AQUA-AEROBIC SYSTEMS, INC.

This submittal has been reviewed for compliance with general requirements of design and arrangement only, and is not a contract document and acknowledgement of compliance does not relieve Contractor of responsibility for performance of the work in compliance with all provisions and requirements of the Contract documents. Job measurements and coordination of all dimensions are the responsibility of the Contractor. Fit of all parts of the work and performance of all equipment shall be to meet specification requirements and shall remain the responsibilities of the Contractor.

☐ Compliance acknowledged subject to the foregoing; distribute

☑ Compliance acknowledged as noted and subject to the foregoing; distribute

☐ Compliance acknowledged as noted and subject to the foregoing; Revise and resubmit for record; distribute.

Bovay Northwest Inc.

By LPS Date 7-9-87

"It is hereby certified that the material shown and marked in this submittal is that proposed to be incorporated into Contract No. _____; is in compliance with the contract drawings and specifications, can be installed in the allocated spaces, and is submitted for your approval."

Certified by DE Date 6-29-87

P.O. BOX 2026 • 6306 NORTH ALPINE ROAD
ROCKFORD, ILLINOIS 61130
815/654-2501 • TELEX 257-420
FAX-815-654-2508

WATER AND WASTEWATER TREATMENT EQUIPMENT

AQUA-AEROBIC SYSTEMS, INC.
SUBMITTAL DATA

Mooring cable and electrical cable lengths submitted herein must be verified by Buyer, Contractor or Engineer, or submitted lengths will be considered acceptable.

REF: Bremerton, WA
ENG: Bovay Engineering

Signature _____

Equipment specifically marked below shall be furnished by Aqua-Aerobic Systems:

UNITS

EQUIPMENT	HP SIZE	MODEL	QTY.	VOLTS	MOTORS
Aerator*	10	CFSS	1	460	Reliance

NOTE: UNITS ARE TANK TESTED PRIOR TO SHIPMENT
SHIPPED: ASSEMBLED X OR AS ___ COMPONENT SUB-ASSEMBLIES

*Unit complete with thermal protector and vibration studs.

Furnished by:
Aqua-Aerobic

AUXILIARY EQUIPMENT

X

AWG # 12-4 & #12-2* UNDERWATER POWER CABLE

TOTAL LENGTH ~~50'~~ 60 each

NOTE: #12-2 cable is for thermal protector

LENGTH OF CABLE PROVIDED PER UNIT:

Unit #1		Unit # 6	
" #2		" # 7	
" #3		" # 8	
" #4		" # 9	
" #5		" #10	

EXTRA CABLE None

ELECTRICAL HARDWARE

Aqua-Aerobic	Qty.	
___	___	Electrical cable float
___	___	Electrical cable ties
___	___	Electrical cable support bracket
___	___	Kellems Grips

MOORING CABLE

Aqua-Aerobic	Qty.	
X	~~180'~~ 210	7 x 19 x 3/16 " 304 S.S. mooring cable

MOORING HARDWARE

Aqua-Aerobic	Qty.	
___	___	___ restrained mooring frame
X	8	3/16 " 316 stainless steel clips
X	8	3/16 " 316 stainless steel thimbles
___	___	304 stainless steel compression springs
X	8	304 stainless steel disconnect snaphooks
___	___	304 stainless steel shackles
___	___	304 stainless steel mooring rings
___	___	Plastic mooring cable floats
___	___	___ " Polypropylene rope

LOW TRAJECTORY DIFFUSER

Required ____ UNIT SIZE: _____ HP

Not Required X QUANTITY REQUIRED (one per unit): _____

ANTI-EROSION ASSEMBLY

Required X UNIT SIZE: 10 HP

Not Required ____ QUANTITY REQUIRED (one per aerator): 1

SPECIAL DRAFT TUBE

Required ____ UNIT SIZE: _____ HP

Not Required X LENGTH: Unit #1 _____ #2 _____ #3 _____
Unit #4 _____ #5 _____ #6 _____

ARCTIC-PAK

Required ____ UNIT SIZE: _____ HP

Not Required X QUANTITY REQUIRED (one per aerator): ____

VOLTS _____ PHASE _____ 60 HERTZ

Rated at _____ WATTS

SERVICE CABLE: SIZE _____
LENGTH _____

CONTROL PANEL

NEMA _____ ENCLOSURE VOLTS _____

110 VOLT CONTROL CIRCUIT

STARTERS: NEMA SIZE _____ QUANTITY _____

Furnished by: THREE PHASES FUSED AND HEATER PROTECTED

Aqua-Aerobic ____ MASTER DISCONNECT _____

Others X GROUND FAULT CONNECTION _____

TIMERS

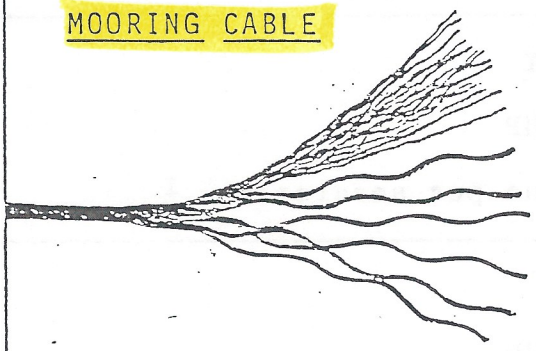
TYPE _____ MODEL _____

TOTAL TIME CYCLE _____

MINIMUM CONTROL INTERVAL/CYCLE _____

Standard mooring accessories

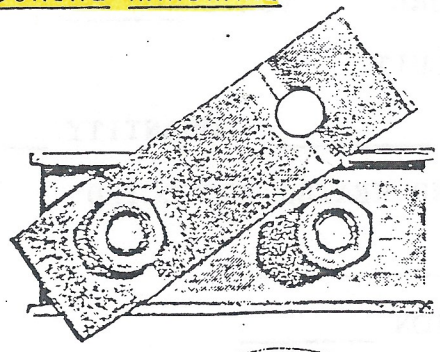
MOORING CABLE

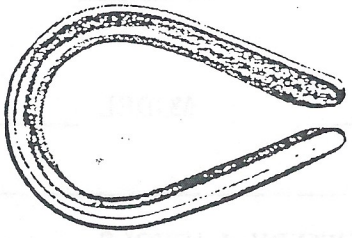


High flex 304 stainless steel. 7 x 19 x 3/16" (pictured) indicates cable consists of 7 bundles, each containing 19 strands, and has an outside diameter of 3/16". Larger size cables have greater outside diameters, 1/4" or 3/8", but still contain 7 bundles of 19 strands each.

CABLE SIZE	RECOMMENDED FOR AERATOR HP SIZE	MAXIMUM TENSILE STRENGTH IN #	CABLE WEIGHT PER 100 FEET IN #
7x19x3/16"	1 through 30	3,700	6.5
7x19x1/4"	40 through 75	6,400	11.0

MOORING HARDWARE





Clip and thimble of 316 stainless steel.

Available in 3/16", 1/4", and 3/8" sizes for use with corresponding diameter mooring cable.

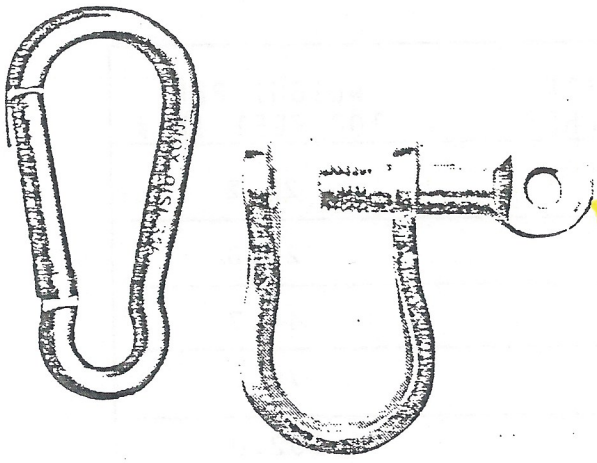
Optional mooring accessories

POLYPROPYLENE ROPE

NOT APPLICABLE

Available in 3/8" diameter for use with units from 1 through 15 hp, or in 1/2" diameter for use with units from 20 through 40 hp in lieu of stainless steel cable for applications where specified. Larger diameter rope for units above 40 hp is available as a special order item.

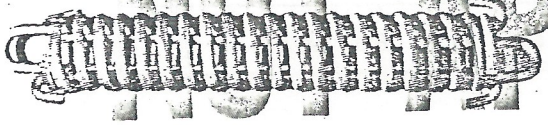
QUICK DISCONNECT



Attaches to thimble allowing for easy detachment of aerator from mooring line when unit must be pulled to shore for scheduled maintenance or other service.

Snaphook of 304 stainless steel provides quick disconnecting with 3/16" mooring cable. Shackle of 304 stainless steel provides quick disconnecting with 1/4" cable. Quick disconnect for use with 3/8" mooring cable is available as a special order item.

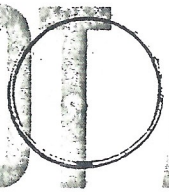
EXTENSION SPRING



NOT APPLICABLE

Used in applications where small water level variations require some expansion in the mooring line. Each extension spring provides approximately 5" of expansion.

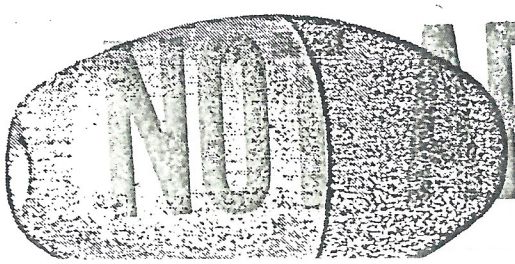
MOORING RING



NOT APPLICABLE

Used to attach two or more aerators together when units are not moored to posts or to shore. Of 304 stainless steel.

MOORING CABLE FLOAT

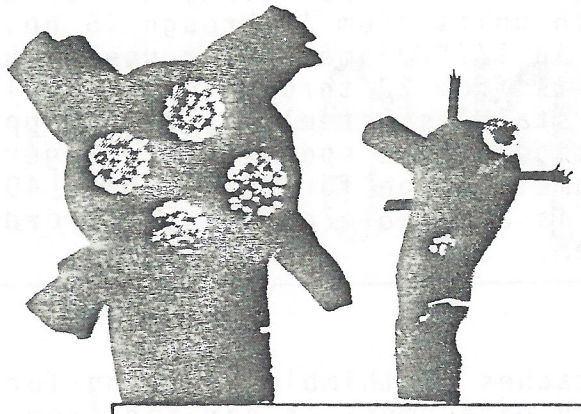


NOT APPLICABLE

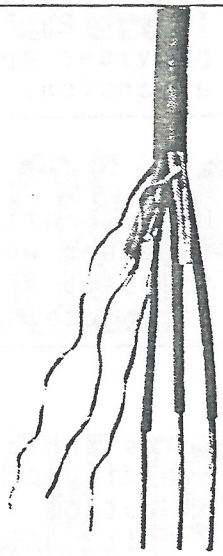
Holds cable at water surface, avoiding possibility of it dragging on bottom and becoming tangled in a unit. Also serves as a locator in bottom mooring systems.

Standard electrical accessories

ELECTRICAL CABLE



CABLE SIZE	APPROXIMATE O.D. IN INCHES	WEIGHT PER 100 FEET IN #
#12-4	.68	22.2
#10-4	.75	26.0
# 8-4	.97	44.7
# 6-4	1.11	70.0
# 4-4	1.32	102.0
# 2-4	1.50	139.7
# 0-4	Special - Consult Factory	
#00-4	Special - Consult Factory	



SELECTION OF ELECTRICAL SERVICE CABLE

Maximum Allowable Cable Length in Feet

(Based on 5% Voltage Drop and a 90% Power Factor)

	HP	FULL-LOAD AMPS	AWG CABLE SIZE								
			12-4	10-4	8-4	6-4	4-4	2-4	0-4	00-4	000-4
230 VOLTS	1	3.4	880	1240							
	2	6.6	540	930	1420						
	3	9	300	640	1000	1550					
	5	15	200	380	600	930	1420				
	7.5	22		260	410	635	970	1530			
	10	27			330	510	790	1250			
	15	40				350	530	840	1270		
	20	52					410	650	980	1200	
	25	64						525	790	975	
	30	78						440	650	800	975
	40	104	MAXIMUM CABLE LENGTH						490	600	730
	50	125	IN FEET							500	600
460 VOLTS	1	1.7	2550								
	2	3.3	2100								
	3	4.5	1620								
	5	7.5	970	1535							
	7.5	11	665	1047	1635						
	10	14	520	820	1280	2000					
	15	20		575	900	1400	2120				
	20	26			690	1070	1635				
	25	32			560	875	1325	2250			
	30	39				715	1090	1860	2610		
	40	52					815	1390	1955		
	50	63						1150	1615	1984	
	60	75						965	1355	1660	2000
	75	93							1090	1340	1600
575 VOLTS	1	1.4	3180								
	2	2.6	2770								
	3	4	2330								
	5	6	1540	2440							
	7.5	9	1030	1630	2550						
	10	11	840	1330	2080						
	15	16		970	1430	2230					
	20	21		700	1090	1700					
	25	26			880	1370	2080				
	30	31			740	1150	1740				
	40	41				870	1320	2090			
	50	50				710	1080	1720			
	60	60					900	1430			
	75	74					800	1250			

A total of 50 feet of # 12 AWG-four conductor electrical service cable is required.

Conductors shall be flexible type bare annealed copper stranded meeting Class K stranding per ASTM B-174 and B-172. Each conductor shall be insulated. Cables containing an un-insulated ground conductor will not be acceptable.

The insulated conductors shall be assembled together with a non-hygroscopic filler material.

Insulation and outer jacket shall be high quality thermoplastic elastomer (TPE) compound rated at a conductor operating temperature of 105°C and listed by U.L. as a Class 36 material.

Electrical cable sizes up to and including #2 AWG shall meet UL-62 type SEOW-A, and shall be imprinted "water resistant".

Electrical cable sizes larger than #2 AWG shall be extra flexible power cable, with conductor insulation meeting I.C.E.A. S19-81, and outer jacket per UL-62. The outer jacket shall be imprinted "water resistant".