXIMUM POWER TURNDOWN
DESIGNED FOR THE LIFE OF THE PLANT**

The EIMCO Automated Control of Energy (ACE™) System:

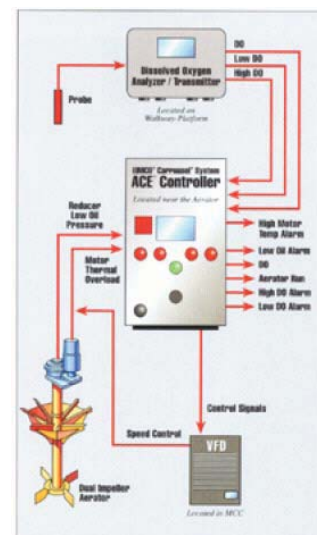
Eimco Water Technologies offers the optional ACE system to match delivered aeration power to the oxygen demand of the influent wastewater. The ACE system adjusts aerator power (by adjusting rotational speed of the impeller) to maintain dissolved oxygen in the Carrousel basin at an optimum setpoint. The ACE system is compatible with most plant SCADA systems and dissolved oxygen probes. The ACE system is custom-programmed by an Eimco engineer for each installation—taking into account the specific dissolved oxygen profile in the system, impeller size, and treatment goals. Our customers typically find the cost of the ACE system can be recovered in 2-4 years, based on power savings alone. The process benefits of the ACE system are equally important in nutrient removal plants. Through simple control of dissolved oxygen, the ACE system maximizes nitrogen and phosphorus removal 24 hours per day.

The Carrousel process is an inherently efficient system, but it is the EIMCO Excellerator that extends that efficiency to all phases of a plant’s life—from start-up to maturity. Most plants spend much of their life receiving influent loadings that are less than the design loadings. The Excellerator has a surface aerating impeller to provide aeration and mixing and a patented lower turbine system. The lower turbine increases floor velocity by 10-15% compared to older single-impeller designs. The Excellerator can draw only 15-30% of nameplate power and maintain sufficient mixing! Power to the aerator is controlled by (1) the rotational speed (rpm) of the impeller and (2) the submergence of the impeller blades.

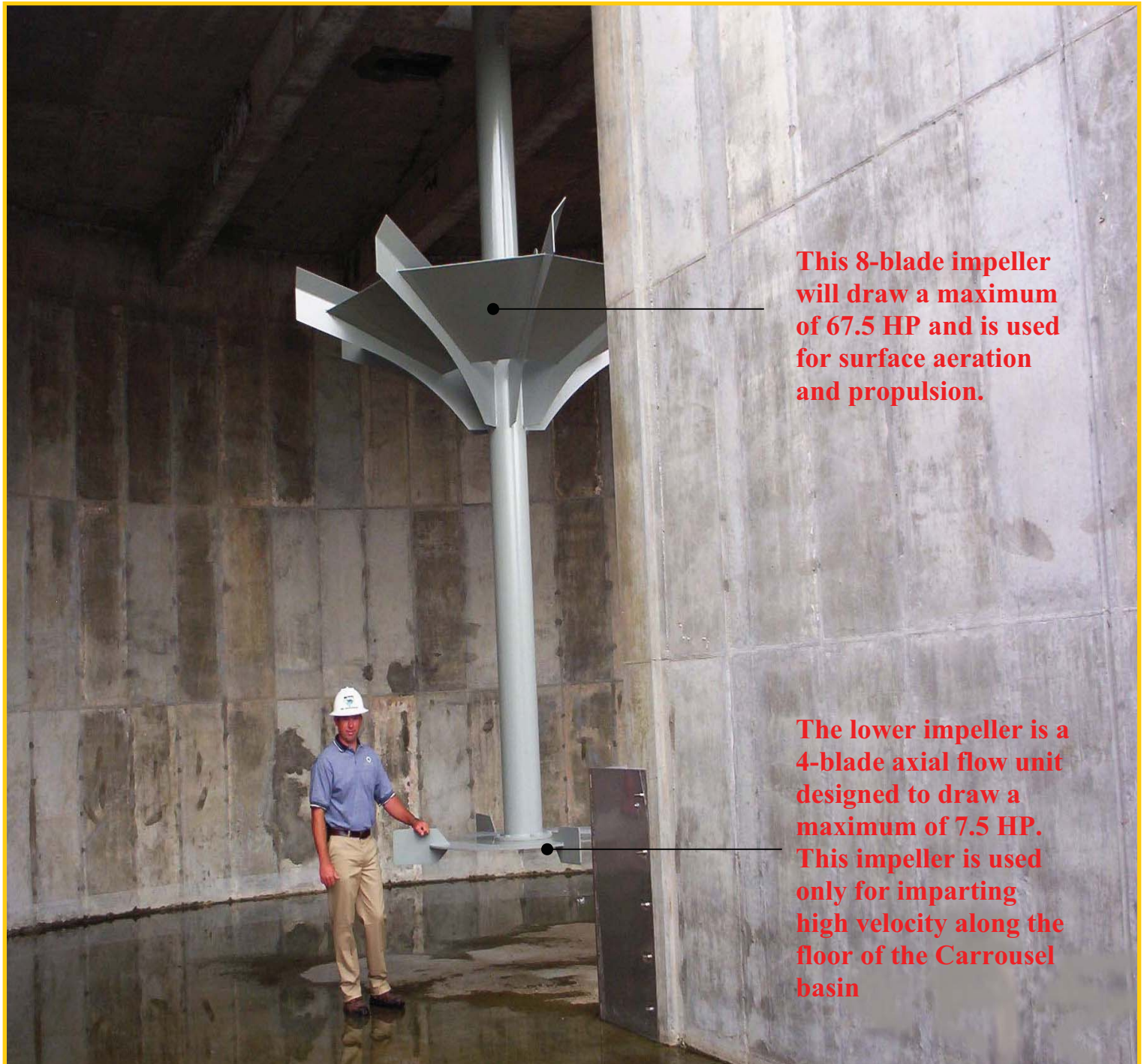
Power turndown saves communities thousands of dollars in energy annually. In addition, power turndown (or, more specifically, aeration turndown) is essential for nutrient removal plants. Without adequate power turndown, over-aeration often exhibits itself by producing copious quantities of “pin floc”.

Engineers must design plants with installed aeration capacity that accommodates future loading and redundancy requirements. With the EIMCO process, operators can run the Excellerator at much less than the installed power, saving energy and achieving nutrient removal throughout the life of the plant.

EIMCO EXCELLERATOR



Eimco Dual Impeller Aerator



This 8-blade impeller will draw a maximum of 67.5 HP and is used for surface aeration and propulsion.

The lower impeller is a 4-blade axial flow unit designed to draw a maximum of 7.5 HP. This impeller is used only for imparting high velocity along the floor of the Carrousel basin

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Aqua

Cloth Media Filtration

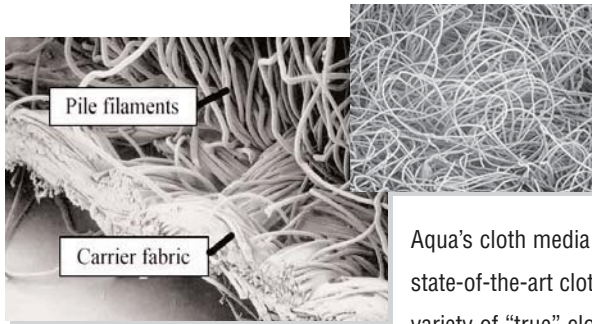
The Leader in Cloth Media Filtration



Aqua-Aerobic Systems, Inc.

Copy of document found at www.NoNewWipTax.com

Unique Cloth Media



Microscopic view of pile media.

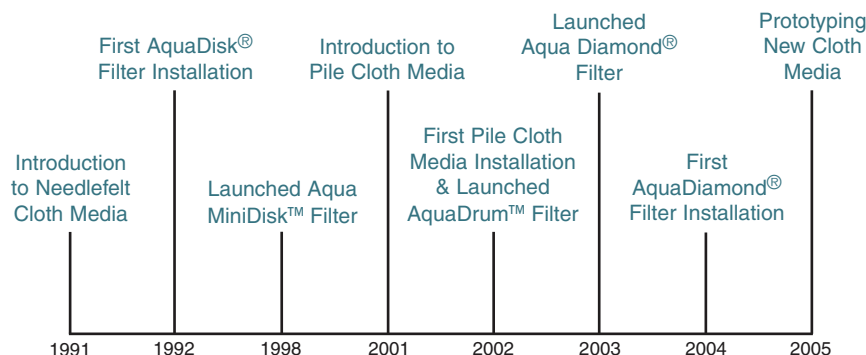
Microscopic view of needlefelt media.

Aqua's cloth media filtration systems utilize state-of-the-art cloth media. Only Aqua offers a variety of "true" cloth media, each with distinctive characteristics which can be custom-applied to your specific application. The depth of the media is inherent to the cloth's ability to consistently store and remove solid particles, resulting in optimal effluent quality.

Ongoing Commitment

Aqua's proactive experience with research and development results in cloth media filtration products that virtually meet any tertiary requirements. We are dedicated to obtaining extensive knowledge on media, textile construction, durability, and impact on performance by working directly with textile manufacturers and independent testing laboratories. Our research efforts include continued development through partnerships with universities who test our products for durability and performance. Our commitment to research and development and piloting programs provides our customers with more media and configuration options to suite individual application needs.

Evolution of Aqua's Cloth Media Technology



Continuous Testing

Pile Cloth Operation

Natural State



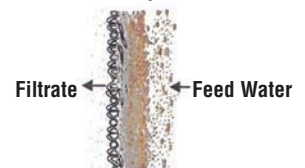
Normal Operation



Active Filter Depth

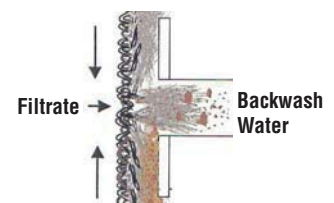
When wetted and mounted in a vertical configuration, densely packed fibers overlay one another, creating depth for the efficient removal and storage of solids.

Normal Operation



Solids retained on and within the cloth form an additional filter layer which provides enhanced filtration.

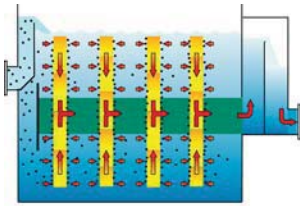
Backwash



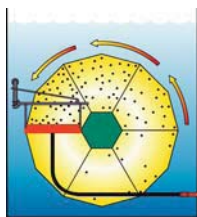
During backwash, filtrate is drawn back through the cloth. The suction causes the pile fibers to revert back to a natural state.

Cloth Media Configurations

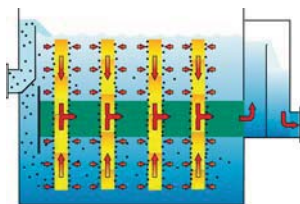
Operation



Inlet wastewater enters the tank or basin, completely submerging the cloth media. By gravity, liquid passes through the cloth media. As solids accumulate on and within the media, a mat is formed and the liquid level in the tank or basin increases. The filtered liquid enters the internal portion of the disk where it is directed to final discharge through the center shaft.



At a predetermined level or time, the backwash cycle will be initiated. Solids are backwashed from the surface by liquid suction from both sides of each disk. During backwash, disks are cleaned in multiples of two, unless a single disk unit is utilized. Disks rotate slowly, allowing each segment to be cleaned. Backwash water is directed to the headworks. Filtration is not interrupted during this cycle.



The filtration process requires no moving parts. Heavier solids are allowed to settle to the bottom portion of the filter tank. These solids are then pumped on an intermittent basis back to the headworks, digester or other solids collection area of the treatment plant.

AquaDisk®

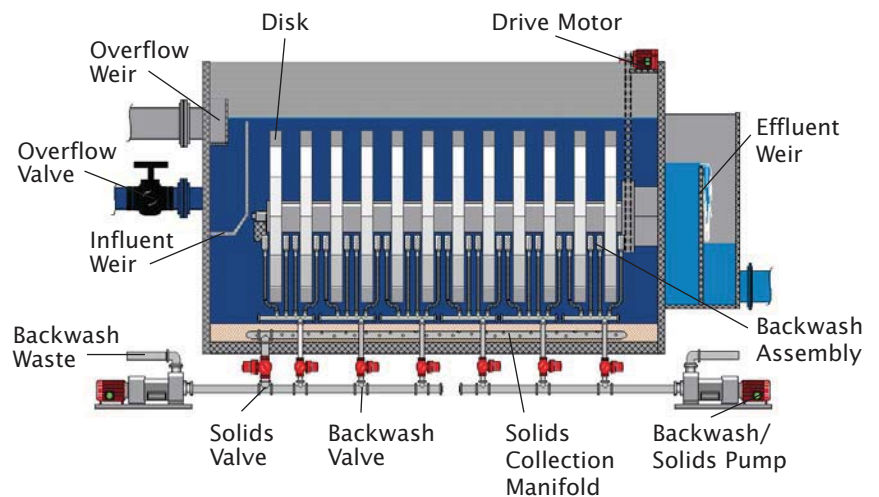
Aqua was first in the market, dating back to 1991, with the cloth media disk configuration as an alternative to conventional granular media filtration technologies. A history of exceptional operating experience and durability continue to make AquaDisk® the disk filter of choice.



Two AquaDisk® Filters with walkway access.

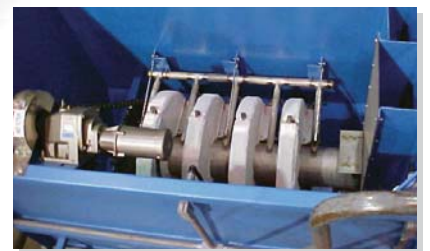
Features

- Up to 12 vertically oriented disks per unit
- Gravity flow operation
- Average hydraulic capacity from 0.25 to 3.0 MGD per unit
- Available in painted steel, stainless steel or concrete tanks
- Steel tank package units minimize field installation requirements
- Fully automatic, PLC based control system



Aqua MiniDisk™

The Aqua MiniDisk™ filter provides the solution for smaller flows. It is based on the same operating strategies as its larger counterpart, the AquaDisk®, but with smaller diameter disks.



Internal view of 4-disk Aqua MiniDisk™

Features

- Up to 6 vertically oriented disks per unit
- Average hydraulic capacity from 50,000 to 300,000 GPD
- Available in painted steel or stainless steel tanks
- Gravity flow operation
- Steel tank packaged units minimize field installation requirements
- Fully automatic, PLC based control system

Cloth Media Configurations

AquaDiamond®

The AquaDiamond® is a unique combination of two time-proven technologies; traveling bridge and cloth media filtration. The result is three times the flow capacity of a traveling bridge filter with an equivalent footprint, making it ideal for new plants or sand filter retrofits.



Overview of AquaDiamond® filter retrofitted into a 16' wide sand filter cell.

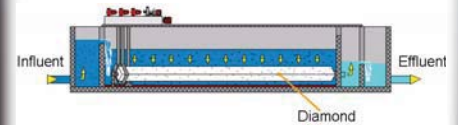
Features

- Up to 8 vertically oriented, diamond-shaped cloth media laterals per unit
- Gravity flow operation
- Available in concrete tanks
- Variable speed drive platform and backwash pump for immediate response to solids excursions
- Four-wheel drive platform designed for better guidance and traction
- Fully automatic, PLC based control system

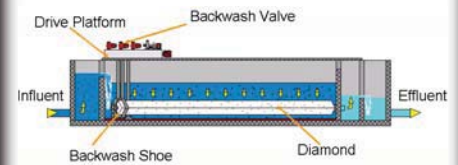


AquaDiamond® backwash assembly and laterals.

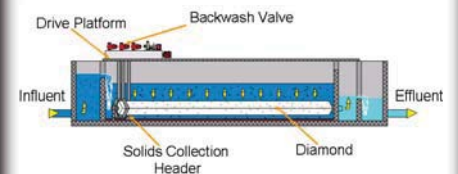
Operation



The cloth media is completely submerged during filtration. Solids are deposited on the outside of the cloth as the influent wastewater flows through. The filtered effluent is collected inside the diamond lateral and flows by gravity, to discharge. The filtration process requires no moving parts. Increased headloss due to the deposited solids automatically initiates periodic backwashing.



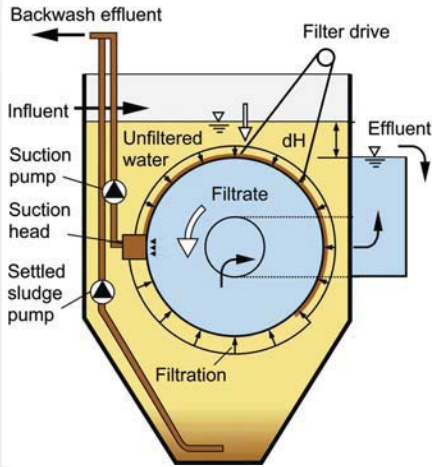
During backwash, a pump provides suction to the vacuum heads, allowing solids to be vacuumed from the cloth as the platform traverses the length of the diamond laterals. The platform operates only during backwashing and solids collection.



Because of the vertical orientation of the media, some solids will settle to the basin floor during normal operation. Small suction headers provide a means for collecting and discharging the settled solids. The solids collection process utilizes the backwash pump for suction.

Cloth Media Configurations

Operation



Solids are deposited on the outside of the cloth as the influent wastewater flows through. The filtered effluent is collected inside the drum and is discharged. Increased headloss due to the deposited solids automatically initiates periodic backwashing.

A pump provides suction to the vacuum head, allowing solids to be vacuumed from the cloth as the drum slowly rotates. Likewise, solids settling in the tank are suctioned and discharged. The drum only rotates during backwashing.

AquaDrum™

A drum style support structure covered with our unique cloth media is the basis of design for the AquaDrum™. It provides another small flow solution where driving head is particularly limited.



Overall view of an AquaDrum™ filter.



Internal view of AquaDrum™ filter.

Features

- One cloth media covered drum per unit
- Gravity flow operation
- Average hydraulic capacity from 60,000 to 375,000 GPD
- Available in stainless steel or concrete tanks

Technology Comparison

Of course, performance is not the only factor in choosing the right filter technology. Life-cycle cost plays an equally important role in the decision making process. Several other key factors should also be considered during the evaluation process.

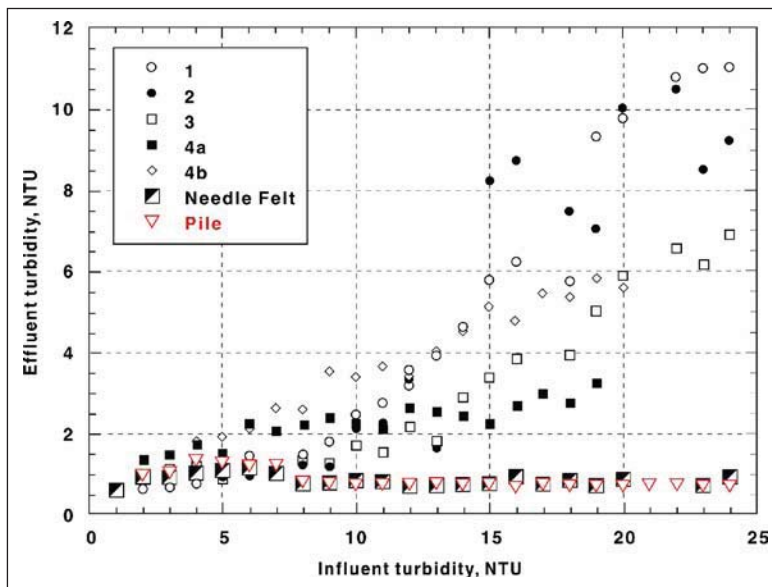
	Aqua-Aerobic Cloth Media	Granular Media	Micro Screens
Depth of Filtration	■	■	
High Solids Loading	■		
Small Footprint	■		■
Ease of Media Handling	■		■
Multiple Media Options	■	■	
Retrofits	■		■
Configuration options provided by a single manufacturer	■		▲

Cloth Media Performance

Documented Testing & Operating Data

The exceptional performance of Aqua's cloth media filtration technology has been fully documented through years of testing and gathering of operating data from full-scale installations. The table below resulted from independent testing and summarizes the performance of both our needlefelt and pile cloth media in comparison to other, more conventional wastewater filtration technologies. It shows that Aqua's unique cloth media produces consistently lower effluent turbidity values over a wider range of influent turbidities than the other technologies tested. This high standard of performance has been demonstrated on all of the cloth media mechanical configurations offered by Aqua-Aerobic.

This chart indicates the comparison of effluent versus influent turbidity for cloth media filtration at 14.7 m/hr and various filters at 9.8 m/hr.



- Deep-bed, continuous backwash upflow mono-medium filters
- Shallow depth, automatic backwash mono, dual and multi-medium downward flow filters
- Deep-bed, mono-medium downward and/or upward filters
- Shallow-depth, mono-medium filters
- ◇ Shallow-depth, dual medium filters
- ▣ Cloth Media Disk Filter (needlefelt media)
- ▽ Cloth Media Disk Filter (pile media)

Service Capabilities

Application and Engineering - Aqua has process, mechanical and electrical engineers on staff.

Laboratory Testing - Aqua can evaluate a sample of your wastewater and provide you with an analysis.

Piloting - Pilot filter units are available to evaluate effluent results for any application.

Aftermarket - Aqua offers parts sales and numerous service programs including: SpareCare[®], 24/7 Customer Service, Cloth Media Replacement and Rental and Lease options.

Operator Training - Aqua offers installation supervision and training to help you understand how your equipment/system operates and preventative maintenance that keeps your equipment operating efficiently.

Technical Seminars - Aqua provides a one-day Process and Product Application Seminar with Cloth Media Filtration as a main topic.



AquaDisk[®] pilot unit

Aqua-Jet®
Surface Aerators

Aqua-Jet II®
Contained Flow Aerators

AquaDDM®
Direct Drive Mixer-Blenders

Aqua MixAir®
Aeration Systems

Aqua EnduraDisc®
Fine Bubble Diffusers

Aqua EnduraTube®
Fine Bubble Diffusers

Aqua CB-24®
Coarse Bubble Diffusers

AquaSBR®
Sequencing Batch Reactors

AquaExcel™
Batch Reactors with AquaEnsure™

AquaEnsure™
Maintenance-Free Decanter

Aqua MSBR®
Modified Sequencing Batch Reactor

AquaPASS™
Phased Activated Sludge Systems

AquaMB Process™
Multiple Barrier Membrane System

AquaDisk®
Cloth Media Filters

Aqua MiniDisk™
Cloth Media Filters

AquaDiamond®
Cloth Media Filters

AquaDrum™
Cloth Media Filters

AquaABF®
Automatic Backwash Filters

ThermoFlo®
Surface Spray Coolers

IntelliPRO™
Process Management System

Contact Your Local Representative:



Aqua-Aerobic Systems, Inc.

6306 N. Alpine Rd. • P.O. Box 2026 • Rockford, IL 61130

Phone: 815/654-2501 • Fax: 815/654-2508 • Toll Free: 877/214-9625

Email: solutions@aqua-aerobic.com • www.aqua-aerobic.com

The information contained herein relative to data, dimensions and recommendations as to size, power and assembly are for purpose of estimation only. These values should not be assumed to be universally applicable to specific design problems. Particular designs, installations and plants may call for specific requirements. Consult Aqua-Aerobic Systems, Inc. for exact recommendations or specific needs.

Patents Apply. Patents Pending.



WASTEWATER DISINFECTION





The Reference Standard in UV

Proven, chemical-free disinfection from the industry leader

Trojan Technologies is an ISO 9001:2000 registered company that has set the standard for proven UV technology and ongoing innovation for more than 25 years. With unmatched scientific and technical expertise, and a global network of water treatment specialists, representatives and technicians, Trojan is trusted more than any other firm as the best choice for municipal UV solutions. Trojan has the largest UV installation base – over 4,000 municipal installations worldwide – and almost one in five North American wastewater

treatment plants rely on our proven, chemical-free disinfection solutions.

The TrojanUV3000Plus™ is one of the reasons why. This highly flexible system has demonstrated its effective, reliable performance around the world in over 400 installations. It is well suited to wastewater disinfection applications with a wide range of flow rates, including challenging effluent such as combined sewer overflows, primary and tertiary wastewater reclamation and reuse.

Following a review with Plant Operators and Engineers, the proven infrastructure of the TrojanUV3000Plus™ has been refined to make it even more operator-friendly. The result is more dependable performance, simplified maintenance, and maximized UV lamp output at end-of-lamp life. It also incorporates innovative features to reduce O&M costs, including variable output electronic ballasts and Trojan's revolutionary ActiClean™ system – the industry's only chemical/mechanical sleeve cleaning system.

TROJAN UV3000 PLUS™

Designed for efficient, reliable performance

System Control Center (SCC)

The SCC monitors and controls all UV functions, including dose pacing – the automatic, flow-based program that ensures proper disinfection levels while conserving power and extending lamp life. The microprocessor-based SCC is integrated onto one Power Distribution Center, and features a user-friendly, touch-screen HMI display with weatherproof cover, and Modbus Ethernet SCADA connectivity. For systems treating larger flows, or where more sophisticated control is desired, a PLC-based System Control Center is available. It features a separate wall-mount panel with colour, touch-screen HMI, Ethernet/IP SCADA connectivity, automatic slide/slucice gate control for multiple channels, and integrated Flash memory trend logging (flow, power, UVT, dose).



Alarms

Extensive alarm reporting system ensures fast, accurate diagnosing of system process and maintenance alarms. Programmable control software can generate unique alarms for individual applications.

Power Distribution Center (PDC)

The PDC powers each bank of modules. Its ergonomic, angled design provides easy access to module power cables and hoses for the ActiClean™ cleaning system. The robust stainless steel enclosure is mounted across the channel, with module fuses and interlock relays visually aligned with module receptacles for fast diagnostics. Modules are individually overload protected for safety. Like all TrojanUV3000Plus™ components, the PDC can be installed outdoors and requires no shelter or HVAC.

UV Intensity Sensor



The UV intensity sensor continually monitors UV lamp output. The ActiClean™ system automatically cleans the sensor sleeve every time lamp sleeves are cleaned.

Electronic Ballasts



The variable-output (60 - 100% power) electronic ballast is mounted in its own TYPE 6P (IP67) rated enclosure within the module frame. Features "quick connect" electrical connections. Cooling is by convection.

ActiClean™ Cleaning System

The system consists of two components:

1. Hydraulic System Center (HSC)

The HSC actuates the ActiClean™ cleaning system, and is mounted close to the channel in a stainless steel enclosure. It contains the pump, valves and ancillary equipment required to operate the cleaning system, and links to the extend/retract hoses of the module wiper drives via a manifold located on the underside of the PDC.

2. ActiClean™ Wiper Assembly

A submersible wiper drive on each UV module drives the wiper carriage assembly along the module. Attached wiper canisters surround the quartz sleeves, and are filled with Trojan's ActiClean™ Gel. The gel uses food grade ingredients and contacts the lamp sleeves between the two wiper seals. Cleaning takes place while the lamps are submerged and while they are operating.



Water Level Sensor

The system includes an electrode low water level sensor for each channel. If effluent levels fall below defined parameters, an alarm will be activated.

UV Modules

UV lamps are mounted on modules installed in open channels. The lamps are enclosed in quartz sleeves, and positioned horizontally and parallel to water flow. A bank is made up of multiple modules placed in parallel. All ballast and lamp wiring runs inside the module frame.

Water Level Controller

A fixed weir, motorized weir gate, or Automatic Level Control gate (shown), is required in the channel to maintain the appropriate water level over the lamps. Trojan engineers will work with you to select the appropriate level control device for your application.

Key Benefits

TrojanUV3000Plus™

Increased operator, community and environmental safety.

The TrojanUV3000Plus™ uses environmentally-friendly ultraviolet light – the safest alternative for wastewater disinfection. No disinfection by-products are created, and no chemicals must be transported, stored or handled.

Well suited to changing regulations. Trojan UV systems do not have any negative impact on receiving waters and do not produce disinfection by-products, making them a strategic, long-term choice as regulations become increasingly stringent.

Most efficient UV system available versus competitive low-pressure, high-output (LPHO) or amalgam lamp-based systems.

Reduces operating costs by as much as 30% per year. Long-lasting amalgam lamps and variable-output ballasts optimize UV output to meet wastewater conditions and maximize system efficiency versus competitive UV systems.

Proven disinfection based on actual dose delivery testing (bioassay validation), and over 400 TrojanUV3000Plus™ installations worldwide. Real-world, field performance data eliminates sizing assumptions resulting from theoretical dose calculations.

Dual-action sleeve cleaning system improves performance and reduces labor costs. Automatic ActiClean™ chemical/mechanical cleaning system maintains sleeve transmittance of at least 95%, and works online – eliminating the need to remove modules from the channel.

Reduced installation costs. The compact TrojanUV3000Plus™ can be retrofitted into existing chlorine contact tanks, and comes pre-tested, pre-assembled and pre-wired to minimize installation costs.

Outdoor installation flexibility. The entire TrojanUV3000Plus™ system can be installed outdoors, eliminating the need and costs of a building, shelter, and HVAC for ballast cooling.

Guaranteed performance and comprehensive warranty. Trojan systems include a Lifetime Performance Guarantee, the best lamp warranty in the industry, and use lamps from multiple approved suppliers. Ask for details.

ActiClean™ Dual-Action, Automatic Cleaning System

Chemical/mechanical cleaning system eliminates sleeve fouling

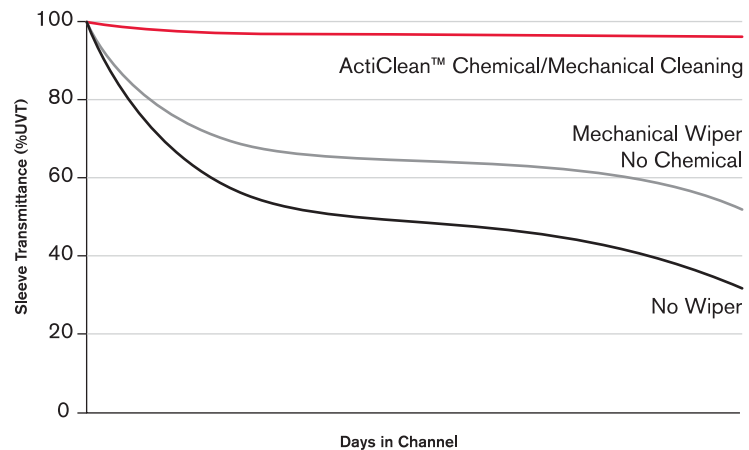
Benefits:

- Cleans 50% more effectively than mechanical wiping alone
- Improves lamp performance for more reliable dose delivery
- Elimination of fouling factor reduces equipment sizing requirements and power consumption
- Automatic, online cleaning reduces O&M costs associated with manual cleaning
- Combination of chemical and mechanical cleaning action removes deposits on quartz lamp and sensor sleeves much more effectively than mechanical wiping alone
- Innovative wiper design incorporates a small quantity of ActiClean™ Gel for superior, dual-action cleaning
- Cleans automatically while the lamps are disinfecting. There's no need to shut down the system, remove or bypass lamp modules for routine cleaning
- Proven in hundreds of systems around the world, including use in plants where heavy fouling had previously prohibited the use of UV disinfection technology
- ActiClean™ can be added to an installed TrojanUV3000Plus™ not originally equipped with a cleaning system



The dual-action, chemical/mechanical cleaning with the ActiClean™ system provides superior sleeve cleaning and reduces maintenance costs. Fouling and residue build-up on quartz sleeves reduces system efficiency. ActiClean™ maintains at least 95% transmittance, ensuring sleeves are clean and the system is consistently delivering accurate dosing while reducing power consumption.

Efficacy of Cleaning Technologies to Control Sleeve Fouling



ActiClean™ Gel is Safe to Handle

- ActiClean™ Gel is comprised of food-grade ingredients
- Quick connect on cleaning system allows for easy refill of gel solution
- Lubricating action of ActiClean™ Gel maximizes life of wiper seals

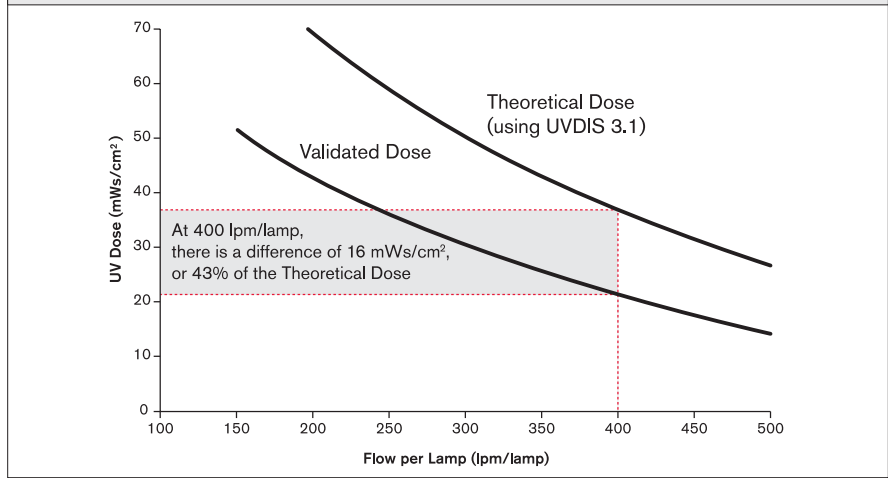
Regulatory-Endorsed Bioassay Validation

Real-world testing ensures accurate dose delivery

Benefits:

- Performance data is generated from actual field testing over a range of flow rates, effluent quality, and UVTs
- Provides physical verification that system will perform as expected; ensures public and environmental safety
- Provides accurate assessment of equipment sizing needs
- The TrojanUV3000Plus™ has been thoroughly validated through real-world bioassay testing under a wide range of operating conditions
- In-field bioassay testing offers the peace of mind and improved public and environmental safety of verified dose delivery – not theoretical calculations
- The USEPA has endorsed bioassays as the standard for assessment and comparison of UV technologies
- The disinfection performance ratings for the TrojanUV3000Plus™ are proof that what you see is what you actually get

Field Validated Dose vs. Theoretical Dose at 65% UVT
(Before Fouling & Lamp Aging Are Taken into Account)



This shows the validated dose of an actual working system and the theoretical dose calculated using UVDIS. Note that the UVDIS 3.1 dose calculation overestimates the system performance.

Amalgam Lamps Require Less Energy

Require fewer lamps and reduce O&M costs

Benefits:

- Draw less energy than competitive high-output systems – only 250 Watts per lamp
- Stable UV output over a wide range of water temperatures
- Fewer lamps are required to deliver the required dose, which reduces O&M costs
- Can treat lower quality wastewater such as primary effluents, combined sewer overflows, and storm water
- Fewer lamps allow systems to be located in compact spaces, reducing installation costs
- Trojan's amalgam lamps produce significantly higher UV output than conventional low-output lamps
- Fast and simple lamp changeouts; replacing a 50-lamp system takes less than two hours and requires no tools
- The lamps are sealed inside heavy-duty quartz sleeves by Trojan's multi-seal system, maintaining a watertight barrier around the internal wiring while individually isolating each lamp and the module frame
- Lamps are pre-heated for reliable startup



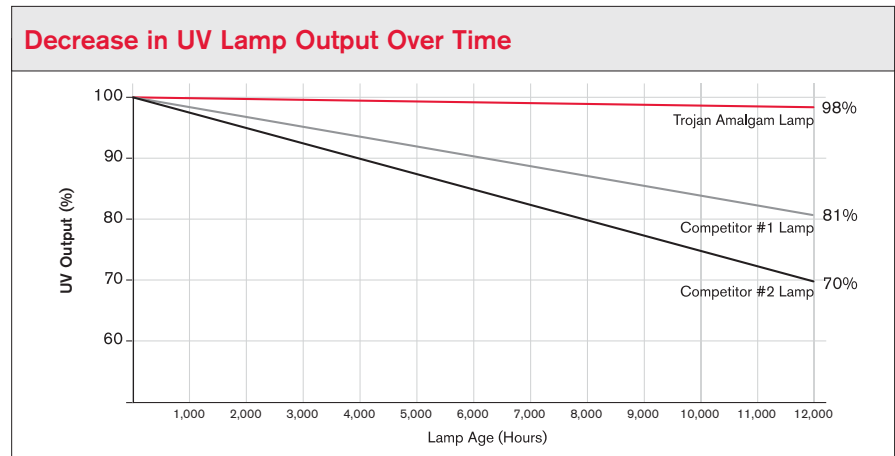
Trojan's high efficiency amalgam lamps generate stable UV output in a wide range of water temperatures.

Amalgam Lamps Maintain Maximum UV Output

Trojan lamps deliver 98% of full UV output after more than one year of use

Benefits:

- Trojan's high efficiency, amalgam lamps deliver the most consistent UV output
- Trojan lamps have 20% less decline in UV output after 12,000 hours of use compared to competitive UV lamps
- Validated performance assures you of reliable dose delivery and prolonged lamp life



The lamps used on the TrojanUV3000Plus™ system have been independently validated to maintain 98% of original output after 12,000 hours of operation.

Open-Channel Architecture Designed for Outdoor Installation

Cost-effective to install and expand

Benefits:

- Compact, open-channel design allows cost-effective installation in existing effluent channels and chlorine contact chambers
- System can be installed outdoors to reduce capital costs – no building, shelter or HVAC is required
- Gravity-fed design eliminates costs of pressurized vessels, piping and pumps
- Scalable architecture allows precise sizing – reduces capital and O&M costs associated with oversizing
- Modular design is readily expandable to meet new regulatory or capacity requirements
- Trojan's thorough design approach ensures that effluent quality, upstream treatment processes, and O&M needs are addressed in system configurations
- Horizontal lamp mounting delivers optimal hydraulic performance. This arrangement induces turbulence and dispersion, maximizing wastewater exposure to UV output

The TrojanUV3000Plus™ system delivers flexibility and cost savings through its simple installation in existing channels and chlorine contact chambers. The system can be situated outdoors with no additional building, shelter or cooling requirements.

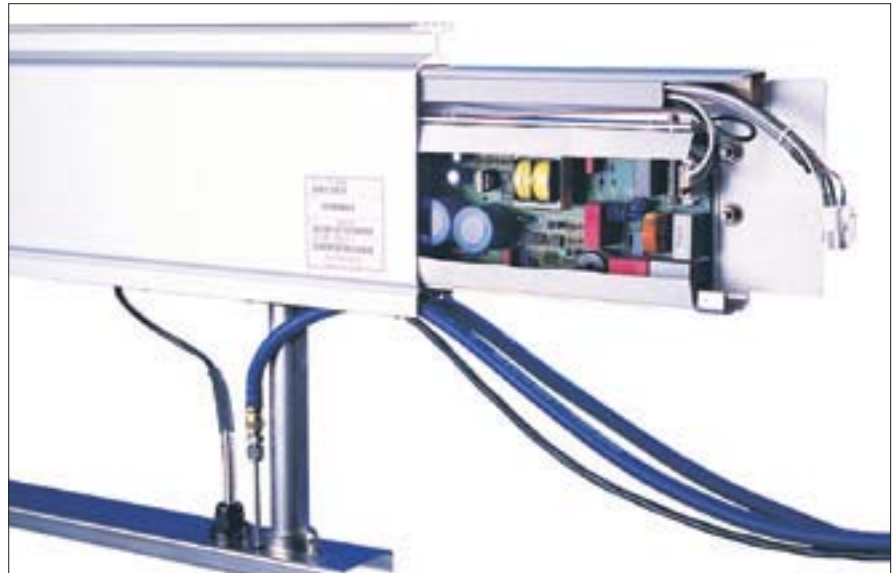


Advanced, Self-Contained UV Module

Dramatically reduces footprint size and eliminates costs of air conditioning

Benefits:

- Lamps are protected in a fully submersible, 316 stainless steel frame
- Waterproof module frame protects cables from effluent, fouling and UV light
- Electronic ballasts are housed right in the module, reducing the system footprint, minimizing installation time and costs, and eliminating the need for separate external cabinets
- Ballast enclosures are rated TYPE 6P (IP67) – air/water tight
- Module leg and lamp connector have a hydrodynamic profile to reduce headloss
- The variable-output, electronic ballast is mounted in an enclosure integrated within the module frame
- Wiring is pre-installed and factory-tested



Module-mounted ballasts allow for compact installation, convection cooling, and protect wires and cables from exposure to effluent and UV light.

- Cooling ballasts by convection eliminates costs associated with air conditioning and forced-air cooling



Module leg and lamp connector have a hydrodynamic profile to reduce headloss and potential for debris fouling.

Designed for Easy Maintenance



Trojan UV lamps are easily replaced in minutes without the need for tools.

- TrojanUV3000Plus™ lamps are warranted for 12,000 hours
- Modular design allows for maintenance on one module without disrupting disinfection performance
- Maintenance limited to replacing lamps and cleaning solution
- Automated ActiClean™ cleaning system reduces manual labor associated with cleaning sleeves



Quick connect allows for easy refill of ActiClean™ Gel.

System Specifications	
System Characteristics	TrojanUV3000Plus™
Typical Applications	Wide range of wastewater treatment plants
Lamp Type	High-efficiency Amalgam
Ballast Type	Electronic, variable output (60 to 100% power)
Input Power Per Lamp	250 Watts
Lamp Configuration	Horizontal, parallel flow
Module Configuration	4, 6 or 8 lamps per module
Level Control Device Options	ALC, fixed weir or motorized weir gate
Water Level Sensor	1 electrode low water level sensor per channel
Enclosure Ratings:	
Module Frame / Ballast Enclosure	TYPE 6P (IP68) / TYPE 6P (IP67)
All Other Enclosures	TYPE 4X (IP56)
Ballast Cooling Method	Convection; no air conditioning or forced air required
Installation Location	Indoor or outdoor
Sleeve Cleaning System:	
ActiClean™ Cleaning System	Optional Automatic Chemical/Mechanical Cleaning System
ActiClean™ Cleaning Gel	Non-corrosive, operator-friendly
Recommended Fouling Factor	1.0
System Control Center:	
Controller	Microprocessor or PLC-based
Analog Inputs (Typical)	Flow (4-20 mA) and UVT (4-20 mA)
Discrete Outputs (Typical)	Bank status, common alarms and SCADA communication
Maximum Distance from UV Channel	500 ft. (152 m)
Electrical Requirements:	
Power Distribution Center	208Y/120V, 3 phase, 4 wire + GND, 60 Hz (Max. 8 modules per PDC) 480Y/277V, 3 phase, 4 wire + GND, 60 Hz 380Y/220V, 3 phase, 4 wire + GND, 50/60 Hz 400Y/230V, 3 phase, 4 wire + GND, 50/60 Hz 415Y/240V, 3 phase, 4 wire + GND, 50/60 Hz
System Control Center (stand alone)	120V, single phase, 2 wire + GND, 60 Hz, 1.8 kVA 220/230/240V, single phase, 2 wire + GND, 50/60 Hz, 1.8kVA
Hydraulic System Center (for ActiClean™)	208V, 3 phase, 3 wire + GND, 60 Hz 380/400/415 V, 3 phase, 3 wire + GND, 50/60 Hz 480 V, 3 phase, 3 wire + GND, 60 Hz or 2.5kVA HSC powered from PDC
Water Level Sensor	24VDC powered from PDC

Find out how your wastewater treatment plant can benefit from the TrojanUV3000Plus™ – call us today.

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Products in this brochure may be covered by one or more of the following patents:

U.S. 4,872,980; 5,006,244; 5,418,370; RE 36,896; 6,342,188; 6,635,613; 6,646,269; 6,663,318; 6,719,491; 6,830,697; 7,018,975
Can. 1,327,877; 2,117,040; 2,239,925

Other patents pending.

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