

By-Pass Venturi System

About perchloric acid exhaust systems

Perchloric acid presents a severe corrosion problem to materials such as epoxy coated mild steel, 304 and 316 stainless steel. The most effective materials to fight corrosion attack from perchloric acid are PVC and FRP as described in this bulletin. Perchloric acid also has the unique property of becoming explosive when dried and crystallized. The results of this potentially explosive safety hazard require perchloric exhaust systems to incorporate flushing rings every 6 feet. The entire exposed surface of the duct system must be kept wet at all times.

BVS Series Standard Features

General

The Plasticair By-Pass Venturi System is one of two solutions for safely exhausting perchloric acid. The system effectively removes the exhaust fan out of the potentially explosive gaseous stream. The inner PVC spray nozzles ensure the inner surface of the Plasticair By-Pass Venturi System is maintained in a wet state at all times. A molded smooth corrosion barrier is also very important to ensure that nesting of perchloric does not take place in crevices within the System.

Blower

The industrial blower is constructed of carbon steel and is epoxy coated. The inlet is supplied with a safety screen and the impeller is of a radial blade design. Also supplied are full belt guards, shaft guards, motors and V-belt drive sets. The blower can be ducted for inside or outside air and can be located to suit the designer's convenience.

Interior Venturi Duct

The venturi duct is designed to induce a draft, and is constructed of FRP material. PVC spray headers are situated to guarantee a wet inner surface throughout the By-Pass System. A rigid 900 FRP duct extension is fabricated into the inner duct just below the venturi section to lead to the steel blower. The inlet of the inner duct is flanged for connection to the rest of the ducting system. (The Venturi By-Pass system can also be used for exhausting acids other than perchloric. For those systems spray nozzles are optional).

Outdoor Exterior Duct (Optional)

The exterior duct is constructed of UV stabilized FRP. The outer shells main function is to protect and insulate the system. A layer of fiber-glass insulation is applied between the outer duct and the inner duct to maintain the necessary temperature for the spray system to operate and eliminate the possibility of freezing. A solid FRP roof curb cap, and guide wire support can be supplied for a quick and reliable installation.

Spray System

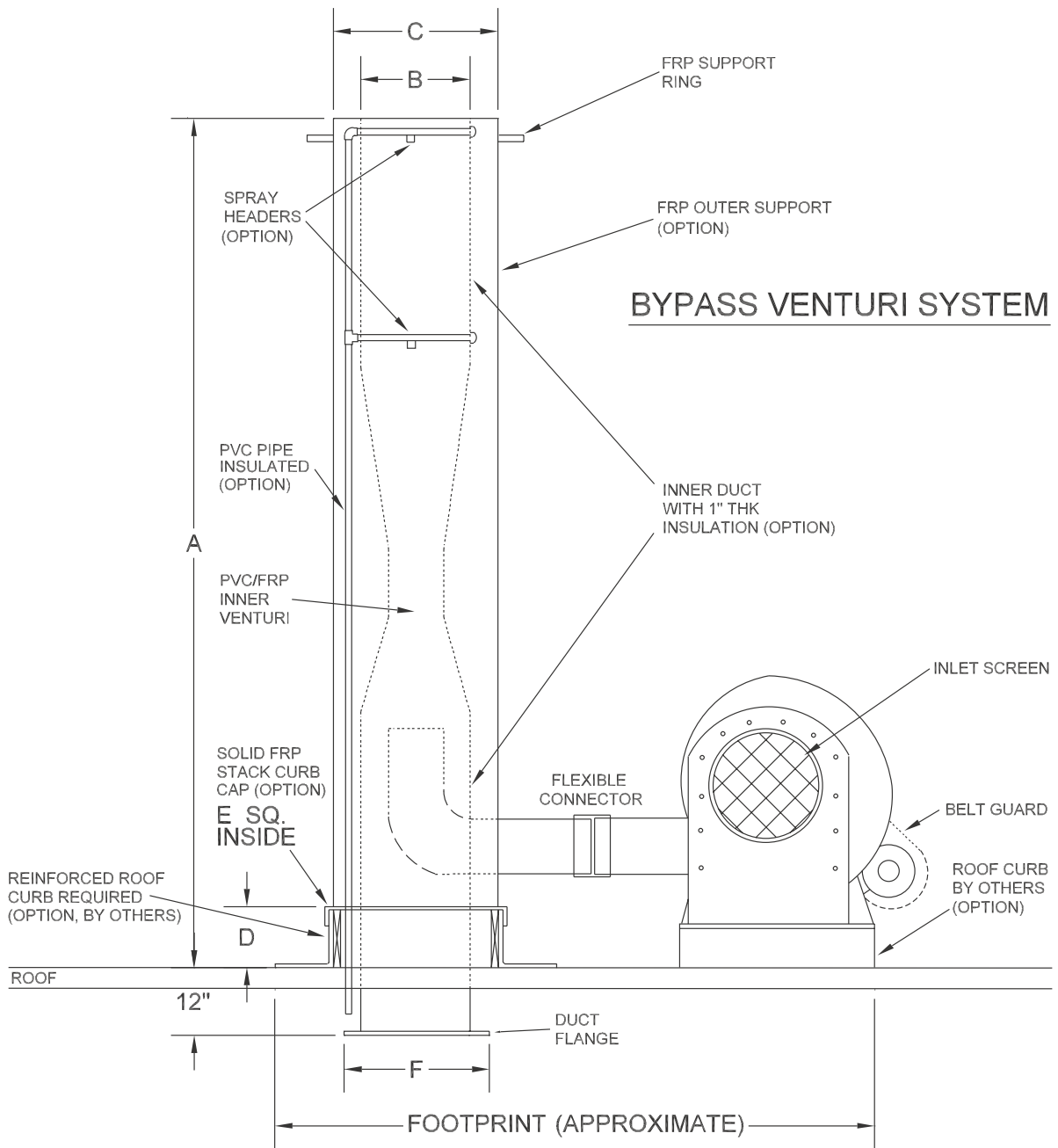
The spray system is simple and reliable. The PVC piping is heavily strapped by FRP lamination. The PVC spray nozzles operate at 40 PSI and will require a flow of 1 - 15 gpm per nozzle.

Options and accessories

- Spring isolators
- Flanged outlets
- Blower outlet Dampers
- Arrangement #4 blowers
- Flexible PVC duct connection for blower outlet
- Additional venturi outlet stack height

Air Performance

Model	Blower HP	Induced CFM							
		0.25" S.P.	0.5" S.P.	0.75" S.P.	1.0" S.P.	1.25" S.P.	1.5" S.P.	1.75" S.P.	2.0" S.P.
BVS-6	0.75	290	280	255	235	190	180	165	145
BVS-7	0.75	390	360	340	310	280	250	220	200
BVS-8	1.0	515	470	415	400	360	345	310	250
BVS-9	1.0	635	595	550	500	470	420	370	325
BVS-10	1.0	785	750	700	610	590	540	465	400
BVS-11	1.5	990	900	830	750	700	650	570	470
BVS-12	1.5	1175	1100	1010	905	845	800	680	580
BVS-13	2.0	1340	1250	1130	1040	990	890	800	670
BVS-14	2.0	1580	1475	1335	1200	1165	1050	910	775
BVS-15	3.0	1830	1690	1550	1400	1300	1205	1050	905
BVS-16	3.0	2080	1910	1740	1630	1480	1375	1190	1015
BVS-17	3.0	2320	2150	1940	1795	1680	1525	1340	1140
BVS-18	5.0	2605	2425	2210	2000	1905	1710	1500	1315
BVS-19	5.0	2910	2710	2470	2240	2100	1925	1670	1420
BVS-20	5.0	3230	2955	2670	2500	2330	2110	1875	1580



General Dimensions

Dimensions: inches

MODEL	HEIGHT	ID	OD	CURB	SQUARE	FLANGE	OVERALL FOOTPRINT
	A					B	
BVS-6	63	6	10	6	14	10.375	60 X 40
BVS-7	72	7	11	6	15	11.375	60 X 40
BVS-8	79	8	12	6	16	12.375	65 X 45
BVS-9	85	9	13	8	17	13.375	65 X 45
BVS-10	94	10	14	8	18	14.375	70 X 50
BVS-11	104	11	16	8	20	15.375	70 X 50
BVS-12	113	12	17	10	21	16.375	75 X 55
BVS-13	123	13	18	10	22	17.375	75 X 55
BVS-14	132	14	20	10	24	18.375	80 X 60
BVS-15	141	15	21	12	25	19.375	80 X 60
BVS-16	151	16	22	12	26	20.375	80 X 60
BVS-17	160	17	23	12	27	21.375	85 X 70
BVS-18	170	18	24	12	28	22.375	85 X 70
BVS-19	179	19	25	12	29	23.375	90 X 80
BVS-20	189	20	26	12	30	24.375	90 X 80