



VIRON[®] **HORIZONTAL** **SCRUBBER**

PVC

Fiberglass

PolyPro

PVC/FRP Overlay

TECHNICAL **BULLETIN**



989-723-8255

**Complete System Solutions for
Moving Corrosive Air**

www.vironintl.com

Viron® Horizontal Scrubber Engineering



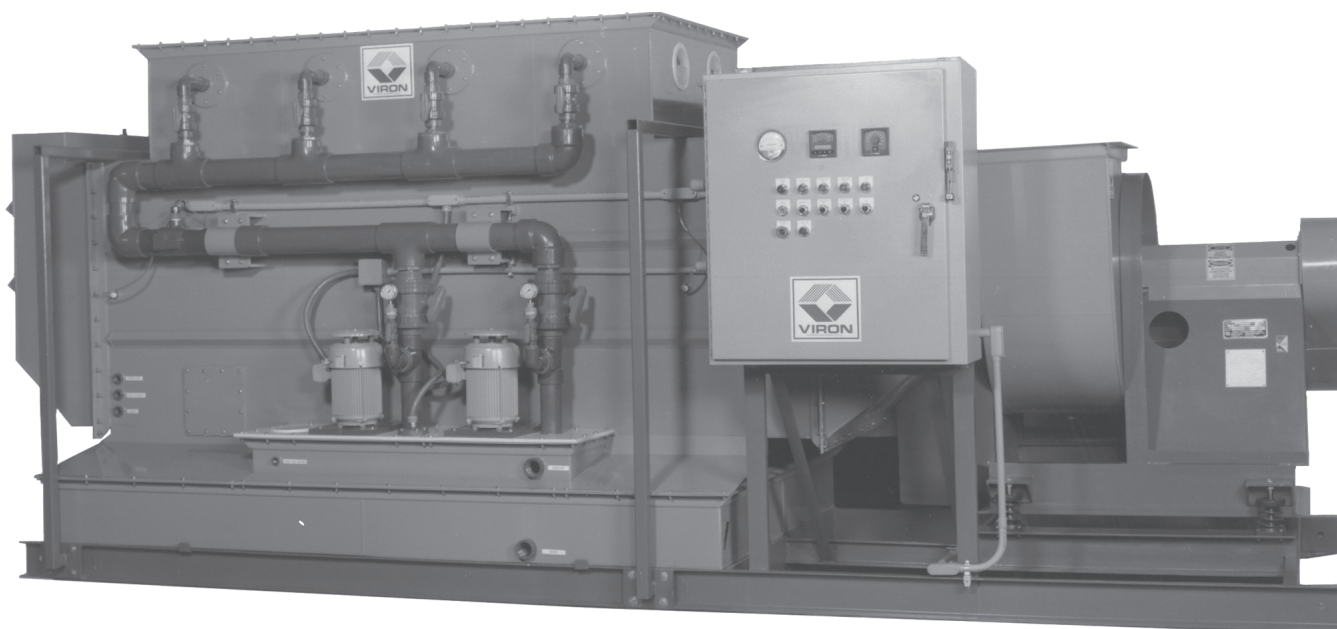
The VIRON® Engineering Department has over 30 years of experience designing custom pollution control systems to meet the efficiency requirements of customer emissions. The VIRON® Engineering staff includes mechanical, chemical and electrical engineers to handle all facets of system design as well as, ensuring process compatibility.

Designers utilizing the latest in CADD software, work directly with engineers and project managers in "start-to-finish" teams. This approach insures thorough, consistent ownership of each project. VIRON® Engineers have been responsible for worldwide installations of VIRON® Systems including design, on-site start-up, and personnel training.



The VIRON® Engineering Project Team is an integral part of VIRON® International's "First Quality" FQ, quality control commitment to offering the best solution for customers in the most cost effective method. This commitment has made VIRON® International Corporation the leader in the corrosion resistant ventilation industry.

Viron® Horizontal Scrubber



Viron® Horizontal Scrubber

The VIRON® Horizontal Scrubber is used in many industrial applications. Its uses include the cleaning of fumes from plating, anodizing, steel pickling, WWTP, printed circuit board plating, semi-conductor clean rooms, and corrosive odor control units. When looking through this catalog it will become apparent that VIRON® manufactures many standard units ranging in size from 500 CFM to 100,000 CFM. Scrubbers, with capacity requirements lower than 500 CFM, are available upon request. In addition to our standard sizes, VIRON® will also, upon request, quote and manufacture custom scrubbers. Our engineering staff is available to discuss your upcoming projects and we have been solving the toughest corrosive fume problems since 1971.

Standard Design Parameters

1. High Efficiency
2. Easy Maintenance
3. Minimum Operating Cost
4. Structural Integrity
5. First Quality "FQ" is Viron's Commitment to our customers
6. Complete System Solutions

Standard Features of a Viron® Horizontal Scrubber

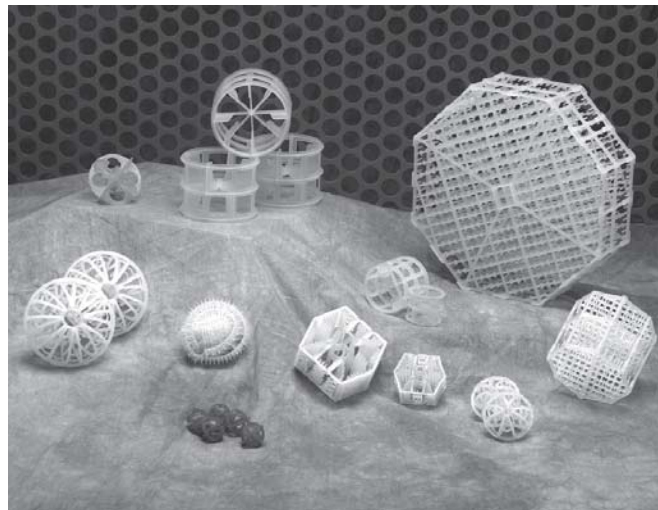
- **Scrubber Housing** - PVC, Polypro, or FRP - Chemical resistant FRP - vinyl ester VER 9300, or as specified. Inner corrosion barrier is reinforced with surface veil for maximum chemical resistance.
- **Packing Material** - loose fill polypro packing material- Lantec Lanpac®, Jaeger Tri-Packs® or equal. The velocity through the packing to be 400-600 FPM. The standard packing depth will range from 12" to 180". In specific applications VIRON® can increase the packing depth to accomplish higher efficiencies.
- **Mist Eliminator Packing** - PVC material as manufactured by VIRON® model #VHE-1025 or equal. The velocity through the mist eliminator will vary by type.
- **Mesh Pads** - are available in Polypro with efficiencies down to 2 GPM.
- **Spray Nozzles** - PVC or Polypro design material. Each nozzle sprays approximately 7-50 GPM at 10 psi of pump pressure.
- **Troughs** - are available.
- **Spray Header** - All spray headers are to be PVC schedule 80 pipe, sized for the appropriate flow with true union type ball valves to facilitate removal without having to shut the recirculation system down.*
- **Recirculation Pumps** - All pumps are CPVC material as standard unless otherwise specified. These pumps are sump pump type without seals and have capability to run dry for a short period of time without damage. FRP, SST, and Polypro pumps are available. Horizontal or vertical designs are available.
- **Recirculation Rate** - Most VIRON® Horizontal Scrubbers have a recirculation rate of between 2 to 15 GPM per square foot of open surface packing area. The recirculation rate of Viron's standard units is 4 GPM per square foot of open surface packing area.
- **Self-contained Recirculation Units** - The sump recirculation pump is mounted on the top of the scrubber sump which is attached to the side of the scrubber housing. The pump motor is bolted to the top of the sump keeping the motor above the highest point of liquid. The sump pump's inherent design prevents any scrubber liquid from spilling on the floor. This type of unit is used primarily in the southern climates where freezing is rare and/or where the unit is installed inside the building.
- **Remote Recirculation Units** - The recirculation pump is mounted to a separate tank which holds the recirculated water. This type of unit is used primarily in cold winter regions where freezing is customary. It may also be used when the scrubber is on the roof and the customer wishes to visually monitor the recirculation flow. Some of the advantages are: less roof weight, no freezing because remote tank is located inside of building and no scrubber heaters required.
- **Some of our many Available System Components** -
 - Fans
 - Ducts
 - Dampers
 - Specialty Scrubbers
 - Louvers & Grills
 - Y-Strainer
 - Flow Meter
 - Solenoid Valves
 - Magnehelic Gauges
 - Neutralizing Chemical Control Systems
 - pH Monitor with Probe
 - Pressure Gauges
 - Float Valves
 - Sump Heater with Controls
 - Special Lifting Lugs
 - Special Hold Down Lugs
 - Pressure Switch
 - Expansion Joints
 - Air Strippers

* As an option, Viron® can provide CPVC or Polypro piping for your recirculation needs

Viron® Column Packing Material

VIRON® uses many different kinds of packing material in its scrubbers. The type and style depend on the application and the efficiency desired. The most popular packings among our customers are the Jaeger Tri-Packs®, Lantec Lanpac® and Rauschert.

The packing is typically Polypropylene, a hollow, spherical column packing constructed of a unique network of ribs, struts and drip rods. It is most distinguished from other column packing in its unusually high ACTIVE surface area, for gas liquid contacting. The liquid used to wet the packing is from the scrubber pump recirculation system. This liquid is pumped over the packing and sprayed through nozzles to cover the entire area inside the scrubber housing. This allows the liquid to cover all of the packing area. Since packing is geometric with structural uniformity, it allows all surfaces to become wet while eliminating nesting and channeling.



1", 2", 3.5" Packing by Jaeger Tri-Packs®, Lantec Lanpac®, and Rauschert Packing.

The more surface area that is wet, the more active surface is available for producing higher efficiency. The packings other advantage results from a high void area and minimal blockage. Both are critical because having a void area allows the liquid to cascade through the column with minimum effort and still be able to wet the whole packing structure. Blockage or channeling results when packing nests, causing areas to remain dry and provides open areas for contaminants to pass through. Dry areas will cause a loss of efficiency. Blockage also increases the static pressure of a column, and as static pressure increases, so do the energy requirements to move air through the column.

Viron® Mist Eliminators: Blades • Packing • Pads



Blades Available in PVC

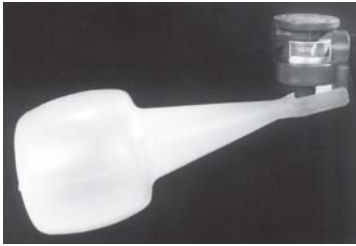


Packing Available in Polypro, Kynar, and CPVC



Mesh Pad Available in Polypro and Kynar

Viron® Scrubber Options



Float Valve



Pressure Gauge



Metering Pump



Conductivity System Controller



Mixer



Rotameter



Level Controller



Sump Heater



Magnehelic Gauge



Basket Strainer



Check Valve



Make-Up Flowmeter



Pumps: CPVC, PP, KYNAR, SST, FRP



Pump Inlet Strainer



Sight Glass

Viron® Scrubber Options



Digital Flowmeter



Solenoid Valves



Dual Redundant Pumps



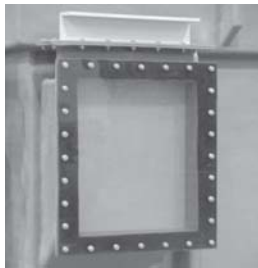
Troughs



pH System Controller



Secondary Containment-Rain Covers



Inspection Port



Manways



Chemical Day Tanks



Control Panels w/Remote Tank



Mist Eliminator-Mesh Pad



Lifting Lugs



Y-Strainer



Photohelic Gauge



Hold Down Lugs

Viron® Spray Header Detail Illustrations

STANDARD SPRAY HEADER AND PIPING

SPRAY HEADERS ARE DESIGNED FOR EASY REMOVAL. EACH INDIVIDUAL SPRAY HEADER CAN BE REMOVED BY FIRST CLOSING THE TRUE UNION BALL VALVE, THEN UNBOLTING THE SPRAY HEADER PLATE. THIS WILL ALLOW REMOVAL OF THE INDIVIDUAL SPRAY HEADERS WITHOUT TURNING OFF RECIRCULATION PUMPS. FOR NOZZLE DETAIL SEE BELOW.

- 1"Ø MAKE UP WATER
- 1"Ø CAUSTIC FEED
- 1"Ø SAMPLING PORT

TRUE UNION BALL VALVE

OVERFLOW

DRAIN

2"Ø pH PROBE

STANDARD SPRAY HEADER

SPRAY HEADER PLATE BOLTED TO SCRUBBER BODY WITH SST HARDWARE

SPRAY HEADER LENGTH

CONNECTION TO A TRUE UNION BALL VALVE

SPRAY HEADER PIPE IS DRILLED AND TAPPED FOR SPRAY NOZZLE

STANDARD SLIDING ACCESS DOOR

CLEAR PVC WINDOW

15"

4"

2"

15"

NOZZLE DETAIL

Viron® Scrubber Selection Guide

Viron® Model Code:	VHS-	4860-	FRP-	10-	24-	R-	2-	C-	460-	3-	60
Viron® Horizontal Model											
Scrubber Body Size											
Scrubber Body Material*											
CFM (thousands)											
Packing Depth											
Recirculation Code**											
Quantity of Pumps											
Pump Horse Power Code***											
Pump Motor Voltage											
Pump Motor Phase											
Pump Motor Cycle											

*Scrubber Body Material

FRP = Fiberglass Reinforced Plastic

PVC = Poly Vinyl Chloride

PP = Polypropylene

PVC/FRP = Poly Vinyl Chloride with FRP Overlay (Dual Laminate)

**Recirculation Code

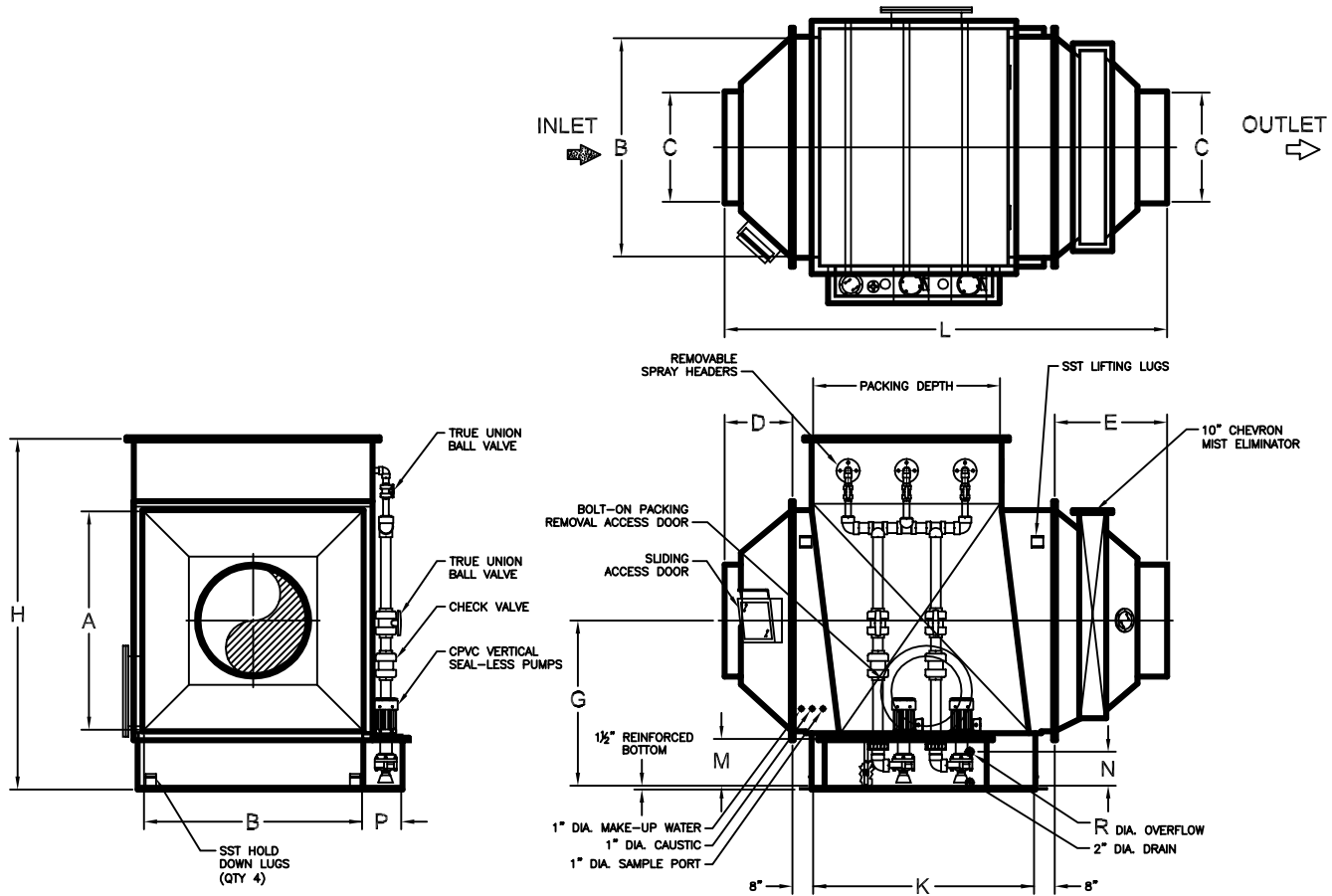
S = Self-Contained Recirculation Units

R = Remote Recirculation Units

***Pump Horse Power Code

Horse Power	.5	.75	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100
Code Letter	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T

Viron® FRP Self-Contained Recirculation Unit

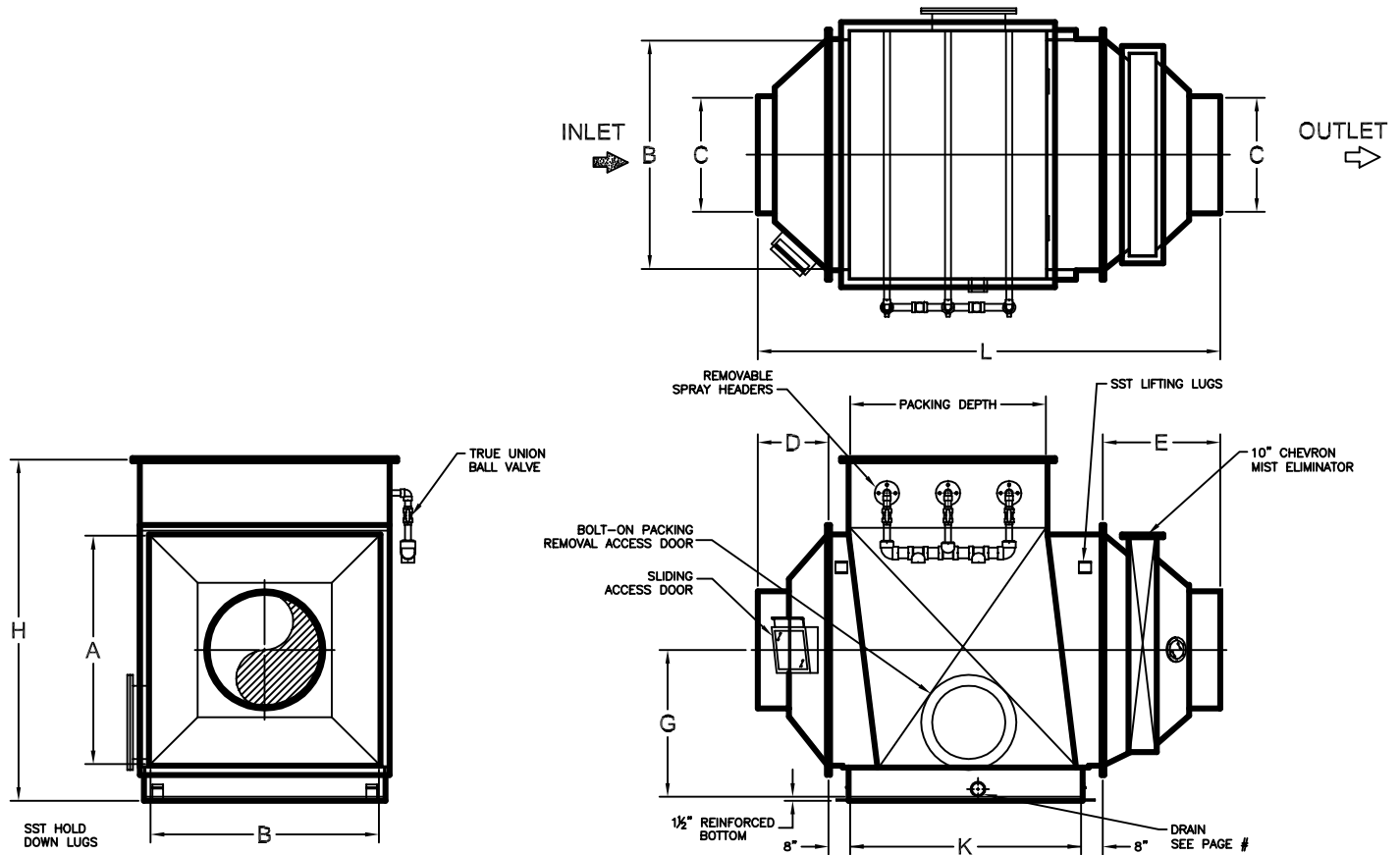


THESE DIMENSIONS ARE GUIDELINE DIMENSIONS ONLY. CERTIFIED DRAWINGS ARE SUPPLIED WITH SUBMITTAL PACKAGES.

MODEL SERIES NO.	CFM	A	B	C	D	E	G	H	K ID												L OD								M	N	P	R
		ID	ID	C INLET			ID ⌀ INLET	OD	12"	24"	36"	48"	60"	72"	96"	120"	12"	24"	36"	48"	60"	72"	96"	120"	ID	ID	ID	R				
		PACK	PACK		PACK	PACK			PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK								
VHS-1212	500	12	12	8	12	12	29	61	28	40	52	64	76	88	112	136	68	80	92	104	116	128	152	176	18	13	15	2				
VHS-1224	1000	12	24	14	14	14	29	61	28	40	52	64	76	88	112	136	72	84	96	108	120	132	156	180	18	13	15	2				
VHS-2424	2000	24	24	16	14	14	35	73	29	41	53	65	77	89	113	137	73	85	97	109	121	133	157	181	18	13	15	2				
VHS-2436	3000	24	36	18	14	14	35	73	29	41	53	65	77	89	113	137	73	85	97	109	121	133	157	181	18	13	15	2				
VHS-3636	4000	36	36	20	14	36	41	85	20	32	44	56	68	80	104	128	86	98	110	122	134	146	170	194	18	13	15	2				
VHS-3642	5000	36	42	22	16	36	41	85	20	32	44	56	68	80	104	128	88	100	112	124	136	148	172	196	18	13	15	2				
VHS-3648	6000	36	48	24	18	36	41	85	20	32	44	56	68	80	104	128	90	102	114	126	138	150	174	198	18	13	15	2				
VHS-4848	8000	48	48	26	18	36	47	97	21	33	45	57	69	81	105	129	91	103	115	127	139	151	175	199	18	13	15	2				
VHS-4860	10000	48	60	30	22	38	47	97	21	33	45	57	69	81	105	129	97	109	121	133	145	157	181	205	18	13	15	2				
VHS-6060	12000	60	60	32	22	38	53	109	22	34	46	58	70	82	106	130	98	110	122	134	146	158	182	206	18	13	15	2				
VHS-6066	14000	60	66	34	22	44	53	109	22	34	46	58	70	82	106	130	98	110	122	134	146	158	182	206	18	13	15	2				
VHS-6672	16000	66	72	36	24	44	56	115	23	35	47	59	71	83	107	131	101	113	125	137	149	161	185	209	18	13	15	2				
VHS-7272	18000	72	72	38	24	44	59	121	24	36	48	60	72	84	108	132	108	120	132	144	156	168	192	216	18	13	15	2				
VHS-7278	20000	72	78	40	24	44	59	121	24	36	48	60	72	84	108	132	108	120	132	144	156	168	192	216	18	13	15	2				
VHS-7884	22000	78	84	42	26	44	62	129	24	36	48	60	72	84	108	132	110	122	134	146	158	170	194	218	18	13	15	2				
VHS-8484	24000	84	84	42	26	44	65	135	25	37	49	61	73	85	109	133	111	123	135	147	159	171	195	219	18	13	15	2				
VHS-8490	26000	84	90	42	30	48	65	135	25	37	49	61	73	85	109	133	119	131	143	155	167	179	203	227	18	13	15	2				
VHS-8496	28000	84	96	48	30	48	65	135	25	37	49	61	73	85	109	133	119	131	143	155	167	179	203	227	18	13	15	2				
VHS-9096	30000	90	96	48	30	48	68	141	26	38	50	62	74	86	110	134	120	132	144	156	168	180	204	228	18	13	15	2				
VHS-96108	36000	96	108	54	32	54	71	147	26	38	50	62	74	86	110	134	128	140	152	164	176	188	212	236	18	13	15	2				
VHS-96120	40000	96	120	54	38	56	83	159	26	38	50	62	74	86	110	134	136	148	160	172	184	196	220	244	30	25	24	3				
VHS-108120	45000	108	120	60	38	56	89	171	27	39	51	63	75	87	111	135	137	149	161	173	185	197	221	245	30	25	24	3				
VHS-120120	50000	120	120	60	38	56	95	183	28	40	52	64	76	88	112	136	138	150	162	174	186	198	222	246	30	25	24	3				
VHS-120132	55000	120	132	66	40	60	95	183	28	40	52	64	76	88	112	136	144	156	168	180	192	204	228	252	30	25	24	3				
VHS-120144	60000	120	144	66	46	62	95	183	28	40	52	64	76	88	112	136	152	164	176	188	200	212	236	260	30	25	24	3				
VHS-120168	70000	120	168	72	54	70	95	183	28	40	52	64	76	88	112	136	168	180	192	204	216	228	252	276	30	25	24	3				
VHS-144168	80000	144	168	76	54	86	107	207	31	43	55	67	79	91	115	139	187	199	211	223	235	247	271	295	30	25	24	3				
VHS-144180	90000	144	180	80	58	88	107	207	31	43	55	67	79	91	115	139	193	205	217	229	241	253	277	301	30	25	24	3				
VHS-144196	100000	144	196	84	58	94	107	207	31	43	55	67	79	91	115	139	199	211	223	235	247	259	283	307	30	25	24	3				

- NOTE:
1. SCRUBBER BODY SHOWN ABOVE IS DESIGNED FOR 4 GPM/FT²
 2. PUMP SELECTION FOR 7 1/2 HP AND LOWER ARE CPVC CONSTRUCTION.
10 HP AND ABOVE ARE 316 SST CONSTRUCTION.
 3. SELF-CONTAINED PUMP SIZING BASED ON 40' OF HEAD.
 4. VIRON CAN CHANGE THE OVERALL SIZE OF YOUR SCRUBBER TO FIT YOUR REQUIREMENTS.
 5. SCRUBBER DRAIN SIZED FOR 1/4" /FT SCOPE ON ALL HORIZONTAL RUNS.
 6. SCRUBBER DIMENSIONS DO NOT SHOW ANY EXTERNAL STIFFENERS.
PLEASE CONTACT FACTORY FOR O.D. DIMENSIONS.
 7. DIMENSION "C" OUTLET COLLAR MAY CHANGE TO MATCH YOUR INLET DUCT SIZE OR VIRON'S FAN INLET.
 8. THE SCRUBBER PUMP BOX CAN BE INSTALLED ON ANY SIDE OF THE SCRUBBER EXCEPT INLET SIDE

Viron® FRP Remote Recirculation Unit

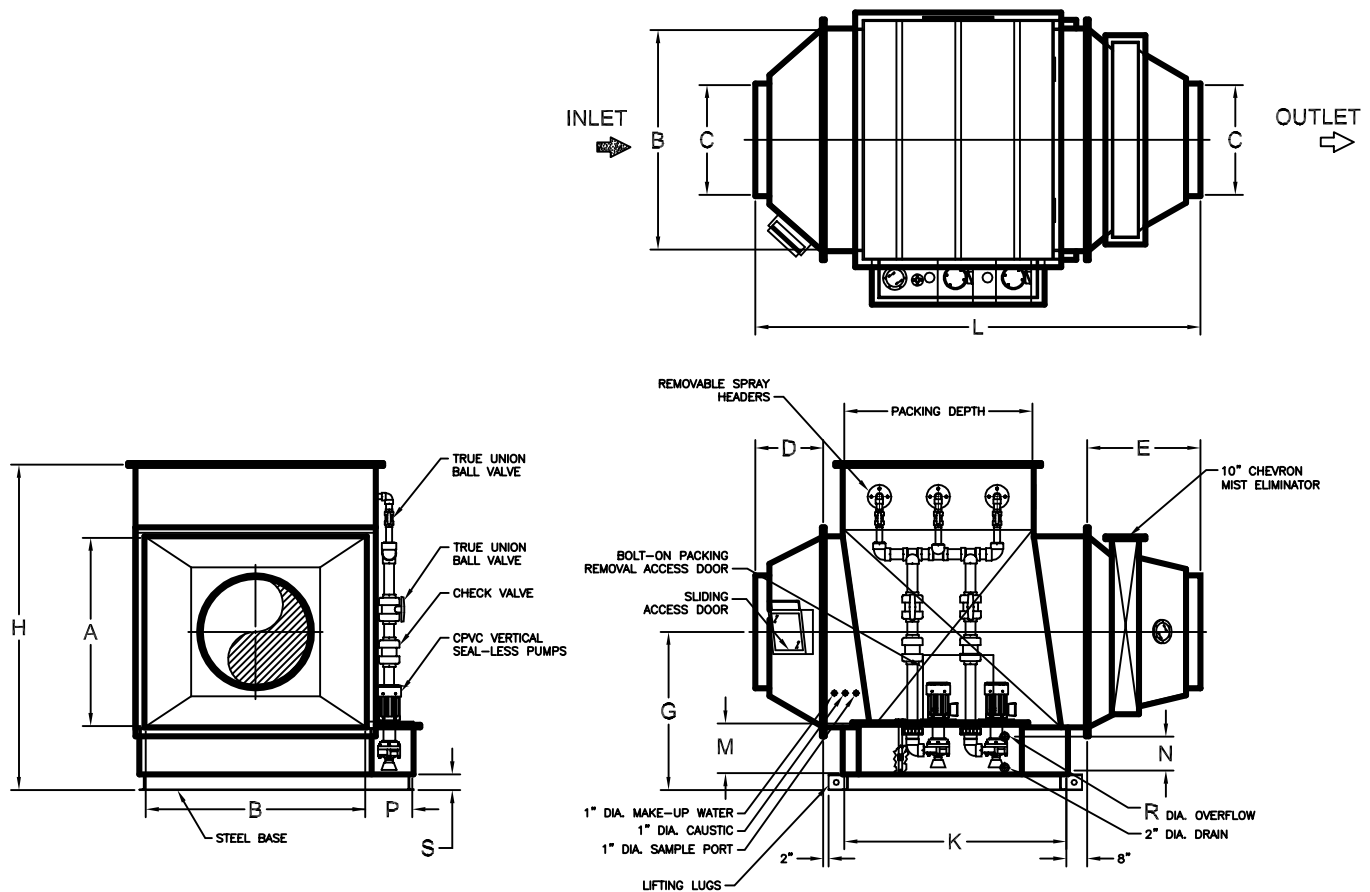


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MODEL SERIES NO.	CFM	A	B	C	D	E	G	H	K ID								L ID							
		ID	ID	ID INLET			ID INLET	OD	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK
VHS-1212	500	12	12	8	12	12	18	50	36	48	52	64	76	88	112	136	76	88	92	104	116	128	152	176
VHS-1224	1000	12	24	14	14	14	18	50	36	48	52	64	76	88	112	136	80	92	96	108	120	132	156	180
VHS-2424	2000	24	24	16	14	14	24	62	37	49	53	65	77	89	113	137	81	93	97	109	121	133	157	181
VHS-2436	3000	24	36	18	14	14	24	62	37	49	53	65	77	89	113	137	81	93	97	109	121	133	157	181
VHS-3636	4000	36	36	20	14	36	30	74	28	40	44	56	68	80	104	128	94	106	110	122	134	146	170	194
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VHS-4860	10000	48	60	30	22	38	36	86	29	41	45	57	69	81	105	129	105	117	121	133	145	157	181	205
VHS-6060	12000	60	60	32	22	38	42	98	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206
VHS-6066	14000	60	66	34	22	38	42	98	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206
VHS-6672	16000	66	72	36	24	38	45	104	31	43	47	59	71	83	107	131	109	121	125	137	149	161	185	209
VHS-7272	18000	72	72	38	24	44	48	110	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216
VHS-7278	20000	72	78	40	24	44	48	110	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216
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VHS-8496	28000	84	96	48	30	48	54	124	33	45	49	61	73	85	109	133	127	139	143	155	167	179	203	227
VHS-9096	30000	90	96	48	30	48	57	130	34	46	50	62	74	86	110	134	128	140	144	156	168	180	204	228
VHS-96108	36000	96	108	54	32	54	60	136	34	46	50	62	74	86	110	134	136	148	152	164	176	188	212	236
VHS-96120	40000	96	120	54	38	56	65	141	34	46	50	62	74	86	110	134	144	156	160	172	184	196	220	244
VHS-108120	45000	108	120	60	38	56	71	153	35	47	51	63	75	87	111	135	145	157	161	173	185	197	221	245
VHS-120120	50000	120	120	60	38	56	77	165	36	48	52	64	76	88	112	136	146	158	162	174	186	198	222	246
VHS-120132	55000	120	132	66	40	60	77	165	36	48	52	64	76	88	112	136	152	166	168	180	192	204	228	252
VHS-120144	60000	120	144	66	46	62	77	165	36	48	52	64	76	88	112	136	160	172	176	188	200	212	236	260
VHS-120168	70000	120	168	72	54	70	77	165	36	48	52	64	76	88	112	136	176	188	192	204	216	228	252	276
VHS-144168	80000	144	168	76	54	86	89	189	39	51	55	67	79	91	115	139	195	207	211	223	235	247	271	295
VHS-144180	90000	144	180	80	58	88	89	189	39	51	55	67	79	91	115	139	201	213	217	229	241	253	277	301
VHS-144196	100000	144	196	84	58	94	89	189	39	51	55	67	79	91	115	139	207	219	223	235	247	259	283	307

- NOTE:
1. SCRUBBER BODY SHOWN ABOVE IS DESIGNED FOR 4 GPM/FT²
 2. PUMP SELECTION FOR 7 1/2 HP AND LOWER ARE CPVC CONSTRUCTION. 10 HP AND ABOVE ARE 316 SST CONSTRUCTION.
 3. REMOTE PUMP SIZING BASED ON 60' OF HEAD.
 4. VIRON CAN CHANGE THE OVERALL SIZE OF YOUR SCRUBBER TO FIT YOUR REQUIREMENTS.
 5. SCRUBBER DRAIN SIZED FOR 1/4" /FT SLOPE ON ALL HORIZONTAL RUNS.
 6. SCRUBBER DIMENSIONS DO NOT SHOW ANY EXTERNAL STIFFENERS. PLEASE CONTACT FACTORY FOR O.D. DIMENSIONS.
 7. DIMENSION "C" OUTLET COLLAR MAY CHANGE TO MATCH YOUR INLET DUCT SIZE OR VIRON'S FAN INLET.
 8. ALL DIMENSIONS SHOWN IN INCHES.

Viron® PVC Self-Contained Recirculation Unit

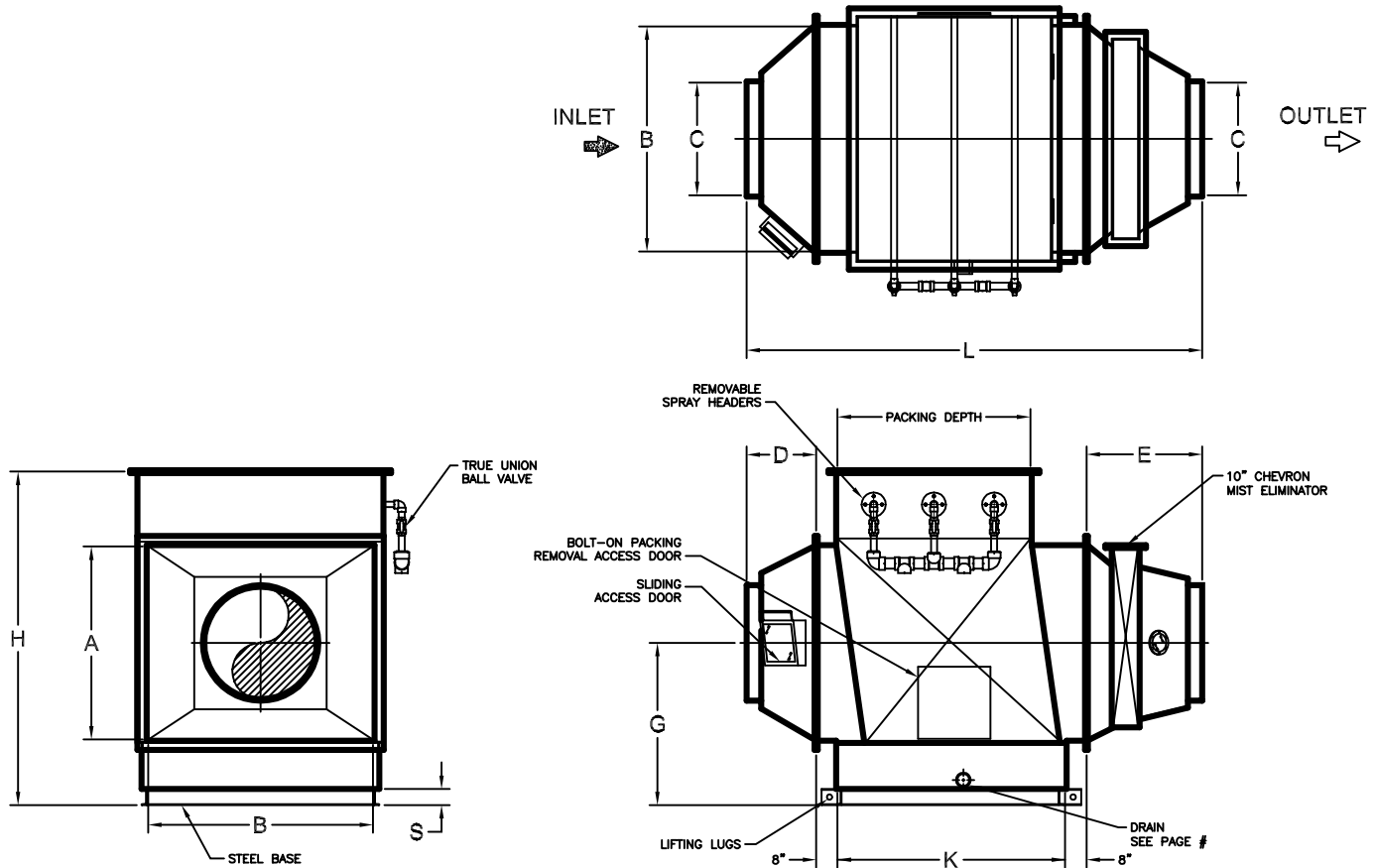


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MODEL SERIES NO.	CFM	A	B	C	D	E	G	H	K ID										L ID										S	M	N	P	R
		ID	ID	ID INLET			ID INLET	OD	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	BASE HEIGHT								
VHS-1212	500	12	12	8	12	12	29	59	38	50	54	66	78	90	114	138	78	90	94	106	118	130	154	178	3	18	13	18	2				
VHS-1224	1000	12	24	14	14	14	29	59	38	50	54	66	78	90	114	138	82	94	98	110	122	134	158	182	3	18	13	18	2				
VHS-2424	2000	24	24	16	14	14	35	71	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3	18	13	18	2				
VHS-2436	3000	24	36	18	14	14	35	71	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3	18	13	18	2				
VHS-3636	4000	36	36	20	14	36	41	83	28	40	44	56	68	80	104	128	96	106	110	122	134	146	170	194	3	18	13	18	2				
VHS-3642	5000	36	42	22	16	36	42	84	28	40	44	56	68	80	104	128	96	108	112	124	136	148	172	196	4	18	13	18	2				
VHS-3648	6000	36	48	24	18	36	42	84	28	40	44	56	68	80	104	128	98	110	114	126	138	150	174	198	4	18	13	18	2				
VHS-4848	8000	48	48	26	18	36	48	96	29	41	45	57	69	81	105	129	99	111	115	127	139	151	175	199	4	18	13	18	2				
VHS-4860	10000	48	60	30	22	38	48	96	29	41	45	57	69	81	105	129	105	117	121	133	145	157	181	205	4	18	13	18	2				
VHS-6060	12000	60	60	32	22	38	54	108	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	4	18	13	18	2				
VHS-6066	14000	60	66	34	22	38	56	110	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	6	18	13	18	2				
VHS-6672	16000	66	72	36	24	38	59	116	31	43	47	59	71	83	107	131	109	121	125	137	149	161	185	209	6	18	13	18	2				
VHS-7272	18000	72	72	38	24	44	62	122	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6	18	13	18	2				
VHS-7278	20000	72	78	40	24	44	62	122	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6	18	13	18	2				
VHS-7284	22000	72	84	42	26	44	62	124	32	44	48	60	72	84	108	132	118	130	134	146	158	170	194	218	6	18	13	18	2				
VHS-7494	24000	74	94	42	30	48	65	128	32	44	48	60	72	84	108	132	126	138	142	154	166	178	202	226	8	18	13	18	2				
VHS-74102	26000	74	102	42	32	52	65	128	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8	18	13	18	2				
VHS-74108	28000	74	108	48	32	52	65	128	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8	18	13	18	2				
VHS-74116	30000	74	116	48	36	56	65	128	32	44	48	60	72	84	108	132	140	152	156	168	180	192	216	240	8	18	13	18	2				
VHS-74136	35000	74	136	54	42	64	67	130	32	44	48	60	72	84	108	132	154	166	170	182	194	206	230	254	10	18	13	18	2				
VHS-74156	40000	74	156	54	54	74	79	142	32	44	48	60	72	84	108	132	176	188	192	204	216	228	252	276	10	30	25	18	2				
VHS-82158	45000	82	158	60	54	74	83	150	33	45	49	61	73	85	109	133	177	189	193	205	217	229	253	277	10	30	25	18	2				
VHS-82175	50000	82	175	60	62	80	85	152	33	45	49	61	73	85	109	133	191	203	207	219	231	243	267	291	12	30	25	18	2				
VHS-82193	55000	82	193	66	68	83	85	152	33	45	49	61	73	85	109	133	200	212	216	228	240	252	276	300	12	30	25	24	3				
VHS-82210	60000	82	210	66	74	94	85	152	33	45	49	61	73	85	109	133	217	229	233	245	257	269	293	317	12	30	25	24	3				
VHS-96210	70000	96	210	72	74	94	92	166	34	46	50	62	74	86	110	134	218	230	234	246	258	270	294	318	12	30	25	24	3				
VHS-96240	80000	96	240	76	86	104	96	170	34	46	50	62	74	86	110	134	240	252	256	268	280	292	316	340	16	30	25	24	3				
VHS-96270	90000	96	270	80	102	118	96	170	34	46	50	62	74	86	110	134	270	282	286	298	310	322	346	370	16	30	25	24	3				
VHS-96300	100000	96	300	84	114	128	96	170	34	46	50	62	74	86	110	134	292	304	308	320	332	344	368	392	16	30	25	24	3				

- NOTE:
1. SCRUBBER BODY SHOWN ABOVE IS DESIGNED FOR 4 GPM/FT²
 2. PUMPS AND RECIRCULATION RATE SELECTION SHOWN ABOVE ARE DESIGNED AT 4 GPM/FT²
 3. PUMP SELECTION FOR 7 1/2 HP AND LOWER ARE CPVC CONSTRUCTION.
10 HP AND ABOVE ARE 316 SST CONSTRUCTION.
 4. SELF-CONTAINED PUMP SIZING BASED ON 40' OF HEAD.
 5. VIRON CAN CHANGE THE OVERALL SIZE OF YOUR SCRUBBER TO FIT YOUR REQUIREMENTS.
 6. SCRUBBER DRAIN SIZED FOR 1/4" /FT SLOPE ON ALL HORIZONTAL RUNS.
 7. SCRUBBER DIMENSIONS DO NOT SHOW ANY EXTERNAL STIFFENERS.
PLEASE CONTACT FACTORY FOR O.D. DIMENSIONS.
 8. DIMENSION "C" OUTLET COLLAR MAY CHANGE TO MATCH YOUR INLET DUCT SIZE OR VIRON'S FAN INLET.
 9. ALL DIMENSIONS SHOWN IN INCHES.

Viron® PVC Remote Recirculation Unit

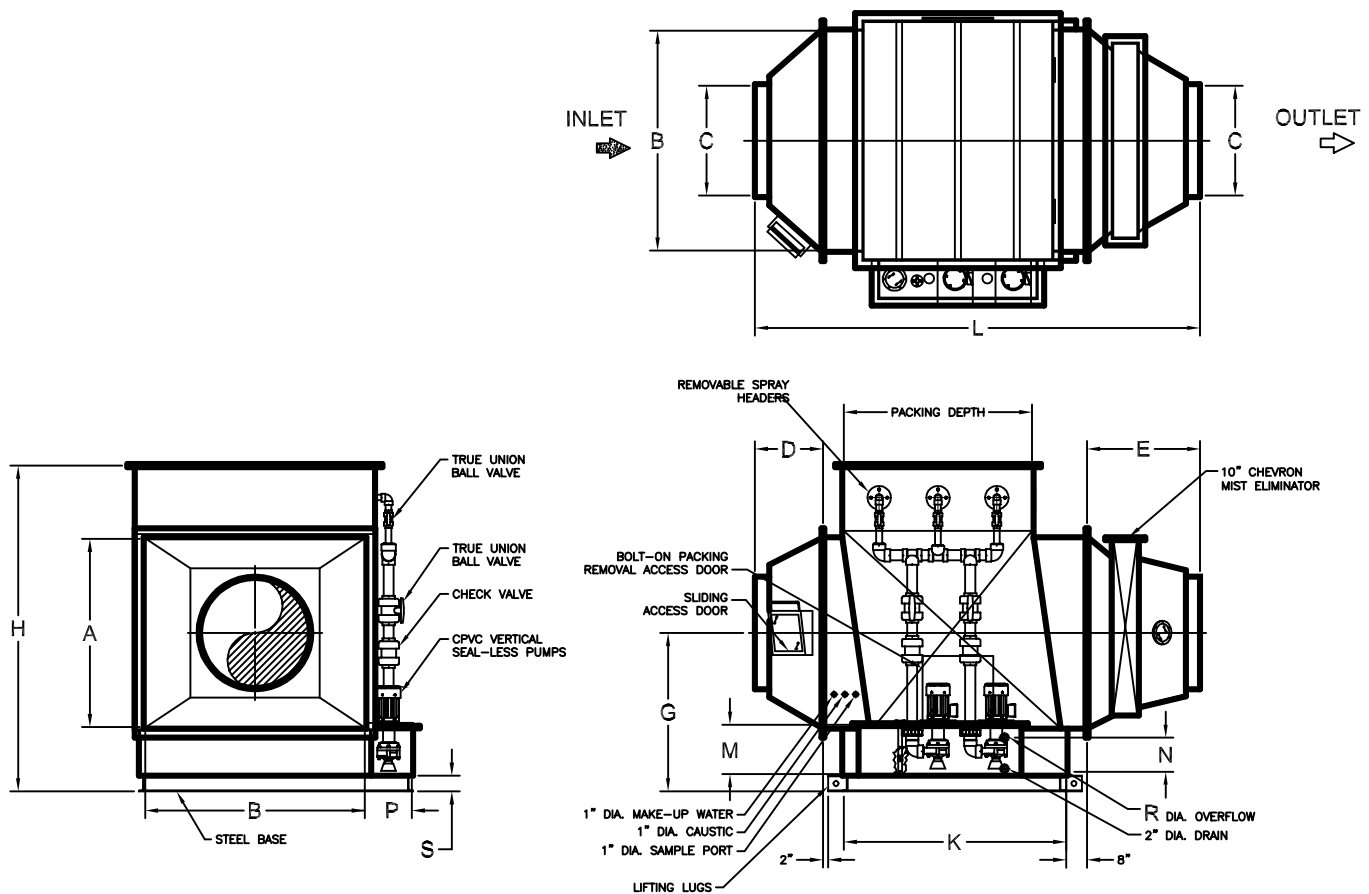


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MODEL SERIES NO.	CFM	A	B	C	D	E	G	H	K ID								L ID								S
		ID	ID	ID			ID	OD	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	
VHS-1212	500	12	12	8	12	12	21	51	38	50	54	66	78	90	114	138	78	90	94	106	118	130	154	178	3
VHS-1224	1000	12	24	14	14	14	21	51	38	50	54	66	78	90	114	138	82	94	98	110	122	134	158	182	3
VHS-2424	2000	24	24	16	14	14	27	63	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3
VHS-2436	3000	24	36	18	14	14	27	63	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3
VHS-3636	4000	36	36	20	14	36	33	75	28	40	44	56	68	80	104	128	94	106	110	122	134	146	170	194	3
VHS-3642	5000	36	42	22	16	36	34	76	28	40	44	56	68	80	104	128	96	108	112	124	136	148	172	196	4
VHS-3648	6000	36	48	24	18	36	34	76	28	40	44	56	68	80	104	128	98	110	114	126	138	150	174	198	4
VHS-4848	8000	48	48	26	18	36	40	88	29	41	45	57	69	81	105	129	99	111	115	127	139	151	175	199	4
VHS-4860	10000	48	60	30	22	38	40	88	29	41	45	57	69	81	105	129	105	117	121	133	145	157	181	205	4
VHS-6060	12000	60	60	32	22	38	46	100	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	4
VHS-6066	14000	60	66	34	22	38	48	102	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	6
VHS-6672	16000	66	72	36	24	38	51	108	31	43	47	59	71	83	107	131	109	121	125	137	149	161	185	209	6
VHS-7272	18000	72	72	38	24	44	54	114	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6
VHS-7278	20000	72	78	40	24	44	54	114	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6
VHS-7284	22000	72	84	42	26	44	54	116	32	44	48	60	72	84	108	132	118	130	134	146	158	170	194	218	6
VHS-7494	24000	74	94	42	30	48	57	120	32	44	48	60	72	84	108	132	126	138	142	154	166	178	202	226	8
VHS-74102	26000	74	102	42	32	52	57	120	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8
VHS-74108	28000	74	108	48	32	52	57	120	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8
VHS-74116	30000	74	116	48	36	56	57	120	32	44	48	60	72	84	108	132	140	152	156	168	180	192	216	240	8
VHS-74136	35000	74	136	54	42	64	59	122	32	44	48	60	72	84	108	132	156	166	170	182	194	206	230	254	10
VHS-74156	40000	74	156	54	54	74	64	127	32	44	48	60	72	84	108	132	176	188	192	204	216	228	252	276	10
VHS-82158	45000	82	158	60	54	74	68	135	33	45	49	61	73	85	109	133	177	189	193	205	217	229	253	277	10
VHS-82175	50000	82	175	60	62	80	70	137	33	45	49	61	73	85	109	133	191	203	207	219	231	243	267	291	12
VHS-82193	55000	82	193	66	68	83	70	137	33	45	49	61	73	85	109	133	200	212	216	228	240	252	276	300	12
VHS-82210	60000	82	210	66	74	94	70	137	33	45	49	61	73	85	109	133	217	229	233	245	257	269	293	317	12
VHS-96210	70000	96	210	72	74	94	77	151	34	46	50	62	74	86	110	134	218	230	234	246	258	270	294	318	12
VHS-96240	80000	96	240	76	86	104	81	155	34	46	50	62	74	86	110	134	240	252	256	268	280	292	316	340	16
VHS-96270	90000	96	270	80	102	118	81	155	34	46	50	62	74	86	110	134	270	282	286	298	310	322	346	370	16
VHS-96300	100000	96	300	84	114	128	81	155	34	46	50	62	74	86	110	134	292	304	308	320	332	344	368	392	16

- NOTE:
1. SCRUBBER BODY SHOWN ABOVE IS DESIGNED FOR 4 GPM/FT²
 2. PUMPS AND RECIRCULATION RATE SELECTION SHOWN ABOVE ARE DESIGNED AT 4 GPM/FT²
 3. PUMP SELECTION FOR 7 1/2 HP AND LOWER ARE CPVC CONSTRUCTION.
10 HP AND ABOVE ARE 316 SST CONSTRUCTION.
 4. REMOTE PUMP SIZING BASED ON 60' OF HEAD.
 5. VIRON CAN CHANGE THE OVERALL SIZE OF YOUR SCRUBBER TO FIT YOUR REQUIREMENTS.
 6. SCRUBBER DRAIN SIZED FOR 1/4" /FT SLOPE ON ALL HORIZONTAL RUNS.
 7. SCRUBBER DIMENSIONS DO NOT SHOW ANY EXTERNAL STIFFENERS.
PLEASE CONTACT FACTORY FOR O.D. DIMENSIONS.
 8. DIMENSION "C" OUTLET COLLAR MAY CHANGE TO MATCH YOUR INLET DUCT SIZE OR VIRON'S FAN INLET.
 9. ALL DIMENSIONS SHOWN IN INCHES.

Viron® Polypro Self-Contained Recirculation Unit

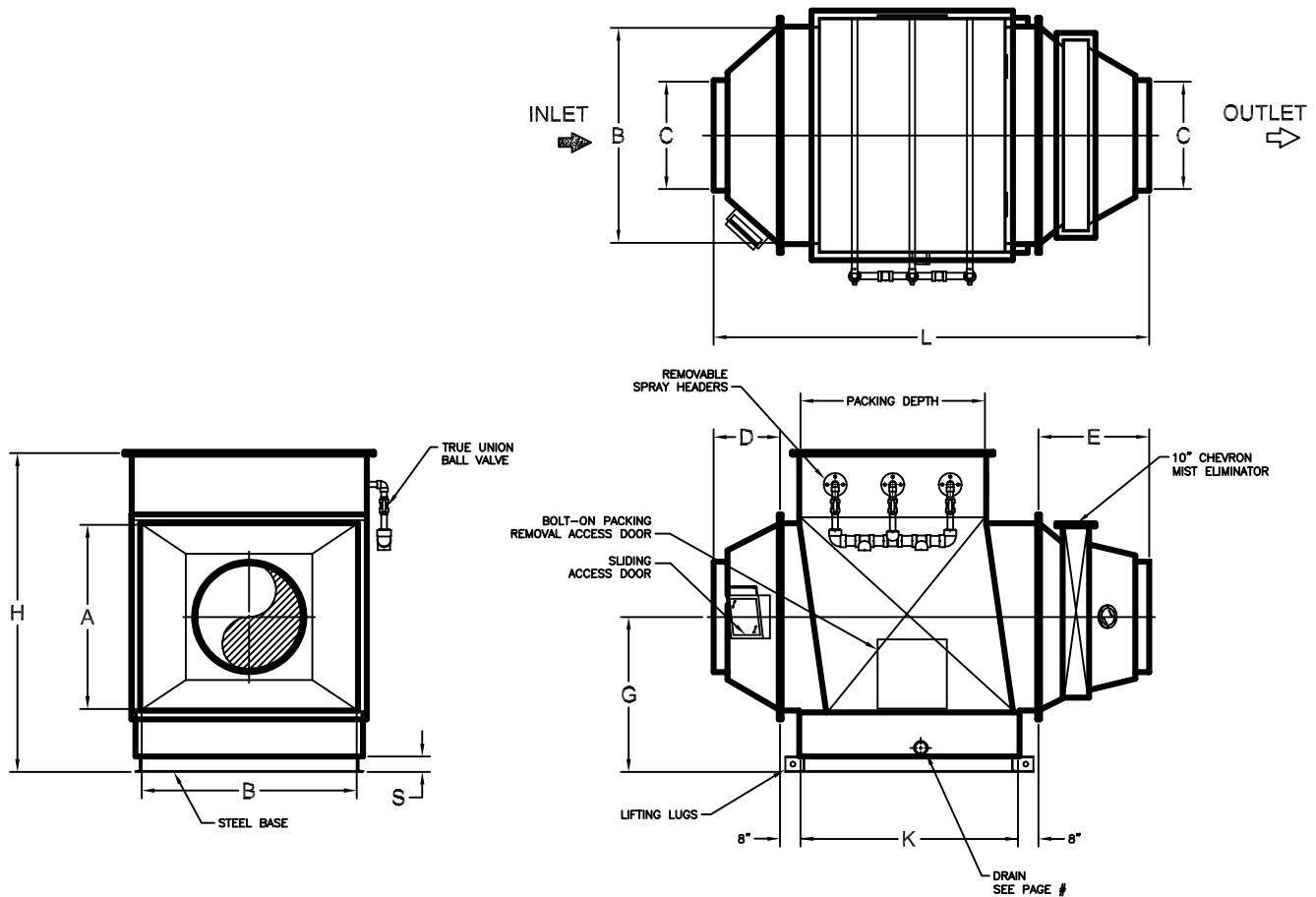


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MODEL SERIES NO.	CFM	A	B	C	D	E	G	H	K ID												L ID								S	M	N	P	R
		ID	ID	ID INLET			ID CL INLET	OD	12"	24"	36"	48"	60"	72"	96"	120"	12"	24"	36"	48"	60"	72"	96"	120"	BASE HEIGHT								
									PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK	PACK							PACK	PACK	PACK
VHS-1212	500	12	12	8	12	12	29	59	38	50	54	66	78	90	114	138	78	90	94	106	118	130	154	178	3	18	13	18	2				
VHS-1224	1000	12	24	14	14	14	29	59	38	50	54	66	78	90	114	138	82	94	98	110	122	134	158	182	3	18	13	18	2				
VHS-2424	2000	24	24	16	14	14	35	71	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3	18	13	18	2				
VHS-2436	3000	24	36	18	14	14	35	71	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3	18	13	18	2				
VHS-3636	4000	36	36	20	14	36	41	83	28	40	44	56	68	80	104	128	96	106	110	122	134	146	170	194	3	18	13	18	2				
VHS-3642	5000	36	42	22	16	36	42	84	28	40	44	56	68	80	104	128	96	108	112	124	136	148	172	196	4	18	13	18	2				
VHS-3648	6000	36	48	24	18	36	42	84	28	40	44	56	68	80	104	128	98	110	114	126	138	150	174	198	4	18	13	18	2				
VHS-4848	8000	48	48	26	18	36	48	96	29	41	45	57	69	81	105	129	99	111	115	127	139	151	175	199	4	18	13	18	2				
VHS-4860	10000	48	60	30	22	38	48	96	29	41	45	57	69	81	105	129	105	117	121	133	145	157	181	205	4	18	13	18	2				
VHS-6060	12000	60	60	32	22	38	54	108	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	6	18	13	18	2				
VHS-6066	14000	60	66	34	22	38	56	110	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	6	18	13	18	2				
VHS-6672	16000	66	72	36	24	38	59	116	31	43	47	59	71	83	107	131	109	121	125	137	149	161	185	209	6	18	13	18	2				
VHS-7272	18000	72	72	38	24	44	62	122	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6	18	13	18	2				
VHS-7278	20000	72	78	40	24	44	62	122	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6	18	13	18	2				
VHS-7284	22000	72	84	42	26	44	62	124	32	44	48	60	72	84	108	132	118	130	134	146	158	170	194	218	6	18	13	18	2				
VHS-7494	24000	74	94	42	30	48	65	128	32	44	48	60	72	84	108	132	126	138	142	154	166	178	202	226	8	18	13	18	2				
VHS-74102	26000	74	102	42	32	52	65	128	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8	18	13	18	2				
VHS-74108	28000	74	108	48	32	52	65	128	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8	18	13	18	2				
VHS-74116	30000	74	116	48	36	56	65	128	32	44	48	60	72	84	108	132	140	152	156	168	180	192	216	240	8	18	13	18	2				
VHS-74136	35000	74	136	54	42	64	67	130	32	44	48	60	72	84	108	132	154	166	170	182	194	206	230	254	10	18	13	18	2				
VHS-74156	40000	74	156	54	54	74	79	142	32	44	48	60	72	84	108	132	176	188	192	204	216	228	252	276	10	30	25	18	2				
VHS-82158	45000	82	158	60	54	74	83	150	33	45	49	61	73	85	109	133	177	189	193	205	217	229	253	277	10	30	25	18	2				
VHS-82175	50000	82	175	60	62	80	85	152	33	45	49	61	73	85	109	133	191	203	207	219	231	243	267	291	12	30	25	18	2				
VHS-82193	55000	82	193	66	68	83	85	152	33	45	49	61	73	85	109	133	200	212	216	228	240	252	276	300	12	30	25	24	3				
VHS-82210	60000	82	210	66	74	94	85	152	33	45	49	61	73	85	109	133	217	229	233	245	257	269	293	317	12	30	25	24	3				
VHS-96210	70000	96	210	72	74	94	92	166	34	46	50	62	74	86	110	134	218	230	234	246	258	270	294	318	12	30	25	24	3				
VHS-96240	80000	96	240	76	86	104	96	170	34	46	50	62	74	86	110	134	240	252	256	268	280	292	316	340	16	30	25	24	3				
VHS-96270	90000	96	270	80	102	118	96	170	34	46	50	62	74	86	110	134	270	282	286	298	310	322	346	370	16	30	25	24	3				
VHS-96300	100000	96	300	84	114	128	96	170	34	46	50	62	74	86	110	134	292	304	308	320	332	344	368	392	16	30	25	24	3				

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Viron® Polypro Remote Recirculation Unit

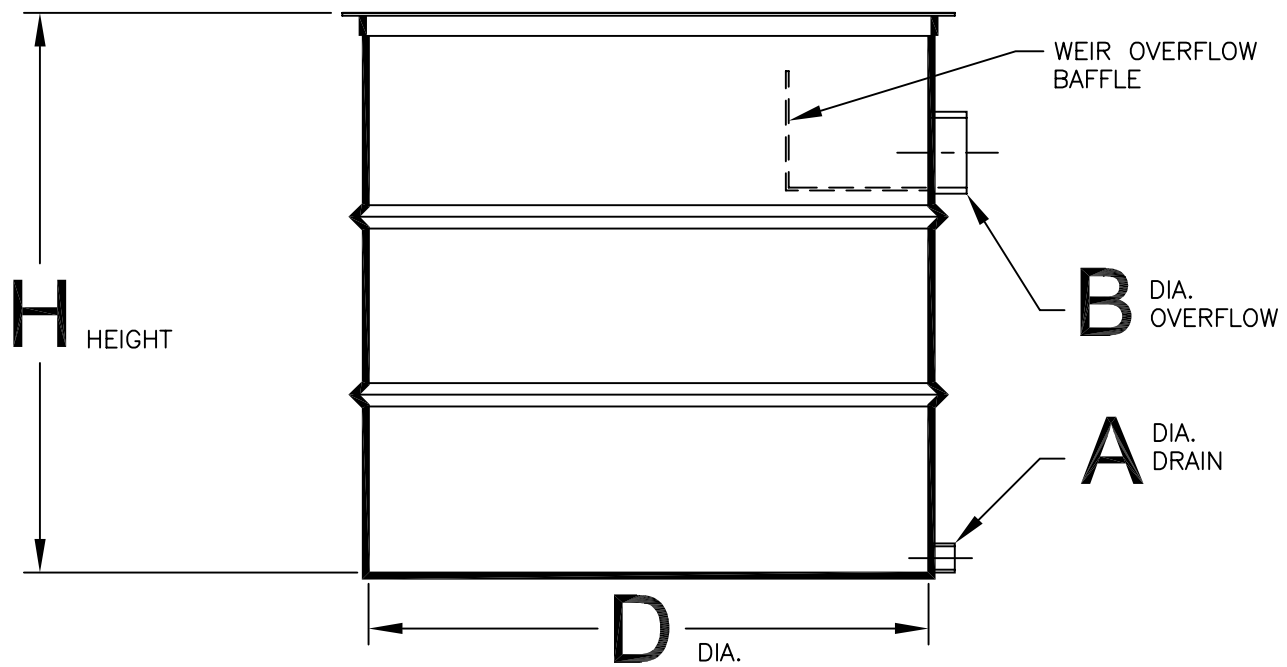


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MODEL SERIES NO.	CFM	A	B	C	D	E	G	H	K ID								L ID								S
		ID	ID	ID			INLET	OD	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	12" PACK	24" PACK	36" PACK	48" PACK	60" PACK	72" PACK	96" PACK	120" PACK	
VHS-1212	500	12	12	8	12	12	21	51	38	50	54	66	78	90	114	138	78	90	94	106	118	130	154	178	3
VHS-1224	1000	12	24	14	14	14	21	51	38	50	54	66	78	90	114	138	82	94	98	110	122	134	158	182	3
VHS-2424	2000	24	24	16	14	14	27	63	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3
VHS-2436	3000	24	36	18	14	14	27	63	39	51	55	67	79	91	115	139	83	105	99	111	123	135	159	183	3
VHS-3636	4000	36	36	20	14	36	33	75	28	40	44	56	68	80	104	128	94	106	110	122	134	146	170	194	3
VHS-3642	5000	36	42	22	16	36	34	76	28	40	44	56	68	80	104	128	96	108	112	124	136	148	172	196	4
VHS-3648	6000	36	48	24	18	36	34	76	28	40	44	56	68	80	104	128	98	110	114	126	138	150	174	198	4
VHS-4848	8000	48	48	26	18	36	40	88	29	41	45	57	69	81	105	129	99	111	115	127	139	151	175	199	4
VHS-4860	10000	48	60	30	22	38	40	88	29	41	45	57	69	81	105	129	105	117	121	133	145	157	181	205	4
VHS-6060	12000	60	60	32	22	38	46	100	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	4
VHS-6066	14000	60	66	34	22	38	48	102	30	42	46	58	70	82	106	130	106	118	122	134	146	158	182	206	6
VHS-6672	16000	66	72	36	24	38	51	108	31	43	47	59	71	83	107	131	109	121	125	137	149	161	185	209	6
VHS-7272	18000	72	72	38	24	44	54	114	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6
VHS-7278	20000	72	78	40	24	44	54	114	32	44	48	60	72	84	108	132	116	128	132	144	156	168	192	216	6
VHS-7284	22000	72	84	42	26	44	54	116	32	44	48	60	72	84	108	132	118	130	134	146	158	170	194	218	6
VHS-7494	24000	74	94	42	30	48	57	120	32	44	48	60	72	84	108	132	126	138	142	154	166	178	202	226	8
VHS-74102	26000	74	102	42	32	52	57	120	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8
VHS-74108	28000	74	108	48	32	52	57	120	32	44	48	60	72	84	108	132	132	144	148	160	172	184	208	232	8
VHS-74116	30000	74	116	48	36	56	57	120	32	44	48	60	72	84	108	132	140	152	156	168	180	192	216	240	8
VHS-74136	35000	74	136	54	42	64	59	122	32	44	48	60	72	84	108	132	156	166	170	182	194	206	230	254	10
VHS-74156	40000	74	156	54	54	74	64	127	32	44	48	60	72	84	108	132	176	188	192	204	216	228	252	276	10
VHS-82158	45000	82	158	60	54	74	68	135	33	45	49	61	73	85	109	133	177	189	193	205	217	229	253	277	10
VHS-82175	50000	82	175	60	62	80	70	137	33	45	49	61	73	85	109	133	191	203	207	219	231	243	267	291	12
VHS-82193	55000	82	193	66	68	83	70	137	33	45	49	61	73	85	109	133	200	212	216	228	240	252	276	300	12
VHS-82210	60000	82	210	66	74	94	70	137	33	45	49	61	73	85	109	133	217	229	233	245	257	269	293	317	12
VHS-96210	70000	96	210	72	74	94	77	151	34	46	50	62	74	86	110	134	218	230	234	246	258	270	294	318	12
VHS-96240	80000	96	240	76	86	104	81	155	34	46	50	62	74	86	110	134	240	252	256	268	280	292	316	340	16
VHS-96270	90000	96	270	80	102	118	81	155	34	46	50	62	74	86	110	134	270	282	286	298	310	322	346	370	16
VHS-96300	100000	96	300	84	114	128	81	155	34	46	50	62	74	86	110	134	292	304	308	320	332	344	368	392	16

- NOTE:
- SCRUBBER BODY SHOWN ABOVE IS DESIGNED FOR 4 GPM/FT.²
 - PUMPS AND RECIRCULATION RATE SELECTION SHOWN ABOVE ARE DESIGNED AT 4 GPM/FT.²
 - PUMP SELECTION FOR 7 1/2 HP AND LOWER ARE CPVC CONSTRUCTION. 10 HP AND ABOVE ARE 316 SST CONSTRUCTION.
 - REMOTE PUMP SIZING BASED ON 60' OF HEAD.
 - VIRON CAN CHANGE THE OVERALL SIZE OF YOUR SCRUBBER TO FIT YOUR REQUIREMENTS.
 - SCRUBBER DRAIN SIZED FOR 1/4" /FT SLOPE ON ALL HORIZONTAL RUNS.
 - SCRUBBER DIMENSIONS DO NOT SHOW ANY EXTERNAL STIFFENERS. PLEASE CONTACT FACTORY FOR O.D. DIMENSIONS.
 - DIMENSION "C" OUTLET COLLAR MAY CHANGE TO MATCH YOUR INLET DUCT SIZE OR VIRON'S FAN INLET.
 - ALL DIMENSIONS SHOWN IN INCHES.

Viron® Remote Recirculation Tank



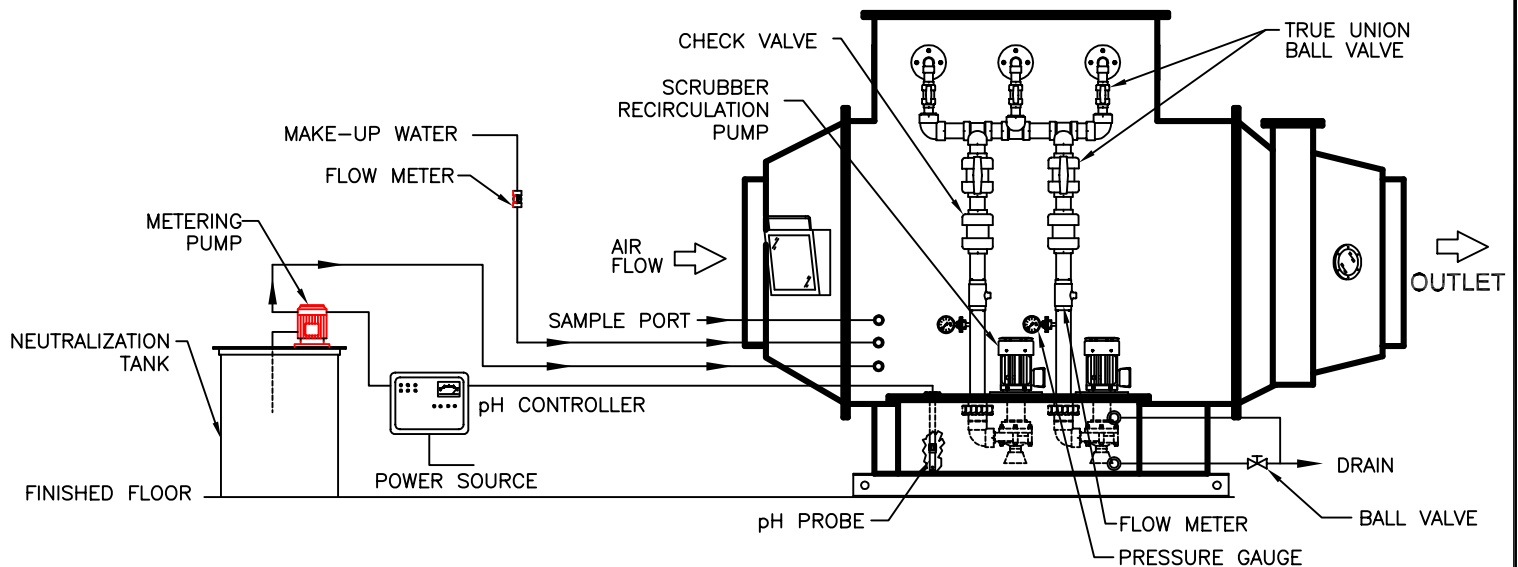
SCRUBBER RECIRCULATION RATE GPM	TANK CAPACITY	D	H	A	B	MATERIAL OF CONSTRUCTION
25	70	24	42	2	4	PVC
50	160	36	42	2	4	PVC
75	225	42	42	2	6	PVC
100	300	48	48	2	6	PVC
150	430	54	48	2	8	PVC
200	600	60	54	2	8	PVC
250	725	66	54	2	8	PVC
300	900	66	66	2	8	PVC
350	1050	72	66	2	8	FRP
400	1180	72	72	2	10	FRP
500	1600	84	72	2	10	FRP
600	1800	84	84	3	10	FRP
700	2100	84	96	3	10	FRP
800	2400	96	84	3	12	FRP
900	2700	96	96	3	12	FRP
1000	3000	96	102	3	12	FRP
1200	3600	108	96	3	12	FRP
1400	4200	120	90	3	14	FRP
1600	4800	120	104	3	14	FRP
1800	5400	120	120	3	14	FRP
2000	6000	120	132	3	14	FRP

REMOTE SCRUBBER DRAIN
3
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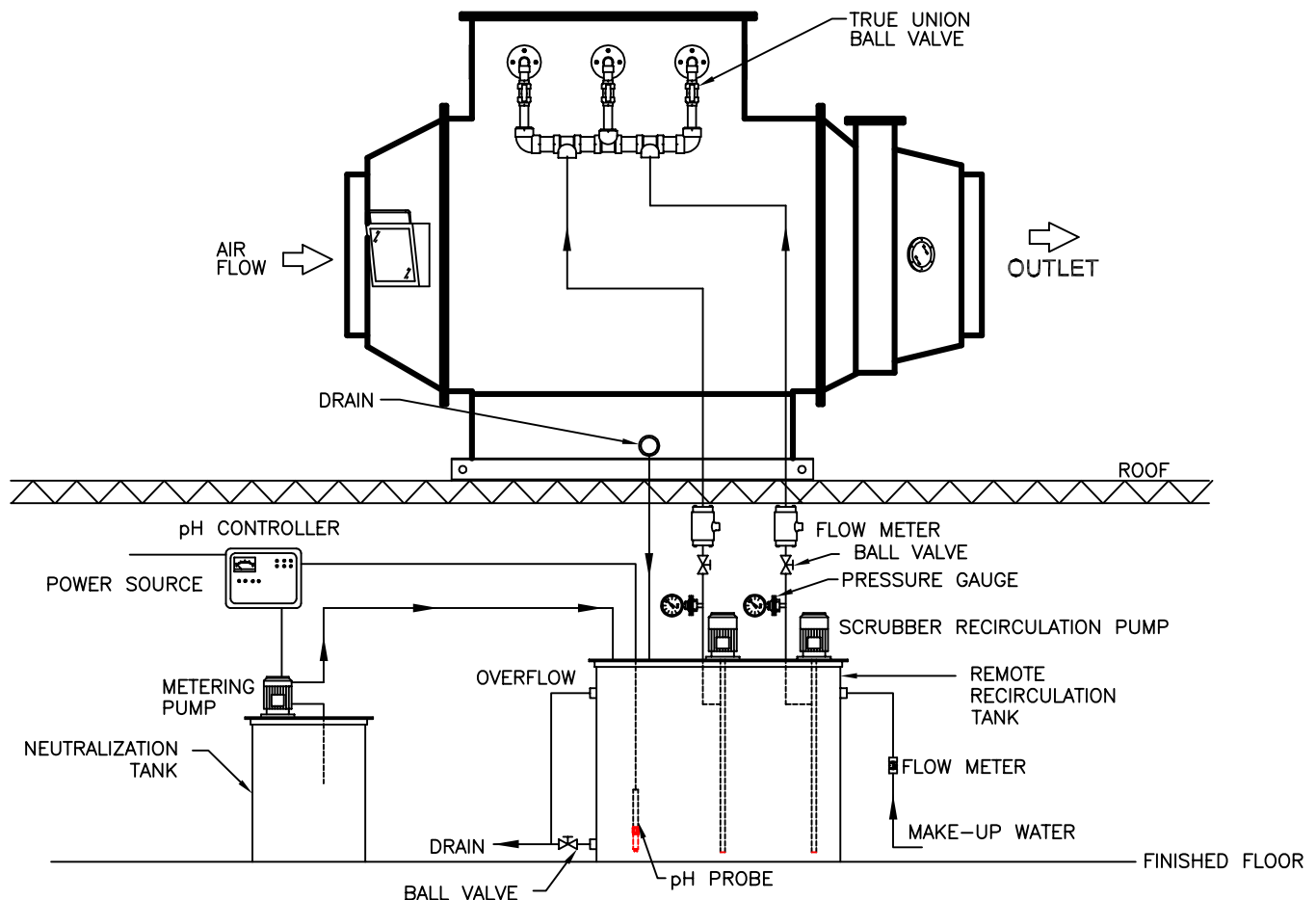
- NOTE:
1. FRP NOZZLES WILL BE NPT TYPE. PVC NOZZLES WILL BE SCHEDULE 80 SOCKET TYPE.
 2. SECONDARY CONTAINMENT MAY BE REQUIRED. PLEASE CONSULT FACTORY.
 3. RECIRCULATION PUMPS TO BE INSTALLED ON A STEEL FRAME AND MOUNTED ON TOP OF THE TANK.
 4. ALL TANKS ARE OPEN TOP.
 5. CUSTOMER TO SUPPLY A SOLID, CONTINUOUSLY SUPPORTED BASE FOR THE INSTALLATION OF THE REMOTE TANK.

Viron® Neutralizing Chemical Control System Illustrations

SELF-CONTAINED RECIRCULATION FLOW DIAGRAM



REMOTE RECIRCULATION FLOW DIAGRAM



Viron® Schematic Symbols Key

PIPING AND INSTRUMENTATION SYMBOLS

—○— SOFTWARE LINK SIGNAL

--A-- ANALOG SIGNAL (4 TO 20 MADC etc.)

---- DISCRETE SIGNAL (ON/OFF etc.)

—|— FLANGED CONNECTION

~ FLEXIBLE CONNECTION

—▷— CONCENTRIC REDUCER

⊗ BALL VALVE

—|— BLAST GATE

—▷— CHECK VALVE

—|— DIAPHRAGM VALVE

—○— MECHANICAL FLOAT VALVE

—|— SOLENOID VALVE

—|— PRESSURE REGULATOR

—|— BASKET STRAINER

—|— PRESSURE GAUGE ISOLATOR

—|— SIGHT GLASS

—|— FLOW METER

—|— FLOW SENSOR

—|— MOTOR

—|— ELECTRIC/PNEUMATIC DAMPER ACTUATOR

—|— MOTORIZED DAMPER

—|— PROGRAMMABLE LOGIC CONTROLLER INPUT/OUTPUT

—|— DISCRETE LOGIC INTERLOCK

—|— FIELD MOUNTED DEVICE

—|— BACKDRAFT DAMPER

—|— LINE STRAINER

—|— METERING PUMP

—|— EXHAUST STACK

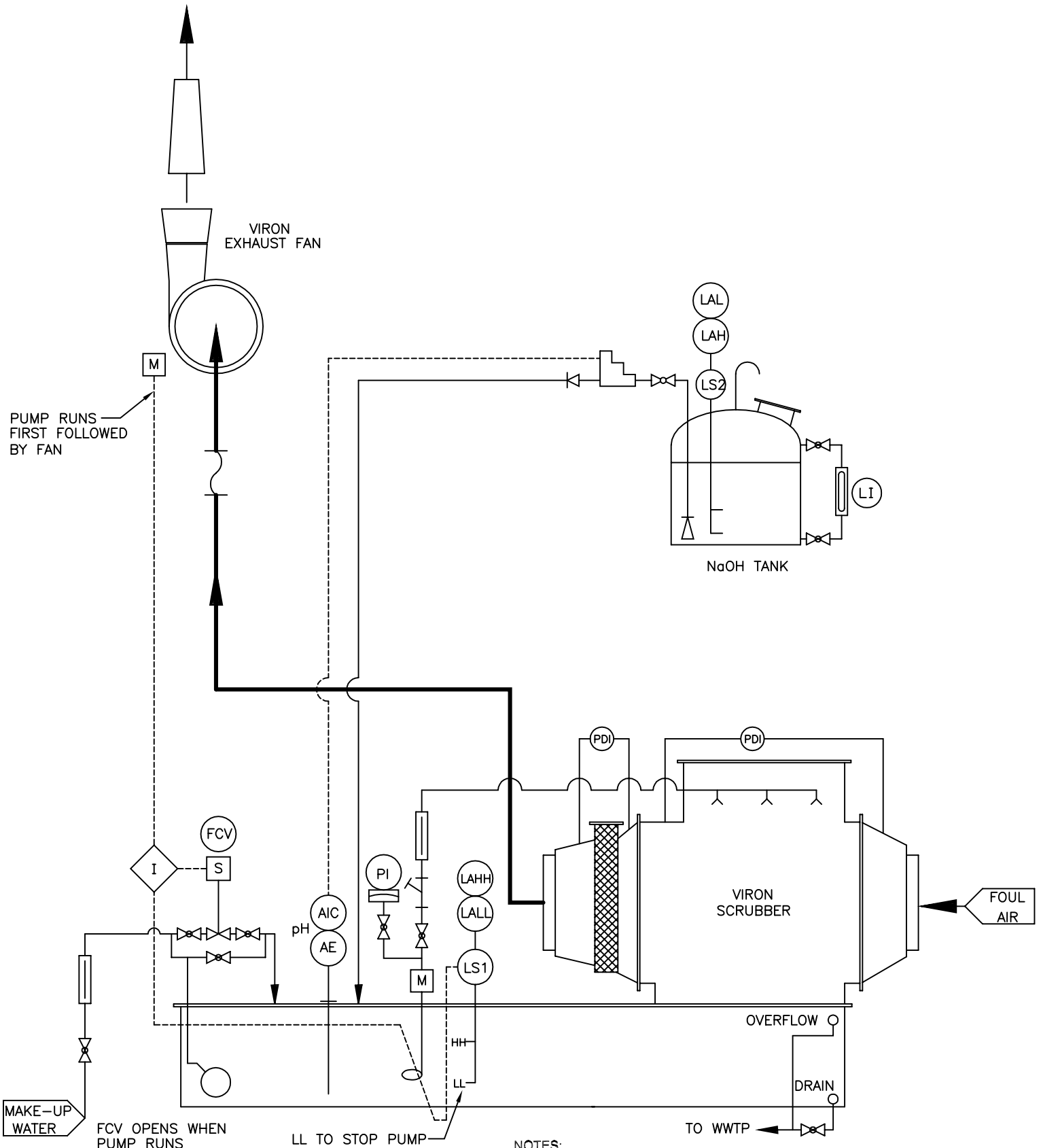
—|— REMOVABLE MIST ELIMINATOR

—|— BIOCIDES TANK

DEVICE ABBREVIATION LIST

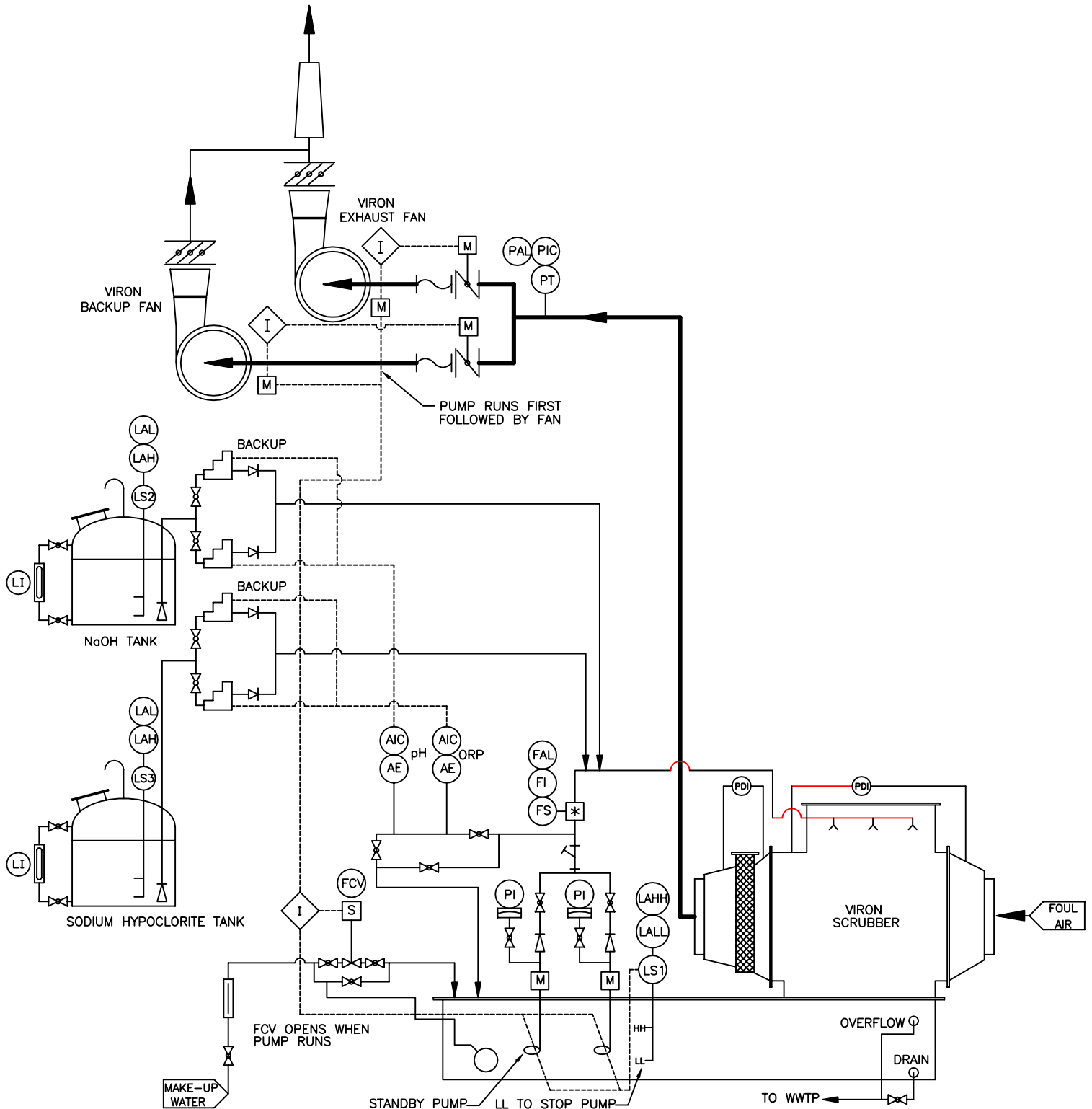
AA	ANALYTICAL ALARM	LALL	LEVEL ALARM LOW—LOW
AC	ANALYTICAL CONTROLLER	LI	LEVEL INDICATOR
AE	ANALYTICAL ELEMENT	LS	LEVEL SWITCH
AS	ANALYTICAL STATUS	LT	LEVEL TRANSMITTER
AY	ANALYTICAL SIGNAL CONVERTER	LY	LEVEL SIGNAL CONVERTER
AIT	ANALYTICAL ALARM TRANSMITTER	PAH	PRESSURE ALARM HIGH
AIC	ANALYTICAL INDICATING CONTROLLER	PAL	PRESSURE ALARM LOW
FAL	FLOW ALARM—LOW	PC	PRESSURE CONTROLLER
FC	FLOW CONTROLLER	PDI	PRESSURE DIFFERENTIAL INDICATOR
FCV	FLOW CONTROL VALVE	PDT	PRESSURE DIFFERENTIAL TRANSMITTER
FI	FLOW INDICATOR	PDZ	DAMPER CONTROLLER
FIT	FLOW INDICATING TRANSMITTER	PI	PRESSURE INDICATOR
FQI	FLOW QUANTITY INDICATOR	PIC	PRESSURE INDICATING CONTROLLER
FQIT	FLOW QUANTITY INDICATING TRANSMITTER	PT	PRESSURE TRANSMITTER
FS	FLOW SENSOR	PRG	PRESSURE REGULATOR
FY	FLOW SIGNAL CONVERTER	QI	STATUS INDICATOR
HC	HAND CONTROL	QL	STATUS INDICATOR LIGHT
HS	HAND SWITCH	QS	FAULT INDICATOR
HSI	HAND SWITCH INDICATOR	TC	TEMPERATURE CONTROLLER
IG	CURRENT INDICATOR	TET	TEMPERATURE ELEMENT TRANSMITTER
IS	CURRENT SWITCH	TIC	TEMPERATURE INDICATING CONTROLLER
KY	TIMER/COUNTER	XV	SOLENOID VALVE
LAH	LEVEL ALARM HIGH	ZC	DAMPER CONTROL
LAHH	LEVEL ALARM HIGH—HIGH	ZI	POSITION INDICATOR
LAL	LEVEL ALARM LOW	ZS	POSITION SWITCH

METAL FINISHING AND ANODIZING SCRUBBER SYSTEM SCHEMATIC



- NOTES:
1. TYPICAL SCRUBBER LAYOUT.
 2. ALL ITEMS SHOWN ARE OPTIONAL.
 3. CONTROL PANELS ARE AVAILABLE UPON REQUEST.

H₂S SCRUBBER SYSTEM SCHEMATIC

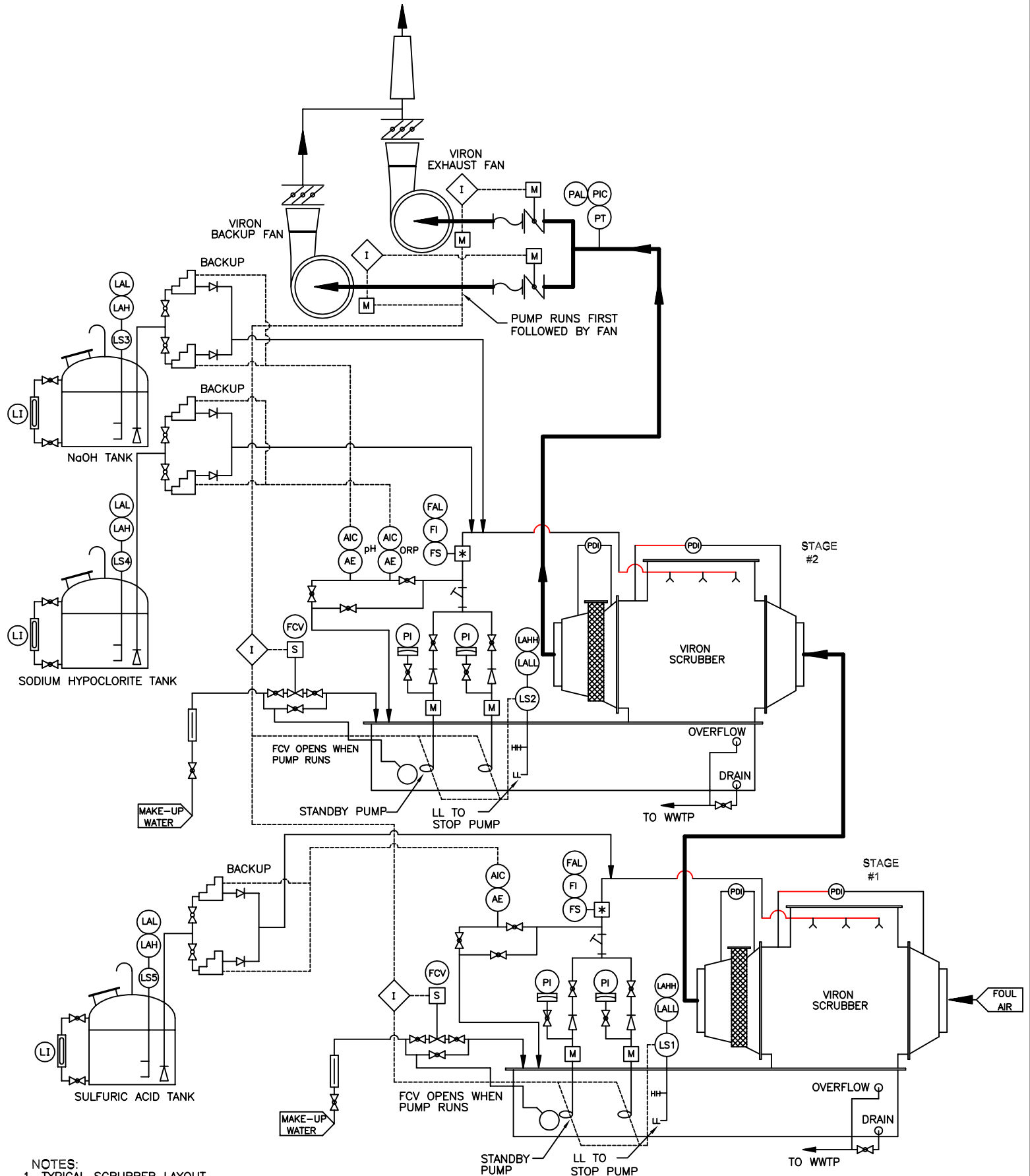


NOTES:

1. TYPICAL SCRUBBER LAYOUT.
2. ALL ITEMS SHOWN ARE OPTIONAL.
3. CONTROL PANELS ARE AVAILABLE UPON REQUEST.

Viron® Scrubber System Schematic

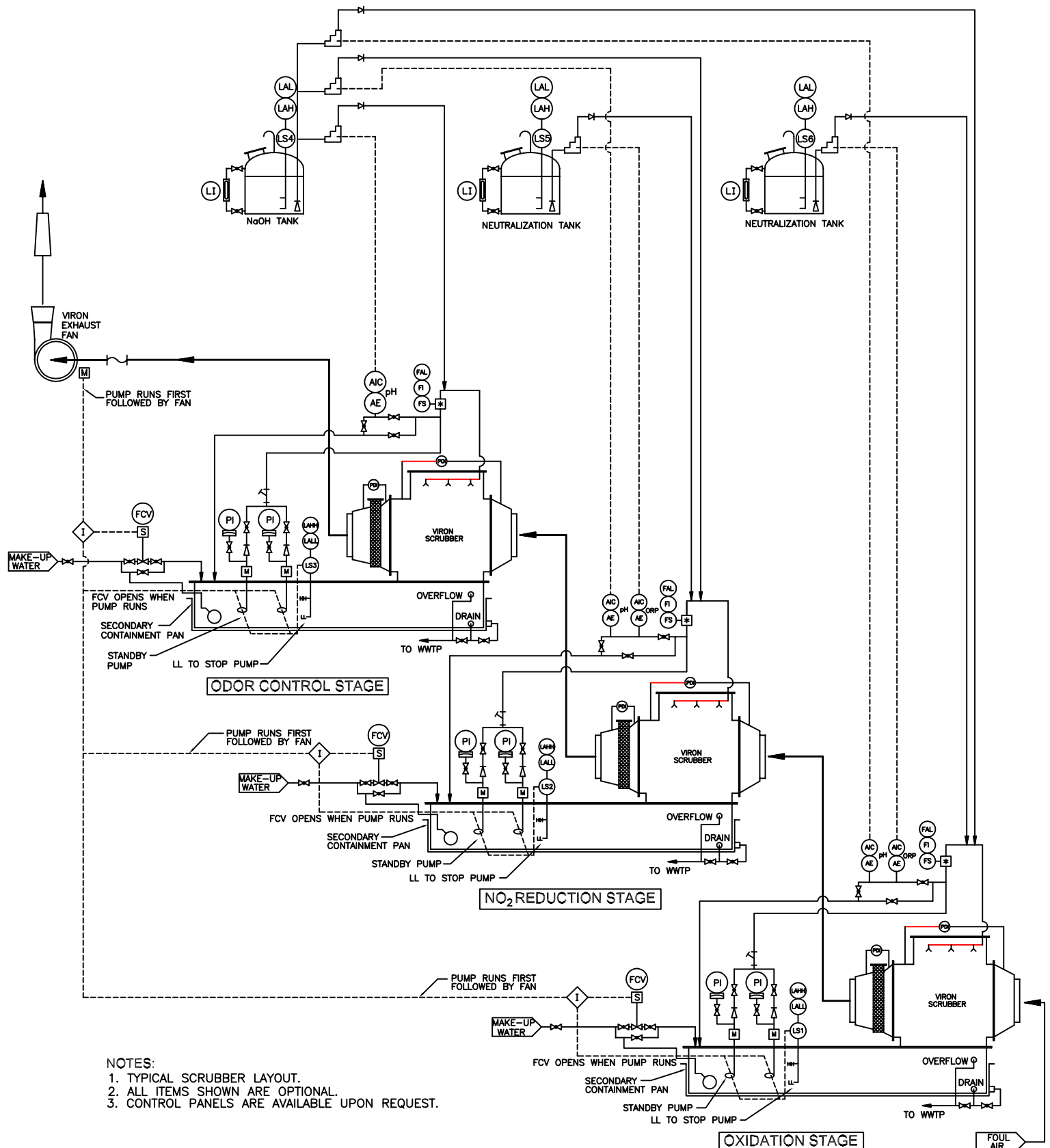
AMMONIA AND H₂S SCRUBBER SYSTEM SCHEMATIC



NOTES:

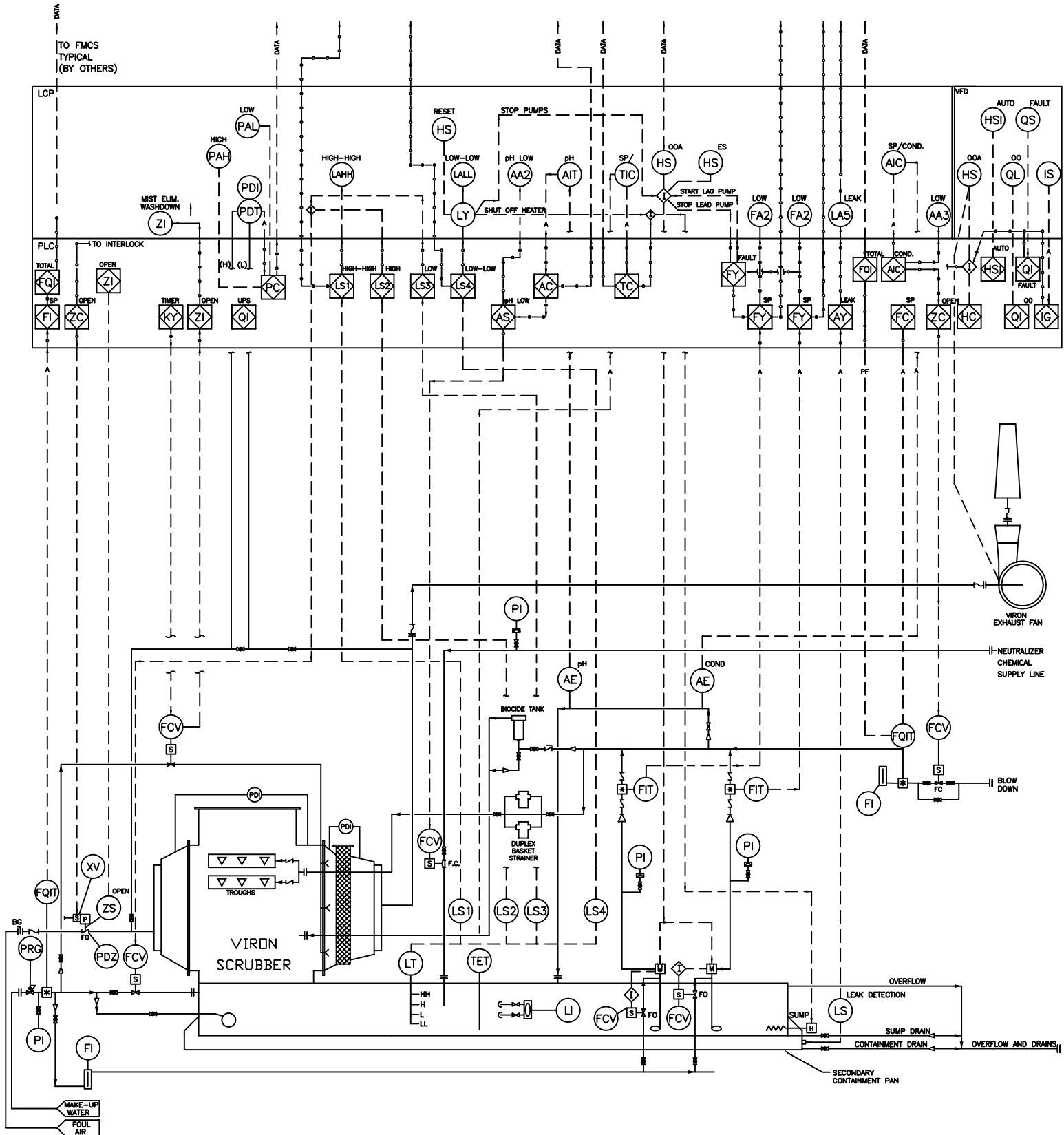
1. TYPICAL SCRUBBER LAYOUT.
2. ALL ITEMS SHOWN ARE OPTIONAL.
3. CONTROL PANELS ARE AVAILABLE UPON REQUEST.

NOx SCRUBBER SYSTEM SCHEMATIC



- NOTES:
1. TYPICAL SCRUBBER LAYOUT.
 2. ALL ITEMS SHOWN ARE OPTIONAL.
 3. CONTROL PANELS ARE AVAILABLE UPON REQUEST.

SEMI CONDUCTOR SYSTEM SCHEMATIC



NOTES:

1. TYPICAL SCRUBBER LAYOUT.
2. ALL ITEMS SHOWN ARE OPTIONAL.
3. CONTROL PANELS ARE AVAILABLE UPON REQUEST.

Viron® Fiberglass Corrosion Table

This table may be used as a guide for ventilating gases and vapors from processes where chemicals shown are used.

Maximum temperatures shown.

N.R. = NOT RECOMMENDED

F = FUMES ONLY

S = SURFACING MAT

ENVIRONMENT	°F	ENVIRONMENT	°F	ENVIRONMENT	°F
ACIDS		GASES (cont'd)		SALTS (cont'd)	
Acetic to 10%	200	Hydrogen Sulfide	200	Potassium Persulfate	140
Acetic to 50%	150	Sulfur Dioxide, Dry	200	Potassium Sulfate	200
Acrylic	100	Sulfur Dioxide, Wet	170	Silver Nitrate	170
Benzene Sulfonic to 25%	170	Sulfur Trioxide, Dry	120	Sodium Acetate	200
Benzene Sulfonic 25% up	80	Sulfur Trioxide, Wet	120	Sodium Bisulfate	200
Benzoic	200			Sodium Chloride	200
Boric	200	ALKALIES		Sodium Chlorite	120
Butyric to 50%	200	Ammonium Bicarbonate	150	Sodium Cyanide	200
Butyric 50% up	80	Ammonium Carbonate	120	Sodium Dichromate	170
Carbonic	200	Ammonium Hydroxide to 5%	150	Sodium Ferricyanide	200
Chloracetic to 25%	170	Ammonium Hydroxide to 10%	120	Sodium Fluoride	150
Chloracetic 25% to 50%	150	Ammonium Hydroxide to 29%	80	Sodium Nitrate	200
Chromic to 5%	120	Aqueous Ammonia 5%	150	Sodium Nitrite	200
Chromic 5% up	N.R.	Barium Carbonate	200	Sodium Silicate PH Less Than 12	150
Citric	200	Barium Hydroxide to 10%	140	Sodium Sulfate	200
Fluoboric	S 170	Calcium Hydroxide	170	Sodium Sulfite	170
Fluosilicic up to 32%	S 90	Magnesium Carbonate	200	Stannic Chloride	200
Formic	F 200	Potassium Bicarbonate	170	Stannous Chloride	200
Gluconic to 50%	170	Potassium Carbonate	150	Zinc Chloride	200
Hydrobromic to 50%	150	Potassium Hydroxide to 50%	120	Zinc Nitrate	200
Hydrochloric to 15%	*200	Sodium Bicarbonate	170	Zinc Sulfite	170
Hydrochloric to 37%	*150	Sodium Carbonate to 35%	150		
Hydrochloric	*F 200	Sodium Hydroxide to 10%	N.R.	SOLVENTS	
Hydrocyanic to 10%	150	Sodium Hydroxide to 50%	N.R.	Acetone to 10%	F 180
Hydrofluoric to 10%	S 150	Sodium Sulfide	150	Benzene	80
Hydrofluosilicic up to 30%	140	Trisodium Phosphate	140	Carbon Disulfide	80
Hypochlorous to 20%	170			Carbon Tetrachloride	F 140
Lactic	200	SALTS		Chlorobenzene	N.R.
Maleic	170	Aluminum Chloride	200	Ethyl Acetate	F 100
Nitric to 5%	150	Aluminum Potassium Sulfate	200	Ethyl Chloride	F 90
Nitric above 5%	N.R.	Aluminum Sulfate	200	Ethylene Dibromide	100
Nitric (vapor)	F 105	Ammonium Chloride	200	Ethylene Glycol	200
Nitrous to 10%	105	Ammonium Nitrate	200	n-Heptane	200
Oleic	200	Ammonium Persulfate to 25%	170	Hexane	140
Oxalic	200	Ammonium Persulfate, saturated	150	Methyl Ethyl Ketone	80
Perchloric	F 150	Ammonium Sulfate	200	Naphtha	200
Phosphoric	170	Aniline Sulfate to 25%	200	Naphthalene	200
Phosphoric, super	150	Aniline Sulfate, saturated	170	Tetrachloroethylene	80
Phosphoric (vapor)	F 200	Antimony Trichloride	170	Toluene	80
Phthalic	200	Barium Chloride	200	Xylene	80
Picric to 10%	80	Barium Sulfide	170		
Silicic	200	Calcium Chlorate	200	BLEACHES	
Stearic	200	Calcium Chloride	200	Calcium Chlorate	200
Sulfamic, See	190	Calcium Sulfate	200	Calcium Hypochlorite	200
Benzene Sulfonic up to 25%	170	Copper Chloride	200	Chlorine Dioxide up to 15%	170
Sulfuric to 25%	190	Copper Cyanide	200	Chlorine Water	170
Sulfuric to 50%	140	Copper Fluoride	150	Hydrogen Peroxide to 10%	120
Sulfuric to 70%	80	Copper Oxychloride	150	Hydrogen Peroxide to 30%	80
Sulfuric to 98% (Oleum)	N.R.	Copper Sulfate	200	Sodium Chlorate	120
Sulfurous to 10%	170	Ferric Chloride	200	Sodium Hypochlorite	F 170
Tannic	200	Ferric Nitrate	170		
Tartaric	200	Ferric Sulfate	200	OTHERS	
Trichloroacetic to 50%	170	Ferrous Chloride	200	Aluminum Chlorohydroxide	200
		Ferrous Nitrate	200	Ammonium Phosphate	200
ALCOHOLS		Ferrous Sulfate	200	Aqua Regia	F 80
Amyl	170	Lead Acetate	200	Detergents	150
Benzyl	100	Magnesium Chloride	200	Glycerine	200
Butyl	140	Magnesium Hydroxide	170	Kerosene	200
Ethyl	80	Magnesium Sulfate	200	Photographic Solutions	90
Methyl	80	Mercuric Chloride	200	Perchloroethylene	80
		Mercurous Chloride	200	Sodium Tetraborate	200
GASES AND VAPORS		Nickel Chloride	200	Sodium Tripolyphosphate	200
Ammonia, Dry	170	Nickel Nitrate	200	Sodium Xylene Sulfonate	150
Ammonia, Wet	150	Nickel Sulfate	200	Sorbitol Solution	200
Bromine	100	Potassium Chloride	200	Urea	140
Carbon Dioxide	200	Potassium Dichromate	70	Urea-Ammonium-Nitrate	120
Carbon Monoxide	200	Potassium Ferricyanide	200	8-8-8 Fertilizer	120
Chlorine	200	Potassium Nitrate	200	Shell D-D	N.R.
Fluorine	N.R.	Potassium Permanganate	80	Steam, Etc.	180
Hydrogen Fluoride, Wet	150				

NOTE: Except where prefixed by "F" the resin manufacturers figures are for immersion and the resistance is higher where exposure to fumes only is required.

*Special hardware recommended; contact factory.

Viron® Scrubber Data Sheet

FAX: 989-723-8417

Project Name:	Job No.:	Date:	
Contact Person:	Quotation Due Date:		
City:	Viron® Representative:		
State:	Zip Code:	Contact Person:	
Phone:	Fax:	Phone:	Fax:
E-Mail:	E-Mail:		

Scrubber Type

- | | |
|--|--|
| <input type="radio"/> VHS-Horizontal Unit | <input type="radio"/> VCM-Mist Eliminator Unit |
| <input type="radio"/> VVS-Vertical Unit | <input type="radio"/> VTS-Tank Scrubber Unit |
| <input type="radio"/> VBS-Blower-Scrubber Unit | |

Material

- | | | | |
|---------------------------|-------------------------------|----------------------------------|---------------------------------------|
| <input type="radio"/> PVC | <input type="radio"/> Polypro | <input type="radio"/> Fiberglass | <input type="radio"/> PVC/FRP Overlay |
|---------------------------|-------------------------------|----------------------------------|---------------------------------------|

Performance

Capacity (ACFM):	
Chemical to be removed:	
Scrubber Loading Rate (Lbs./Hr. Input):	
Chemical Temperature (Degrees Fahrenheit):	
Scrubber Location:	<input type="radio"/> Inside <input type="radio"/> Outside
	<input type="radio"/> Self-Contained <input type="radio"/> Remote
Required Removal Efficiency:	
Mist Eliminator Removal Efficiency:	

Recirculation Pump Data

Number of Pumps Requested:	
Pump Horse Power:	
Scrubber Pump GPM:	
Material:	<input type="radio"/> CPVC <input type="radio"/> Polypro <input type="radio"/> FRP <input type="radio"/> OSST
Type:	<input type="radio"/> Vertical <input type="radio"/> Horizontal
Enclosure:	<input type="radio"/> TEFC <input type="radio"/> Mill & Chem. Duty <input type="radio"/> Other
	<input type="radio"/> Expl. Proof

Optional Equipment

- | |
|--|
| <input type="radio"/> Line Strainers In Recirculation Line |
| <input type="radio"/> Inlet Water Flowmeter |
| <input type="radio"/> Recirculation Rotameter |
| <input type="radio"/> Magnehelic Gauge |
| <input type="radio"/> Chemical Neutralization System: <input type="radio"/> OpH <input type="radio"/> ORP <input type="radio"/> OTDS |
| <input type="radio"/> Pressure Gauge |
| <input type="radio"/> Float Valve |
| <input type="radio"/> Sump Heater |
| <input type="radio"/> Back Up Recirculation Pump |
| <input type="radio"/> Other |
| <input type="radio"/> Other |
| <input type="radio"/> Other |

Additional
Viron® Products
to consider:
Hoods
Ductwork
Dampers
Fans
High Plume Stacks



VIRON® INTERNATIONAL CORP.

505 HINTZ ROAD
OWOSSO, MI 48867-9603
989-723-8255
FAX: 989-723-8417

EMAIL: info@vironintl.com
WEB: www.vironintl.com

Viron® PVC Corrosion Table

This table may be used as a guide for ventilating gases and vapors from processes where chemicals shown are used.
Maximum temperatures shown.

ENVIRONMENT	Type I 70°	Type I 140°	Type II 70°	Type II 140°	ENVIRONMENT	Type I 70°	Type I 140°	Type II 70°	Type II 140°	ENVIRONMENT	Type I 70°	Type I 140°	Type II 70°	Type II 140°
ACIDS					ALKALIES					SALTS (cont'd.)				
Acetic 20-30%	E	G	G	L	Ammonium Bifluoride	E	E	E	E	Sodium Ferricyanide	E	E	E	E
Acetic 30-60%	E	E	G	L	Ammonium Carbonate	E	E	E	E	Sodium Fluoride	E	E	E	E
Benzene	U	U	U	U	Ammonium Fluoride 25%	E	L	U	U	Sodium Nitrate	E	E	E	E
Benzene Sulfonic 10%	E	E	E	E	Ammonium Hydroxide 28%	E	E	E	E	Sodium Nitrite	E	E	E	E
Benzoic	E	E	E	E	Barium Carbonate	E	E	E	E	Sodium Sulfate	E	E	E	E
Boric	E	E	E	E	Calcium Hydroxide	E	E	E	E	Sodium Sulfite	E	E	E	E
Butyric 20%	G	U	L	U	Magnesium Carbonate	E	E	E	E	Stannic Chloride	E	E	E	E
Carbonic	E	E	E	E	Potassium Bicarbonate	E	E	E	E	Stannous Chloride	E	G	E	G
Chloroacetic	E	L	E	U	Potassium Carbonate	E	E	E	E	Zinc Chloride	E	E	E	E
Chromic 10%	E	E	E	E	Potassium Hydroxide	E	E	E	E	Zinc Nitrate	E	E	E	E
Chromic 25%	E	L	G	L	10, 20, 35%	E	E	E	E	Zinc Sulfate	E	E	E	E
Citric	E	E	E	E	Sodium Bicarbonate	E	E	E	E					
Fluoroboric	E	E	E	E	Sodium Carbonate	E	E	E	E	SOLVENTS				
Fluorosilicic	E	E	E	E	Sodium Hydroxide 10,35%	E	E	E	E	Acetone	U	U	U	U
Formic	E	U	E	U	Sodium Sulfide	E	E	E	E	Benzene	U	U	U	U
Glucose	E	E	E	E	Trisodium Phosphate	E	E	E	E	Carbon Bisulfide	U	U	U	U
Hydrobromic 20%	E	E	E	G						Carbon Tetrachloride	L	U	U	U
Hydrochloric 0-25%	E	G	E	G	SALTS					Chlorobenzene	U	U	U	U
Hydrochloric 25-40%	E	E	E	G	Aluminum Chloride	E	E	E	E	Ethyl Acetate	U	U	U	U
Hydrocyanic	E	E	E	E	Aluminum Nitrate	E	E	E	E	Ethyl Chloride	U	U	U	U
Hydrofluoric 10%	E	L	E	G	Aluminum Sulfate	E	E	E	E	Ethylene Glycol	E	E	E	E
Hydrofluorosilicic 30%	E	G	G	L	Ammonium Chloride	E	E	E	E	Heptane	E	G	L	U
Hypochlorous 20%	E	E	E	E	Ammonium Nitrate	E	E	E	E	Hexane	E	L	U	U
Lactic 28%	E	E	E	E	Ammonium Persulfate	E	E	E	E	Methyl Ethyl Ketone	U	U	U	U
Maleic	E	E	E	E	Ammonium Sulfate	E	E	E	E	Naphtha	E	E	E	G
Nitric 10,35,40%	E	G	G	L	Aniline	U	U	U	U	Trichloroethylene	U	U	U	U
Nitric 20%	E	L	G	L	Aniline Sulfate, saturated	U	U	U	U	Toluene	U	U	U	U
Nitric (vapor) 60%	E	L	G	U	Antimony Trichloride	E	E	E	E	Xylene	U	U	U	U
Nitrous Oxide	E	E	E	E	Barium Chloride	E	E	E	E					
Oleic	E	E	E	E	Barium Sulfide	E	E	E	E	BLEACHES				
Oxalic	E	E	E	G	Calcium Chlorate	E	E	E	E	Calcium Chlorate	E	E	E	E
Perchloric 10%	E	L	G	L	Calcium Chloride	E	E	E	E	Calcium Hypochlorite	E	E	E	E
Phosphoric 0-25%	E	G	E	G	Calcium Sulfate	E	E	E	E	Chlorine Water	E	E	E	E
Phosphoric 25-75%	E	E	E	G	Copper Chloride	E	E	E	E	Hydrogen Peroxide 30%	E	E	E	G
Phosphorus (yellow)	E	G	G	L	Copper Cyanide	E	E	E	E	Hydrogen Peroxide 50%	E	E	E	L
Picric	U	U	U	U	Copper Fluoride 2%	E	E	E	E	Sodium Chlorate	E	G	G	L
Silicic	E	E	E	E	Copper Sulfate	E	E	E	E	Sodium Hypochlorite	E	E	E	E
Stearic	E	E	G	G	Ferric Chloride	E	E	E	E					
Sulfamic (see					Ferric Nitrate	E	E	E	E	OTHERS				
Benzene Sulfonic 10%)	E	E	E	E	Ferric Sulfate	E	E	E	G	Aluminum Hydroxide	E	E	E	E
Sulfuric 0-75%	E	E	E	G	Ferrous Chloride	E	E	E	E	Ammonium Phosphate	E	E	-	-
Sulfuric 75-90%	E	E	L	L	Lead Acetate	E	E	E	E	Aqua Regia	E	L	L	U
Sulfuric 95%	E	G	U	U	Magnesium Chloride	E	E	E	E	Glycerine	E	E	E	E
Sulfurous	E	E	E	E	Magnesium Hydroxide	E	E	E	E	Kerosene	E	E	E	E
Tannic	E	E	E	E	Magnesium Sulfate	E	E	E	E	Photographic Solutions	E	E	E	E
Tartaric	E	E	E	E	Mercuric Chloride	E	E	G	G	Tetrahydrofurane	U	U	U	U
ALCOHOLS					Mercurous Nitrate	E	E	G	G	Sodium Xylene Sulfonate	-	-	-	-
Amyl	E	E	L	U	Nickel Chloride	E	E	E	E	Sorbitol Solution	-	-	-	-
Benzol	U	U	U	U	Nickel Nitrate	E	E	E	E	Urea	E	E	E	E
Butyl	E	G	L	U	Nickel Sulfate	E	E	E	E	Urea-Ammonium-Nitrate	E	E	E	E
Ethyl 0-98%	E	E	E	E	Potassium Chloride	E	E	E	E					
Methyl	E	E	E	E	Potassium Dichromate 40%	E	E	E	E	PLATING SOLUTIONS				
GASES AND VAPORS					Potassium Ferricyanide	E	E	E	E	Brass	E	E	E	E
Ammonia, Dry	E	E	E	E	Potassium Nitrate	E	E	E	E	Cadmium	E	E	E	E
Ammonia, Wet	L	U	-	-	Potassium					Chromium	E	G	G	G
Bromine	U	U	U	U	Permanganate 10%	E	E	G	G	Copper	E	E	E	E
Carbon Dioxide	E	E	E	E	Potassium Persulfate	E	E	E	E	Gold	E	E	E	E
Carbon Monoxide	E	E	E	E	Potassium Sulfate	E	E	E	E	Judium	E	E	E	E
Chlorine, Dry	G	G	G	G	Silver Nitrate	E	E	E	E	Lead	E	E	E	E
Fluorine	L	U	U	U	Sodium Acetate	E	E	E	E	Nickel	E	E	E	E
Hydrogen	E	E	E	G	Sodium Bisulfate	E	E	E	E	Rhodium	E	E	E	E
Hydrogen Sulfide	E	E	E	E	Sodium Chloride	E	E	E	E	Silver	E	E	E	E
Sulfur Dioxide, Wet	G	U	L	U	Sodium Chlorate	E	G	G	L	Tin	E	E	E	E
Sulfur Tioxide, Dry	E	E	E	G	Sodium Cyanide	E	E	E	E	Zinc	E	E	E	G
					Sodium Dichromate	E	E	E	G					

KEY: E = Excellent G = Good L = Limited U = Unsuitable

• LIMITED WARRANTY

VIRON® INTERNATIONAL warrants to the dealers and owners its VIRON® products and parts to be free from defects in workmanship and material under normal use and services for one (1) year after the date of shipment by VIRON to the first retail purchaser or first user: if and only if VIRON® is notified in writing of the defect within fourteen (14) days from date that the defect is discovered. Written notice of defects discovered within the final fourteen (14) days of the warranty period must be sent to VIRON® via facsimile or first class mail prior to the expiration of the warranty period otherwise this warranty shall be void. Our obligation under this warranty is expressly limited to repairing or replacing at our option, without cost at our factory any part or parts thereof which shall be returned to and received by VIRON® within such warranty period with transportation charges both to and from VIRON® prepaid, and which our examination shall disclose to our satisfaction to have been defective. In the event a defect is discovered within the final seven days of the warranty period, the returned goods must be received by VIRON® at VIRON®'s facility within seven days following expiration of the warranty period. Any request for repair or replacement should be directed to VIRON® INTERNATIONAL, Owosso, MI.

If examined equipment is found not to be defective or for some other reason not to be within the warranty coverage, seller's service time expended on and off location will be charged to the purchaser. This warranty gives you specific legal rights which vary from state to state. FAILURE TO PAY THE INVOICE IN FULL WILL RESULT IN VOIDING ANY AND ALL WARRANTIES.

• LIMITATION OF WARRANTY AND LIABILITY

This warranty does not apply to such VIRON® products and parts which in the sole judgment of VIRON® have failed as a result of faulty installation or abuse, or incorrect electrical connections or alterations, made by others, or use under abnormal operating conditions or misapplication of products and parts.

This warranty does not apply to damage resulting from shipment or storage of VIRON® products. Purchaser acknowledges that VIRON® products contain rotating parts that may be damaged by the forces of nature if not installed or put to their intended use within seven (7) days of delivery. **THIS WARRANTY DOES NOT COVER COMPONENT PARTS THAT CARRY A SEPARATE WARRANTY FROM THE MANUFACTURER OF THE COMPONENT PART.**

VIRON® will not approve for payment any repair made outside its factory without prior written consent of its Owosso, Michigan office. The foregoing shall constitute our sole and exclusive warranty and our sole and exclusive liability and is in lieu of all other warranties, whether written, oral, implied or statutory.

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The liability of any seller on any claim of any kind, including contract, warranty, tort, or negligence, for any loss or damage arising out of or connected with or resulting from the sale and purchase of products and parts covered by any VIRON® proposal, acknowledgement, order, or from the performance or breach of any contract pertaining to such sale or purchase, or from the design, manufacture, sale, delivery, resale, installation, technical direction in installation, inspection, repair, operation or use of any products or parts covered by any VIRON® proposal, acknowledgement, order or furnished by seller, shall in no case exceed the price as paid by purchaser allocable to the products or parts thereof which give rise to the claim and shall terminate one year after shipment of said products and parts.

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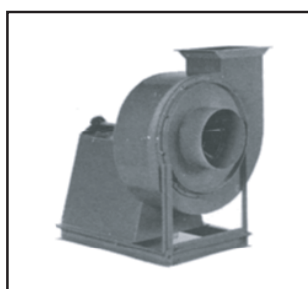
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Centrifugal Fan
VCF-100



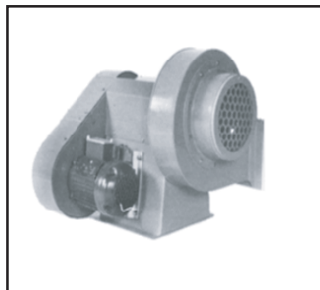
Inline Centrifugal Fan
VIF-200



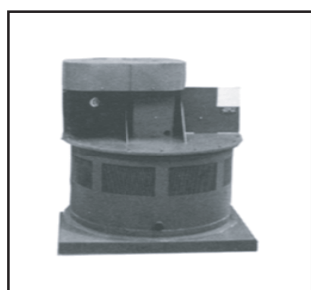
Radial Blower
VRB-600



Lab Blower
VLB-700



PushBlower
VPB-800



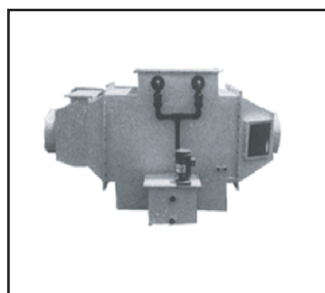
Roof Ventilator
VRV-900



Centrifugal Fan
VCB-1100



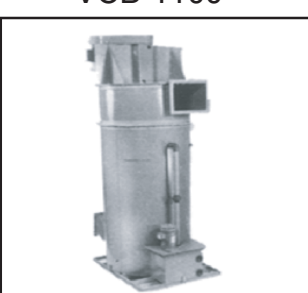
Gravity Relief Ventilator
VGR-1300



Horizontal Scrubber
VHS-Series



Vertical Scrubber
VVS-Series



Blower-Scrubber
VBS-Series



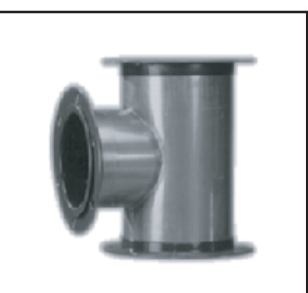
VIRO-CHROME 9000®
VCS-Series



VI-A-DUC®
FM Approved PVC Duct



VIRO-DUC®
FM Approved FRP Duct



SSTEELCOAT®
FM Approved Duct



FRP Duct
ICBO Approved



VI-A-TROL®
AMCA Approved Damper



PVC & FRP
Blastgates



FRP Parallel
Blade Damper



FRP Fixed Louver



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