

**NES**  
COMPANY

# VPSS SEPARATORS

Liquid Ring Vacuum Pump Separators

**MODELS:** Carbon Steel and Stainless Steel

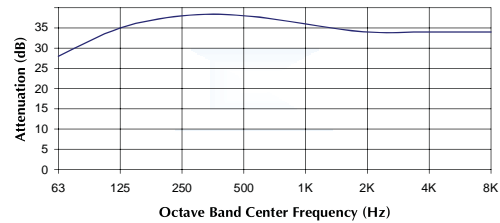
NES Company VPSS Grade II series of air/liquid discharge separator/silencers are designed for atmospheric applications requiring suburban/residential noise attenuation (30-35 dB). Our design configuration incorporates a tangential-side transitioned inlet, top air outlet and low-side liquid drain to centrifugally remove process and sealing liquid from airflow before discharging to atmosphere. This configuration enables our VPSS Grade II series to effectively remove 99% of free liquid.

**Note:** A drain pump or barometric leg is required to evacuate process and sealing liquid from the separator tank.

**APPLICATIONS INCLUDE:**

- Liquid-Ring Vacuum Pumps
- Liquid-Sealed Rotary Positive Blowers

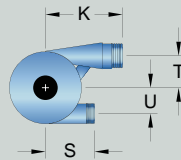
TYPICAL ATTENUATION CURVE



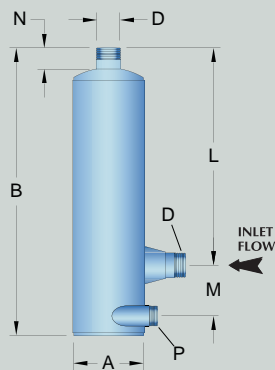
GROUP SERIES	COMPETITIVE CROSS-REFERENCE		
	BURGESS-MANNING	UNIVERSAL SILENCER	VANEC
	WSDA	RVRS	175
	WSDA	RVRS	175

VPSS GRADE II (PIPE SIZES 1" - 3 1/2")

TOP VIEW

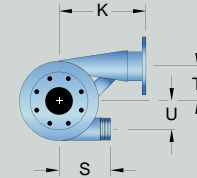


SIDE VIEW

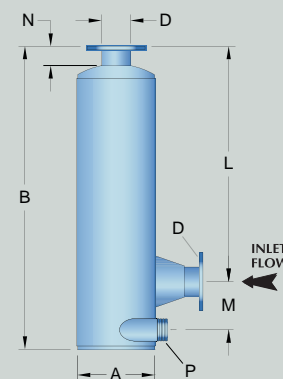


VPSS GRADE II (PIPE SIZES 4" - 16")

TOP VIEW



SIDE VIEW



## DIMENSIONS AND WEIGHTS

MODEL	D (NOM.)	A	B	N	L	M	K	S	T	U	P (NOM.)	WEIGHT
VPSS-1 GRADE II	1	4 1/2	20 3/4	2	15 1/2	3 3/4	6	3 1/4	2 1/16	1 11/16	1	15
VPSS-1 1/4 GRADE II	1 1/4	4 1/2	20 3/4	2	14 3/4	4 1/2	6	3 1/4	2 1/16	1 11/16	1	15
VPSS-1 1/2 GRADE II	1 1/2	6	25	2	19	4 1/8	7	4	2 3/4	2 3/16	1 1/2	25
VPSS-2 GRADE II	2	8	32 7/8	3	25	5 1/2	9	5	3 11/16	2 15/16	2	40
VPSS-2 1/2 GRADE II	2 1/2	10	35 1/2	3	26	7	10	6	4 5/8	3 15/16	2	65
VPSS-3 GRADE II	3	10	41	3	31	7 1/4	11	7	4 9/16	3 11/16	2 1/2	80
VPSS-3 1/2 GRADE II	3 1/2	12	44 5/8	3	33	8 7/8	12	7	5 1/2	4 11/16	2 1/2	100
VPSS-4 GRADE II	4	12	47	3	36 1/2	7 1/2	13 1/2	8	5 7/16	4 3/8	3	125
VPSS-5 GRADE II	5	16	59 1/2	3	47	9	14 1/2	9	7 5/16	6 1/2	3	200
VPSS-6 GRADE II	6	18	71 3/4	3	57	11 1/2	18	10	8 3/16	7 7/16	3	280
VPSS-8 GRADE II	8	22	90 1/4	3 1/2	71	16	21 1/2	12	9 15/16	9 1/2	3	455
VPSS-10 GRADE II	10	24	103 1/4	3 1/2	80	19 1/2	26	13	10 11/16	10 1/2	3	760
VPSS-12 GRADE II	12	30	128 1/2	3 1/2	101	23	31 1/2	16	13 7/16	13	4	1,165
VPSS-14 GRADE II	14	36	141 1/4	3 1/2	109 1/4	27	36 1/2	19	16 1/4	16	4	2,900
VPSS-16 GRADE II	16	42	154 1/4	3 1/2	118 1/4	31	41 1/2	22	18 7/8	19	4	3,900

1) Sizes 1" - 3 1/2": Standard MNPT inlet, discharge and liquid drain (P) connections.

2) Sizes 4" - 16": Standard 125/150# ANSI drilled plate flange inlet and discharge connections and include a MNPT liquid drain (P).



# VPSS SEPARATORS

## SELECTION & SIZING: LIQUID RING VACUUM PUMPS BY CAPACITY

The general operation of vacuum pump systems can be condensed into two distinct phases: start-up and normal operation. Start-up is when the vacuum pump begins to evacuate the system at atmospheric pressure. During start-up, the vacuum system observes maximum pressure drop and power consumption. As the vacuum pump continues to evacuate the system, the inlet pressure is decreased until operating vacuum level is achieved. Once at the desired operating vacuum level, we have reached the normal operation phase.

When working with vacuum pumps, capacity is generally expressed in terms of inlet flow volume of air (ACFM) at the operating vacuum ("Hg). Liquid flow is given in gallons per minute (GPM). The chart below provides a nominal flow capacity for multiple separator and separator/silencer sizes. The listed "size" refers to separator or separator/silencer nominal connection size ranging from 1" to 30".

INTAKE SEPARATORS			DISCHARGE SEPARATORS & SEPARATOR/SILENCERS						
NOMINAL SIZE	AIR/GAS (ACFM)	LIQUID (GPM)	NOMINAL SIZE	AIR/GAS (MAXIMUM INLET ACFM) AT OPERATING VACUUM					LIQUID (GPM)
				5" Hg	10" Hg	15" Hg	20" Hg	24" Hg	
1			1	30	40	45	50	90	5
1 1/2			1 1/2	70	90	100	120	205	10
2			2	120	150	170	200	335	15
2 1/2			2 1/2	170	210	235	285	475	20
3			3	260	330	365	440	735	25
3 1/2			3 1/2	350	440	490	590	985	35
4	530	35	4	450	565	630	755	1,270	40
5	830	55	5	710	890	990	1,190	2,000	50
6	1,200	80	6	1,025	1,285	1,430	1,715	2,880	60
8	2,100	150	8	1,775	2,220	2,475	2,975	4,985	80
10	3,300	200	10	2,780	3,500	3,900	4,685	7,855	100
12	4,700	300	12	4,015	5,025	5,595	6,725	11,265	120
14	6,000	400	14	5,080	6,355	7,080	8,510	14,260	140
16	7,800	500	16	6,695	8,375	9,330	11,215	18,790	160
18	10,000	600	18	8,535	10,680	11,895	14,295	23,955	180
20	12,000	800	20	10,330	12,925	14,400	17,300	28,990	200
22	15,000	1,000	22	12,590	15,750	17,545	21,085	35,330	220
24	18,000	1,200	24	15,070	18,850	21,000	25,235	42,290	240
26	21,000	1,400	26						
28	24,000	1,600	28						
30	28,000	1,800	30						

**PERFORMANCE & CAPACITY**  
 Rated liquid separation efficiency (*see Table 1*) for ProGENTEX separators and separator/silencers is achieved at a nozzle velocity of 6,000 fpm. Applications operating at lower velocities, but above 4,000 fpm will have improved efficiency. If nozzle velocity exceeds 6,000 fpm, performance will decrease.

**NOTE:** This chart should be used for general sizing parameters only. Using the above chart to size a separator or separator/silencer will produce a pressure drop not to exceed 10" Hg at start-up and a maximum nozzle velocity of 6,000 fpm during normal operation. Contact ProGENTEX to ensure proper sizing based on actual operating conditions and required pressure drop.

**TABLE 1: SEPARATION EFFICIENCY**

MODEL	SERVICE	SEPARATION EFFICIENCY
VPSI GRADE I	INTAKE	90%
VPSI GRADE II	INTAKE	99%
VPS GRADE I	DISCHARGE	99%
VPSS GRADE II	DISCHARGE	>99%

**RECOMMENDED NOZZLE VELOCITY:**  
**4,000 - 6,000 FPM**