BULLETIN: VB-9000

VIRO-CHROME 9000

CHROME SCRUBBERS



VIRON®

INTERNATIONAL

VIRO-CHROME 9000



VCS-9000 SERIES

VIRON® has grown to become a leader in designing and manufacturing Corrosion Resistant Air Scrubbers, Fans, and Exhaust Duct. Our personnel consists of a sales staff and application engineers who are well known and highly regarded in the industry.
Many of our duct products hold manufacturing certifications including low flame/smoke FRP "Viro-Duc®" certified by Factory Mutual, a highly corrosion resistant FRP duct certified by the ICBO, and a PVC fume exhaust duct VI-A-DUCT® certified by Factory Mutual.

When you purchase from **VIRON**®, you are aquiring a proven, field tested product from a company with over thirty-five (35) years of expertise.

VIRON® is in the business of solving your exhaust and scrubber corrosion problems.

- **CAPACITY** - **VIRON's** facility in Texas is over 65,000 square feet. This manufacturing facility can produce over a million pounds of fiberglass annually. **VIRON's** Michigan facility is over 40,000 square ft. and can produce over a half million pounds of PVC annually. **VIRON**® consistently designs and fabricates complete ventilation systems for many applications where corrosion is a major problem.

- **EXPERIENCE** - **VIRON**® has been in business for over thirty-five (35) years. This experience includes designing and manufacturing Corrosion Resistant Plastic Duct and Equipment. Our management team has over 160 years combined experience working at **VIRON**®. Our experience is unparalleled in this industry, and this experience will pay dividends on your projects.

- **DESIGN** - **VIRON**® utilizes Intergraph Computer Assisted Drafting and Design (CADD) equipment. This leading edge technology is compatible with most major engineering houses, where workstation machines are the standard. We can interface with our smallest to our largest clients.

- **MANUFACTURING** - **VIRON**® manufactures its products to rigid quality standards. Through the use of our computer controlled machinery, we can manufacture to exact material thicknesses and dimensional tolerances.

- **DELIVERY** - Our customers are NUMBER ONE. We have made the commitment to react to every customer's delivery needs. This commitment has allowed **VIRON**® to maintain a constant flow of repeat business. Our customers know if they need the delivery, we will accommodate them.

- **QUALITY** - Quality is the cornerstone of **VIRON'S** philosophy. "FQ" *First Quality* is **VIRON'S** commitment to our customers, which has led us into a dominant industry position today and into the 21st century.

TYPICAL CHROME APPLICATIONS

ANODIZING CHROME

CHROME ETCHING

CHROME MANUFACTURING

CHROME PLATING

CHROME STRIPPING

DECORATIVE CHROME PLATING

HARD CHROME PLATING

EMISSION PROBLEMS

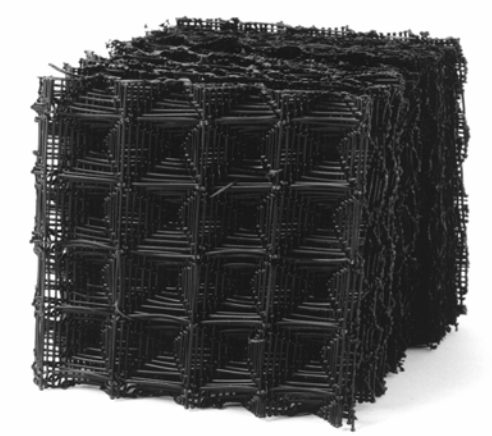
VIRON'S VIRO-CHROME 9000® Series Chrome Scrubbers were designed to meet California's stringent Hexavalent Chrome Emission requirements. The performance of these units exceeds the requirements of California's 0.006 mg/Amp Hour of Chrome Emissions.

Principle air quality districts which have adopted these rates are:

SCAQMD- South Coast Air Quality Management District (Los Angeles Area)
SDCAPCD- San Diego County Air Pollution Control District
BAAQMD- Bay Area Air Quality Management District (San Francisco Area)
SCAPCD- Sacramento County Air Pollution Control District (Sacramento Area)
PSAPCA- Puget Sound Air Pollution Control Agency (Seattle, Washington Area)

VIRON® can provide the latest scrubber technology and service which is unsurpassed in the scrubber industry. Contact **VIRON**® for your toughest corrosion/scrubber problems. Our sales engineers are prepared to assist you with any emission problems.

VIRO-CHROME 9000



The photo above shows **VIRON's** state-of-the-art mesh pad technology used in all our VIRO-CHROME 9000® Series Chrome Scrubbers. The typical pad will measure approximately 6 inches in direction of travel. **VIRON®** will supply from one to three pads depending on the efficiency our customers are trying to attain.

These units can be designed well within California's tough emission requirements of 0.006mg.Amp Hour or 99.8% removal efficiency of chrome.

One of the big advantages of **VIRON's** mesh pad is its toughness under both use and maintenance. In use these pads can withstand the corrosion of chromic acid equal to or greater than that found in hard chrome baths. In addition to its superior corrosion strength, its mechanical strength is unsurpassed. **VIRON's** field experience has shown that these pads can be almost completely filled with chrome and yet they will still hold together. This aspect is important when routine maintenance schedules are overlooked by your personnel, although **VIRON®** highly recommends regularly scheduled maintenance procedures.

In the battle to reduce costs, **VIRON's** VIRO-CHROME 9000® Series Chrome Scrubber is superior in an era of worldwide competition. We can design your scrubber to save you money by reducing your waste treatment costs. Your chrome system can be designed to re-claim 100% of your re-entrained chrome and return this solution back to your plating bath. This savings will give you a competitive advantage over your competitors. Call today for your free cost estimates on a new VIRO-CHROME 9000® scrubber.

STANDARD FEATURES

- **PVC SCRUBBER HOUSING** - Chemical resistant PVC material as manufactured with Trovidur 150 or equal. This PVC is a Type I Grade I, Class 12454-B (ASTMD-1784) material.

- **FRP SCRUBBER HOUSING** - Chemical resistant FRP material as manufactured with Hetron 197 or equal. **VIRON®** manufactures its scrubber housing utilizing a 10-20 mil veil liner followed by an 80 mil chopped corrosion liner. The housing is then covered with a structural layer of FRP and a UV inhibited gel coat.

- **MOISTURE ELIMINATOR** - **VIRON®** utilizes a three (3) stage knitted type mesh pad made of polypropylene. This unique series of mesh pad type and configuration has been designed to meet the California regulation.

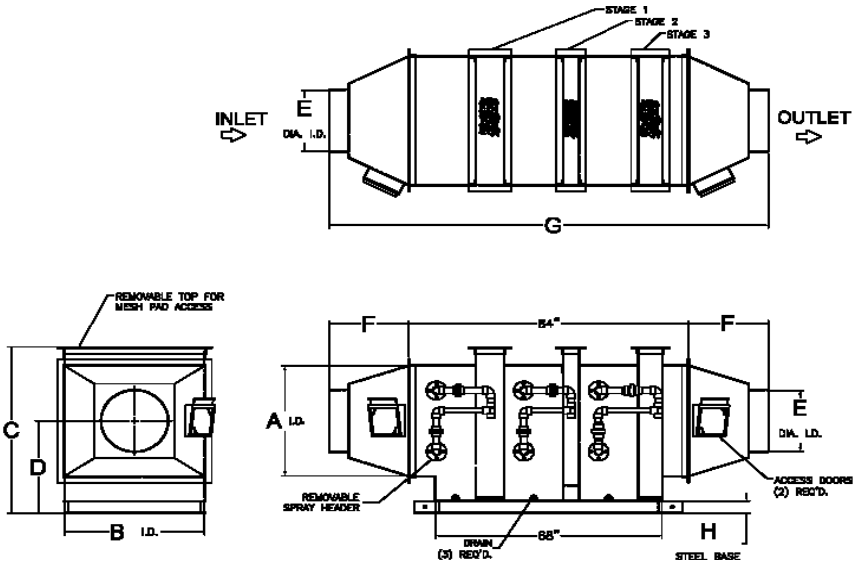
- **SPRAY NOZZLES** - **VIRON®** uses PVC spray nozzles in each of its chrome scrubbers. These nozzles spray the mist eliminator pads to keep the chrome from building up and clogging the pads. The spray nozzles will be sized for a range of .25 to 1 GPM per square foot of mist eliminator pads.

- **SPRAY HEADER** - **VIRON®** manufactures all spray header pipes from Schedule 80 PVC pipe. Each spray header has a Schedule 80 true union which facilitates removal and maintenance of the spray nozzles.

- **OPTIONAL EQUIPMENT**

Access Doors
Chart Recorders
Control Panels
Drain Valves
Electric Solenoid Valves — 2 Way, 3 Way
Evaporation Tanks
Flowmeters
Level Controllers
Magnehelic Gauges — Read Out Only Gauge, 4-20mA Output
Photohelic Gauges
Pressure Gauges
Pumps
Spare Mist Eliminator Pads
Spare Spray Nozzles
Special Hold Down Lugs
Special Lifting Lugs
Timers
True Union PVC Ball Valves
Wye Strainers

PVC CONSTRUCTION

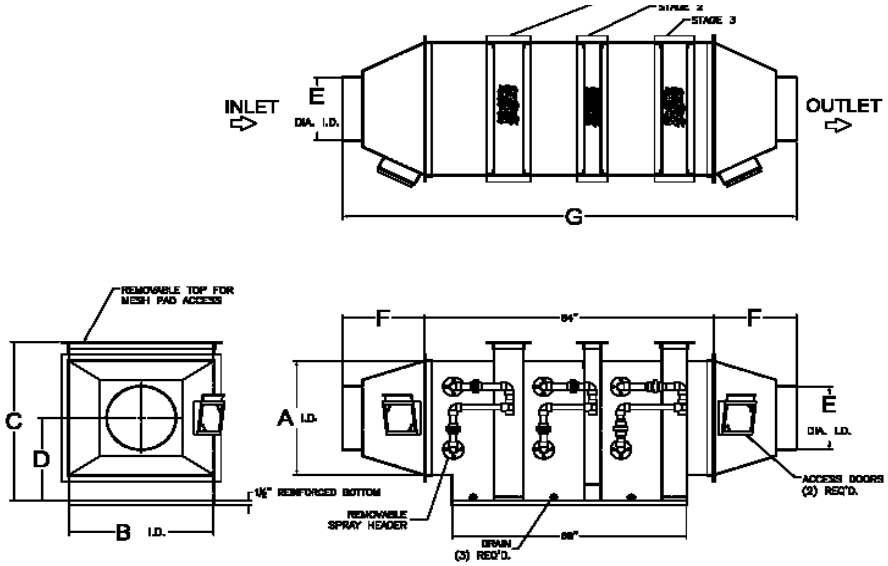


PVC PRINCIPLE DIMENSIONS

MODEL SERIES NO.	CFM	A	B	C	D	E	F	G	H
VCS-1414	500	14	14	29	18	6	18	120	3
VCS-1820	1000	18	20	35	21	10	18	120	3
VCS-2626	2000	26	26	41	24	14	18	120	3
VCS-3030	3000	30	30	45	26	16	18	120	3
VCS-3636	4000	36	36	51	29	18	18	120	3
VCS-3642	5000	36	42	57	29	20	18	120	3
VCS-4242	6000	42	42	57	32	22	18	120	3
VCS-4848	8000	48	48	63	35	24	18	120	3
VCS-5454	10000	54	54	69	38	26	24	132	3
VCS-6060	12000	60	60	75	41	30	24	132	3
VCS-6666	14000	66	66	82	45	32	24	132	4
VCS-6672	16000	66	72	82	45	34	24	132	4
VCS-7272	18000	72	72	88	48	36	24	132	4
VCS-7284	20000	72	84	88	48	38	30	144	4
VCS-7290	22000	72	90	88	48	40	30	144	5
VCS-7296	24000	72	96	88	48	44	42	168	5
VCS-72108	26000	72	108	89	49	46	42	168	5
VCS-72114	28000	72	114	89	49	46	42	168	5
VCS-78114	30000	78	114	95	52	48	42	168	5
VCS-78132	65000	78	132	95	52	50	48	180	5
VCS-78144	40000	78	144	95	52	54	54	192	6
VCS-78168	45000	78	168	96	52	54	54	192	6
VCS-84174	50000	84	174	102	52	60	66	216	6
VCS-84192	55000	84	192	102	56	64	72	228	7
VCS-84210	60000	84	210	102	56	66	78	240	7
VCS-84240	70000	84	240	102	56	72	90	264	8
VCS-84276	80000	84	276	102	56	76	105	294	8
VCS-84312	90000	84	312	102	56	80	120	324	10
VCS-84348	100000	84	348	102	56	84	138	360	10

NOTE: Dimensions should not be used for construction. Certified prints available when required.

FRP CONSTRUCTION



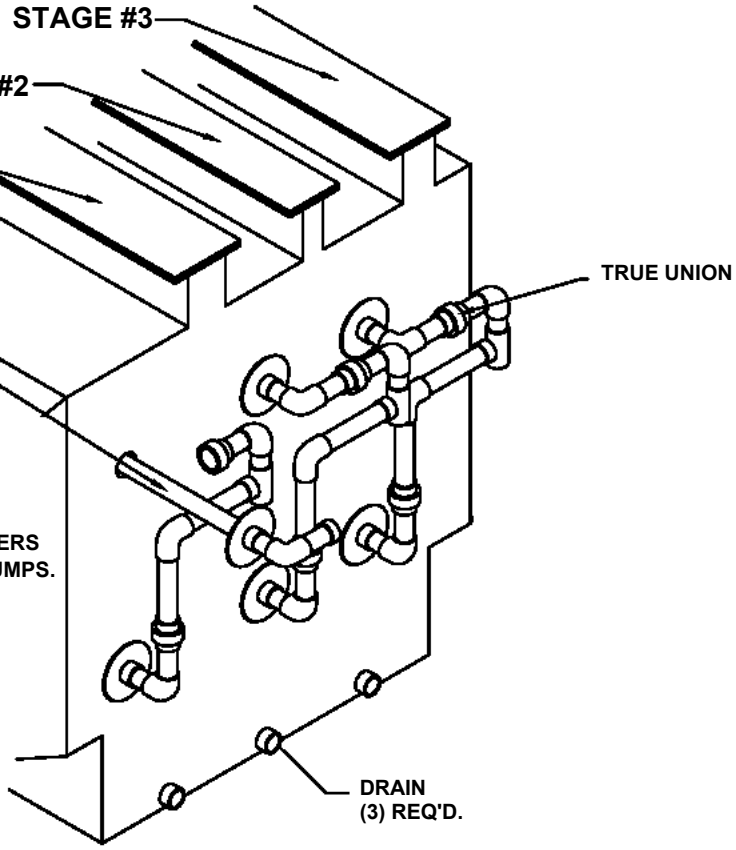
FRP PRINCIPLE DIMENSIONS

MODEL SERIES NO.	CFM	A	B	C	D	E	F	G
VCS-1212	500	12	12	24	14	6	18	120
VCS-1224	1000	12	24	24	14	10	18	120
VCS-2424	2000	24	24	36	20	14	18	120
VCS-2436	3000	24	36	36	20	16	18	120
VCS-3036	4000	30	36	42	23	18	18	120
VCS-3642	5000	36	42	48	26	20	18	120
VCS-3648	6000	36	48	48	26	22	18	120
VCS-4848	8000	48	48	60	32	24	18	120
VCS-4860	10000	48	60	60	32	26	24	132
VCS-6060	12000	60	60	72	38	30	24	132
VCS-6666	14000	66	66	72	38	32	24	132
VCS-6672	16000	66	72	78	41	34	24	132
VCS-7272	18000	72	72	84	44	36	24	132
VCS-1224	20000	72	84	84	44	38	30	144
VCS-7284	22000	72	90	84	44	40	30	144
VCS-7290	24000	72	96	84	44	42	36	156
VCS-7296	26000	72	108	84	44	44	42	168
VCS-72108	28000	72	114	84	44	46	42	168
VCS-72114	30000	78	114	90	47	48	42	168
VCS-78132	35000	78	132	90	47	50	48	180
VCS-78144	40000	78	144	90	47	54	54	192
VCS-78168	45000	78	168	90	47	56	66	216
VCS-84174	50000	84	174	96	50	60	66	216
VCS-84192	55000	84	192	96	50	64	72	228
VCS-84210	60000	84	210	96	50	66	78	240
VCS-84240	70000	84	240	96	50	72	90	264
VCS-84276	80000	84	276	96	50	76	105	294
VCS-84312	90000	84	312	96	50	80	120	324
VCS-84348	100000	84	348	96	50	84	138	360

NOTE: Dimensions should not be used for construction. Certified prints available when required.

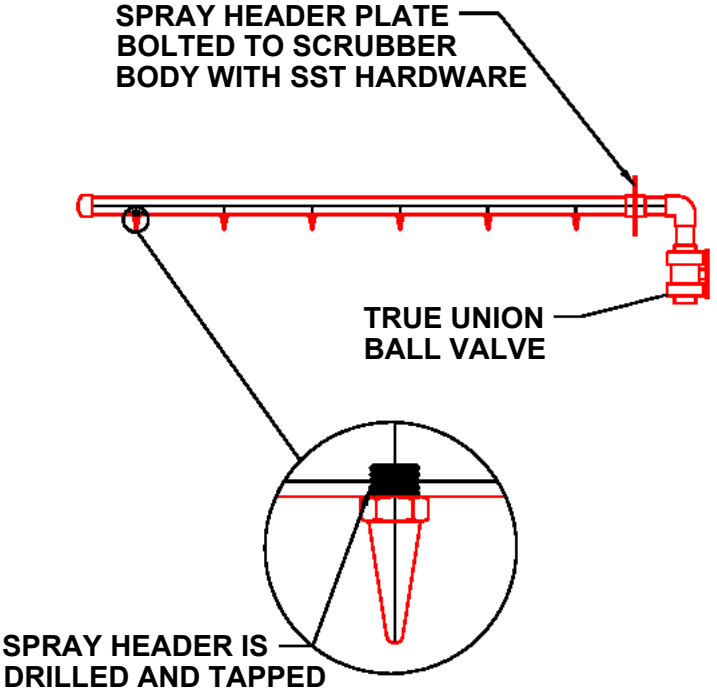
Viron® Spray Header Detail Illustrations

STANDARD SPRAY HEADER & PIPING



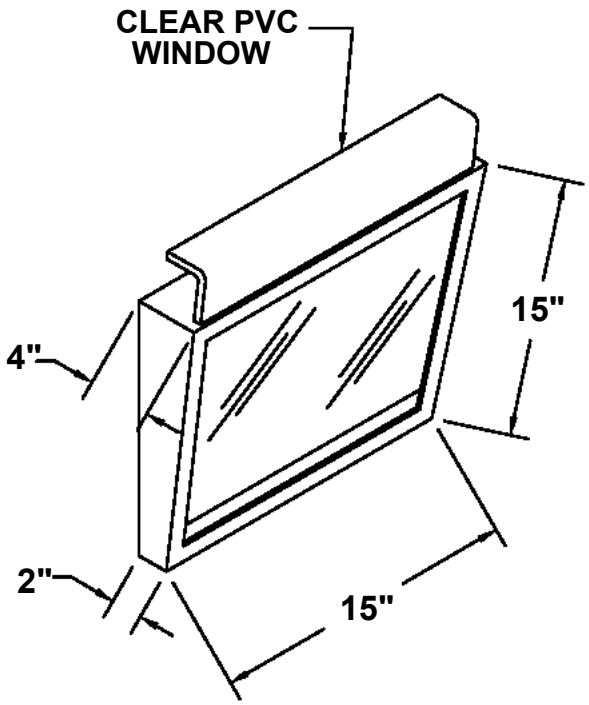
SPRAY HEADERS ARE DESIGNED FOR EASY REMOVAL. EACH INDIVIDUAL SPRAY HEADER CAN BE REMOVED BY FIRST CLOSING THE TRUE UNION BALL VALVE, THEN UNBOLTING THE SPRAY HEADER PLATE. THIS WILL ALLOW REMOVAL OF THE INDIVIDUAL SPRAY HEADERS WITHOUT TURNING OFF RECIRCULATION PUMPS. FOR NOZZLE DETAIL SEE BELOW.

STANDARD SPRAY HEADER



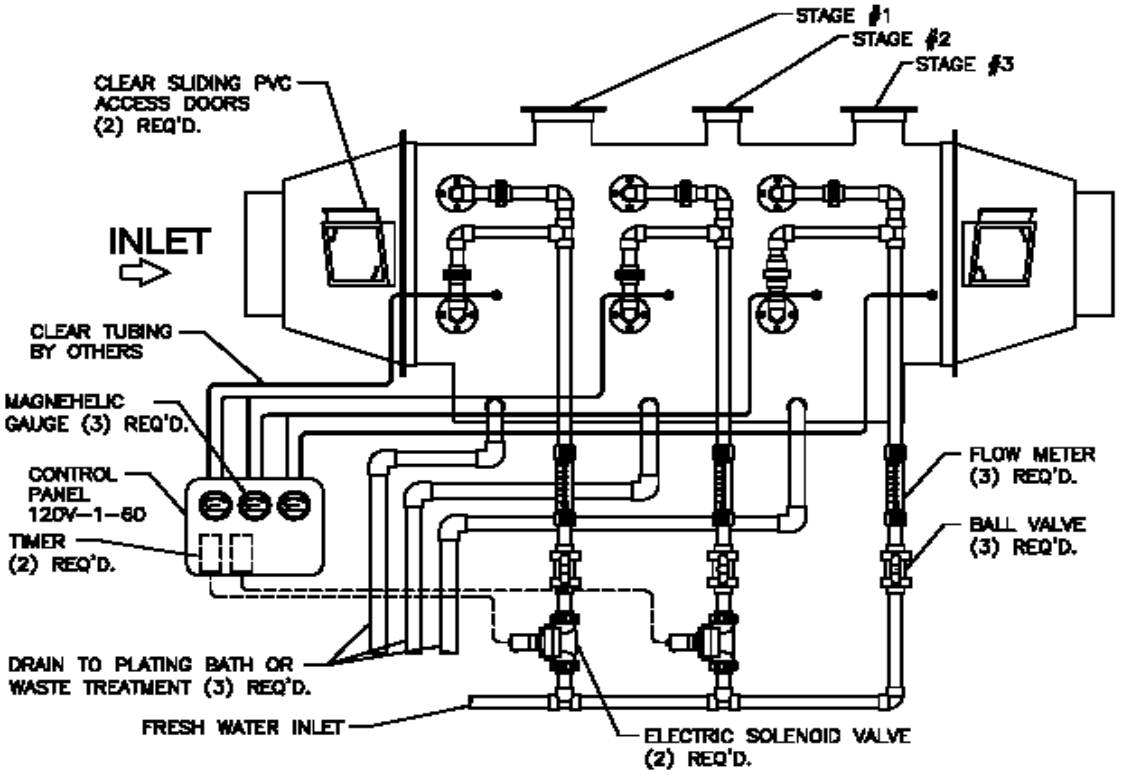
NOZZLE DETAIL

STANDARD SLIDING ACCESS DOOR



OPTIONAL EQUIPMENT

WATER WASH DOWN SYSTEM
BASIC ARRANGEMENT
ARRANGEMENT NO. 1

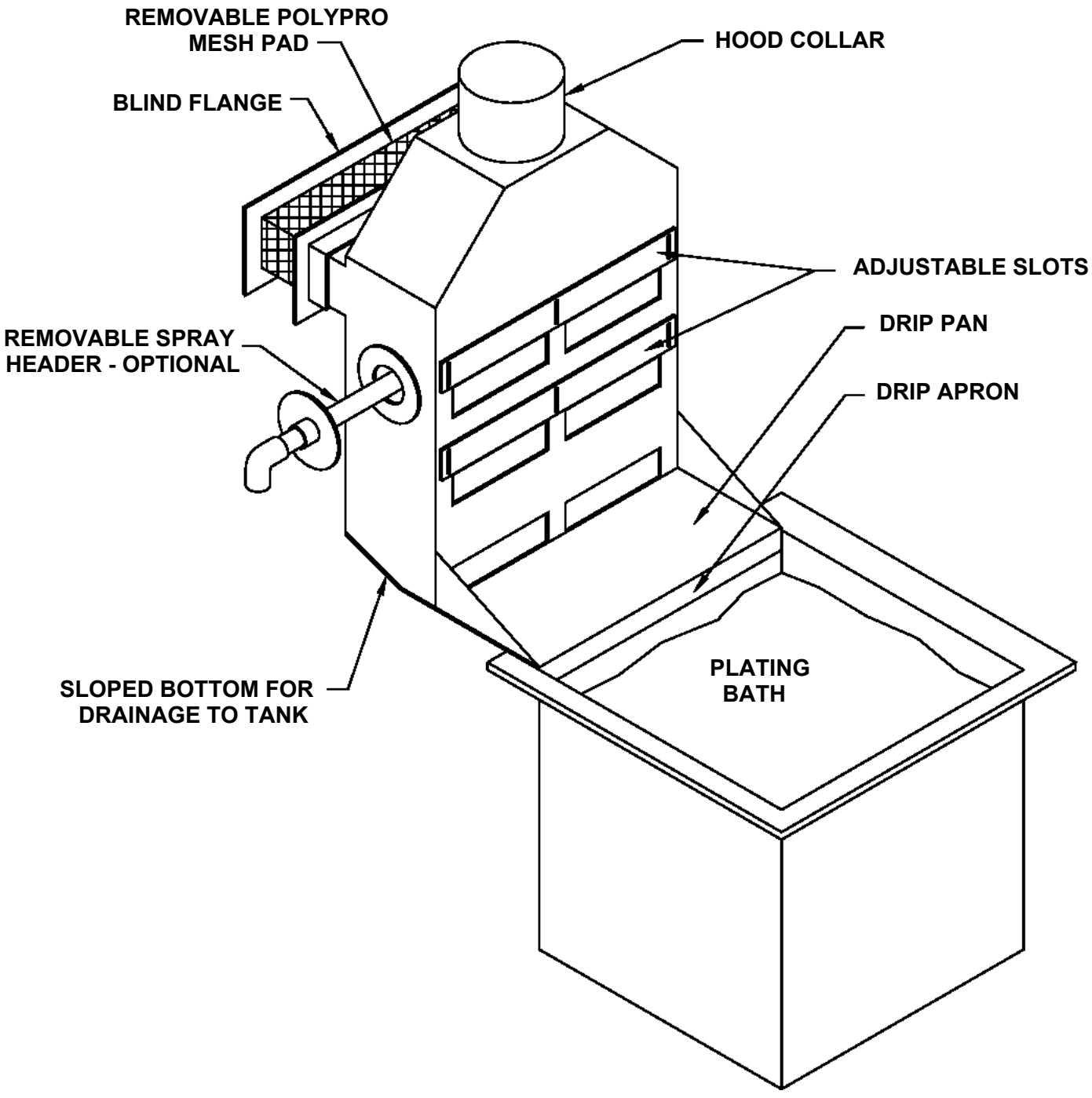


INSTRUCTIONS:

1. GPM ON STAGE #1 IS 0.5-1.0 GPM PER SQ. FT. OF OPEN AREA ONE (1) MINUTE PER 8 HOURS WITH FRESH WATER.
2. GPM ON STAGE #2 IS .25-.50 GPM PER SQ. FT. OF OPEN AREA ONE (1) MINUTE PER 24 HOURS WITH FRESH WATER.
3. GPM ON STAGE #3 IS .25-.50 GPM MANUAL WASHDOWN.
4. HEAT TRACE & INSULATE ALL PLUMBING WHERE FREEZE PROTECTION IS NECESSARY.
5. DRAINS MUST BE PLUMBED INDEPENDENT OF EACH OTHER.

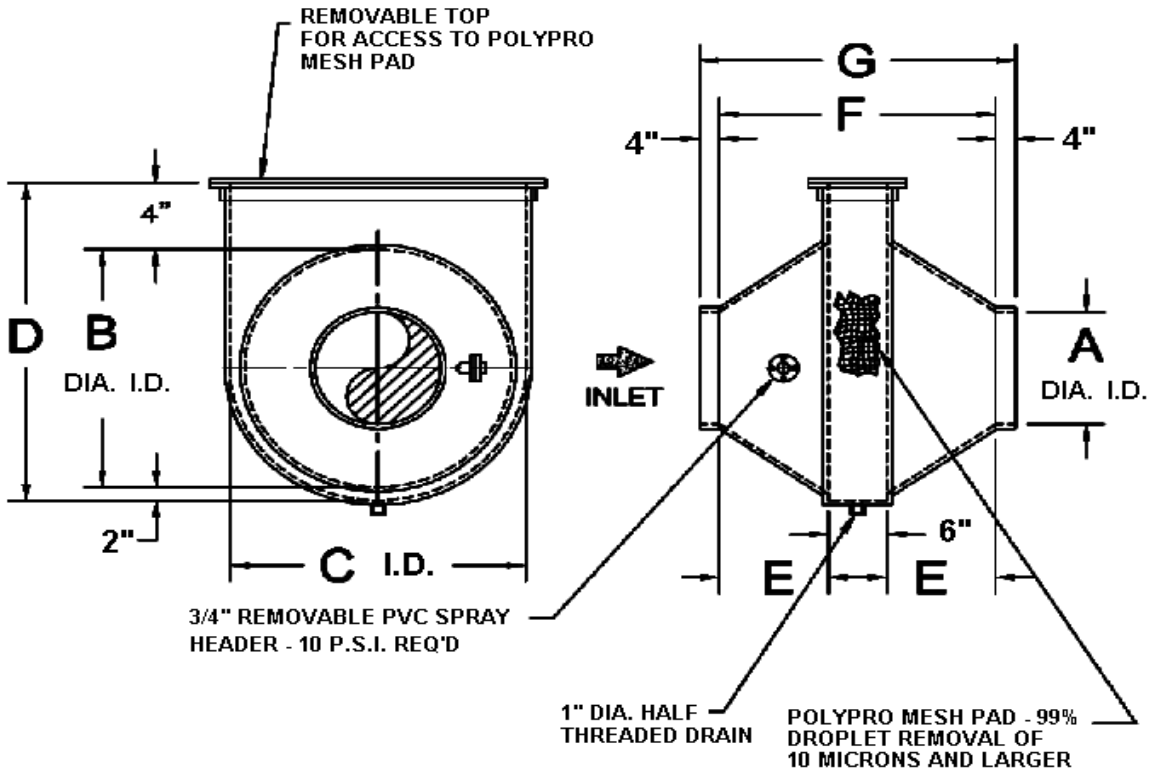
Note: An Automatic water wash down is available upon request. Consult factory for additional information.

CHROME HOOD WITH POLYPROPYLENE MIST ELIMINATOR
PVC OR FRP CONSTRUCTION



PLEASE NOTE: FOR RECOMMENDED PAD WASHDOWN, CONSULT FACTORY

HORIZONTAL INLINE DUCT MIST ELIMINATOR

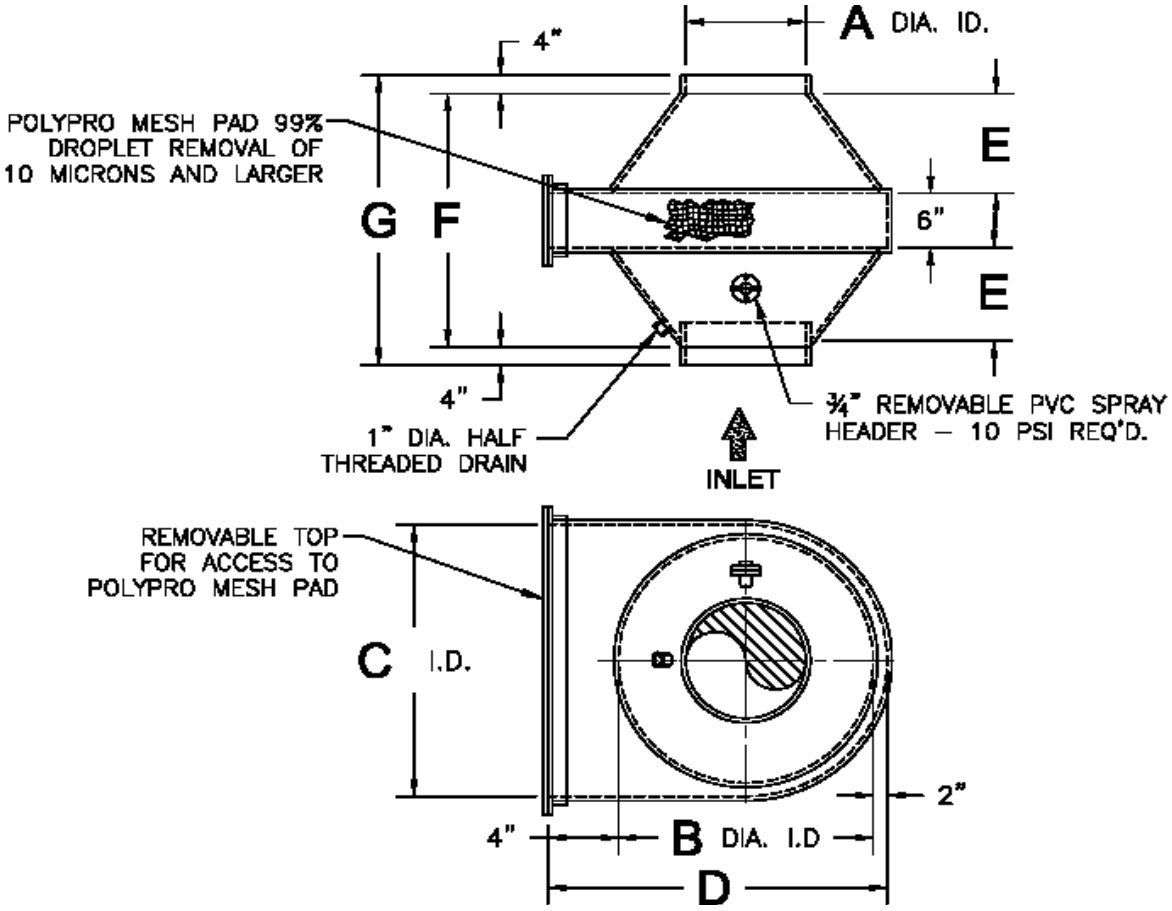


PRINCIPLE DIMENSIONS

MODEL NUMBER	CFM	A		B	C	D	E	F	G	WASHDOWN GPM	DRAIN SIZE
		PVC	FRP								
VHM-006	500	6-1/4	6	14	18	20	12	30	38	1	1
VHM-008	800	8-1/4	8	18	22	24	12	30	38	1-1/2	1
VHM-010	1,000	10-3/8	10	20	24	26	12	30	38	2	1
VHM-012	1,500	12-3/8	12	24	28	30	12	30	38	3	1
VHM-014	2,000	13-5/8	14	28	32	34	12	30	38	4	1-1/2
VHM-016	3,000	15-5/8	16	34	38	40	12	30	38	6	1-1/2
VHM-018	4,000	17-5/8	18	38	42	44	12	30	38	8	1-1/2
VHM-020	5,000	19-9/16	20	42	46	48	12	30	38	10	1-1/2
VHM-022	6,000	22	22	46	50	52	12	30	38	12	2
VHM-024	8,000	23-1/2	24	54	58	60	18	42	50	16	2
VHM-026	10,000	26	26	60	64	66	18	42	50	20	2
VHM-030	12,000	30	30	66	70	72	18	42	50	24	2
VHM-032	14,000	32	32	72	76	78	24	54	62	28	2

PLEASE NOTE: Dimensions should not be used for construction. Certified prints available when required.
Recommended pad washdown is one (1) minute per eight (8) hours of operation.

VERTICAL INLINE DUCT MIST ELIMINATOR



PRINCIPLE DIMENSIONS

MODEL NUMBER	CFM	A		B	C	D	E	F	G	WASHDOWN GPM	DRAIN SIZE
		PVC	FRP								
VVM-006	500	6-1/4	6	14	18	20	12	30	38	1	1
VVM-008	800	8-1/4	8	18	22	24	12	30	38	1-1/2	1
VVM-010	1,000	10-3/8	10	20	24	26	12	30	38	2	1
VVM-012	1,500	12-3/8	12	24	28	30	12	30	38	3	1
VVM-014	2,000	13-5/8	14	28	32	34	12	30	38	4	1-1/2
VVM-016	3,000	15-5/8	16	34	38	40	12	30	38	6	1-1/2
VVM-018	4,000	17-5/8	18	38	42	44	12	30	38	8	1-1/2
VVM-020	5,000	19-9/16	20	42	46	48	12	30	38	10	1-1/2
VVM-022	6,000	22	22	46	50	52	12	30	38	12	2
VVM-024	8,000	23-1/2	24	54	58	60	18	42	50	16	2
VVM-026	10,000	26	26	60	64	66	18	42	50	20	2
VVM-030	12,000	30	30	66	70	72	18	42	50	24	2
VVM-032	14,000	32	32	72	76	78	24	54	62	28	2

PLEASE NOTE: Dimensions should not be used for construction. Certified prints available when required.
Recommended pad washdown is one (1) minute per eight (8) hours of operation.

• 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 therof 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.

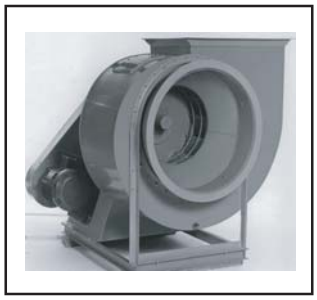
VIRON® will not approve for payment any repair made outside its factory without prior written consent of its Owosso, Michigan office. The foregoing shall constitute our sole and exclusive warranty and our sole and exclusive liability and is in lieu of all other warranties, whether written, oral, implied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

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE PAGE HEREOF. SELLER DOES NOT WARRANT MERCHANTABILITY THAT SAID GOODS AND ARTICLES ARE OF MERCHANTABLE QUALITY, OR THAT THEY ARE FIT FOR ANY PARTICULAR PURPOSE.

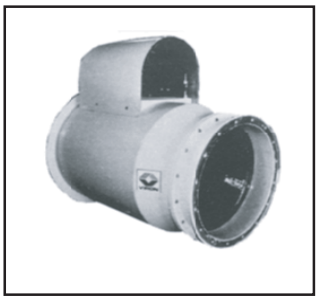
The liability of any seller on any claim of any kind, including contract, warranty, tort, or negligence, for any loss or damage arising out of or connected with or resulting from the sale and purchase of products and parts covered by any VIRON® proposal, acknowledgement, order, or from the performance 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 therof which give rise to the claim and shall terminate one year after shipment of said products and parts.

IN NO EVENT, WHETHER AS A RESULT OF BREACH OF CONTRACT, OR WARRANTY, OR TORT, OR ALLEGED NEGLIGENCE, DEFECTS, INCORRECT ADVICE OR OTHER CAUSES, SHALL SELLER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, including but not limited to loss of profits or revenue, loss of use of the equipment or any associated equipment, cost of removal or reinstallation or any cost associated therewith, cost capital, cost of substitute equipment, facilities or services, down time cost, or claims of customers of the purchase of such damages.

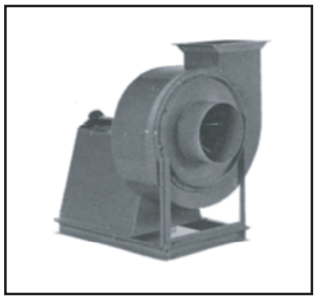
VIRON® neither assumes nor authorizes any person to assume for it any other liability in connection with the sale of its products and parts. Some states do not allow the exclusion or limitation of incidental or consequential damages, so all of the above limitations or exclusions may not apply to you.



Centrifugal Fan
VCF-100



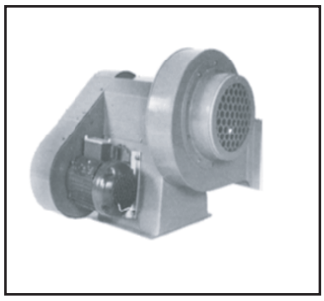
Inline Centrifugal Fan
VIF-200



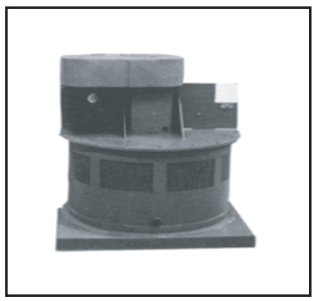
Radial Blower
VRB-600



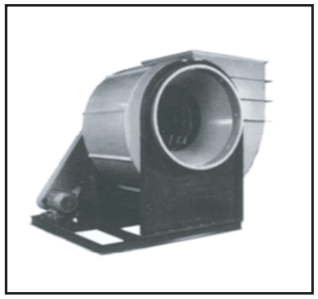
Lab Blower
VLB-700



PushBlower
VPB-800



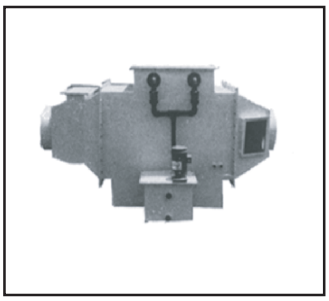
Roof Ventilator
VRV-900



Centrifugal Fan
VCB-1100



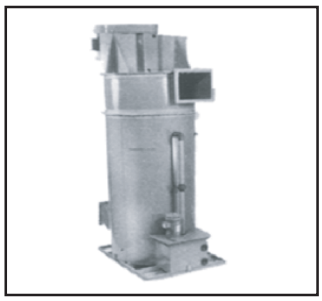
Gravity Relief Ventilator
VGR-1300



Horizontal Scrubber
VHS-Series



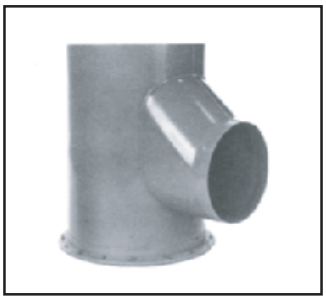
Vertical Scrubber
VVS-Series



Blower-Scrubber
VBS-Series



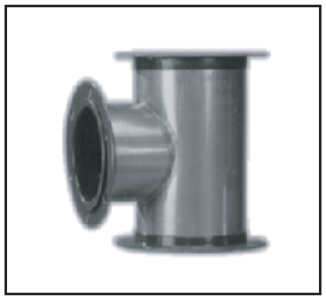
VIRO-CHROME 9000®
VCS-Series



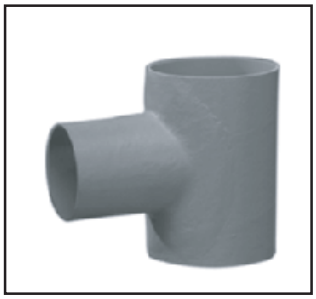
VI-A-DUC®
FM Approved PVC Duct



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

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