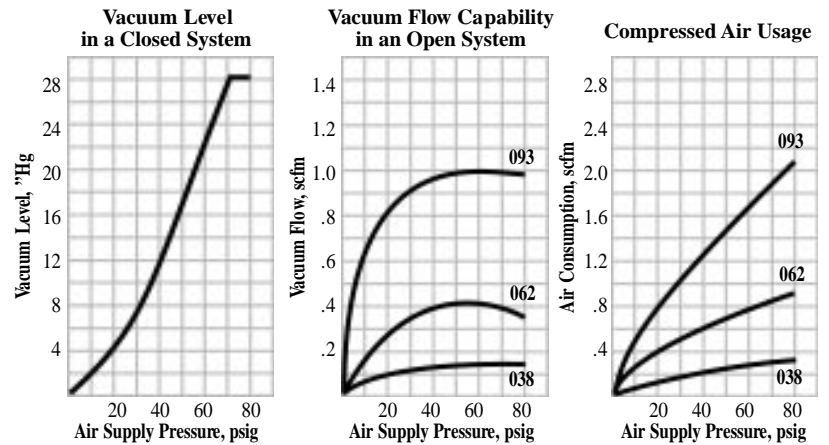


**Stainless Steel Single Stage pump quickly generates vacuum. Simple construction has no gaskets or seals. Ideal for corrosive environments, sanitary “wash down” applications, or high purity applications.**

## “H” Version

Produces vacuum levels up to 28.0”Hg and vacuum flow rates up to 1.0 scfm.

Model Number	HAVR038HSS	HAVR062HSS	HAVR093HSS
Vacuum Level, "Hg	27.5	28.0	28.0
Vacuum Flow, scfm	0.16	0.42	1.0
Air Consumption, scfm	0.31	0.82	1.9
Weight, oz.	4	4	4
Sound Level, dBA	71	78	82
Materials	303, 316 SS	303, 316 SS	316 SS



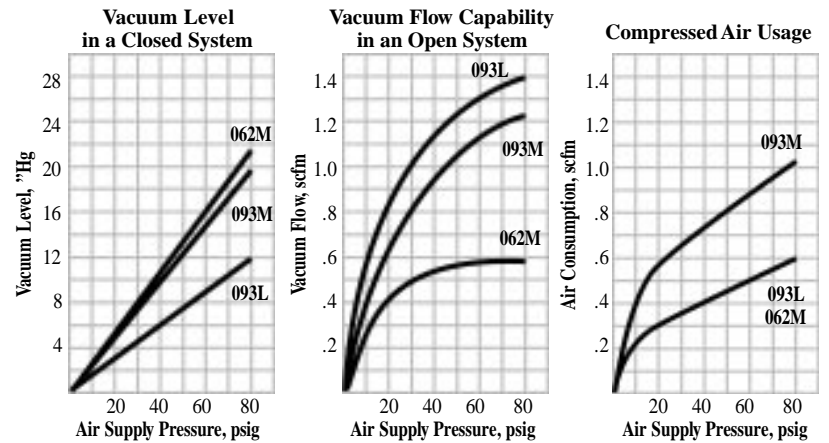
"Hg	1.5	3	6	9	12	15	18	21	24
HAVR038HSS	22	43	98	155	221	302	349	534	720
HAVR062HSS	8.0	15	32	52	75	103	140	190	270
HAVR093HSS	3.0	6.0	13	22	33	47	65	85	114

"Hg	0	1.5	3	6	9	12	15	18	21	24
HAVR038HSS	.16	.15	.14	.13	.12	.10	.09	.07	.05	.03
HAVR062HSS	.42	.41	.38	.33	.29	.25	.20	.15	.09	.05
HAVR093HSS	1.0	.92	.87	.74	.66	.55	.50	.37	.30	.16

## “M” and “L” Versions

Produce medium and low vacuum levels and vacuum flow rates up to 1.4 scfm, *but with substantially lower levels of air consumption than the “H” version.*

Model Number	HAVR062MSS	HAVR093MSS	HAVR093LSS
Vacuum Level, "Hg	20.0	18.3	11.0
Vacuum Flow, scfm	0.53	1.23	1.4
Air Consumption, scfm	0.54	1.0	.6
Weight, oz.	4	4	4
Sound Level, dBA	69	72	72
Materials	303, 316 SS	303, 316 SS	316 SS



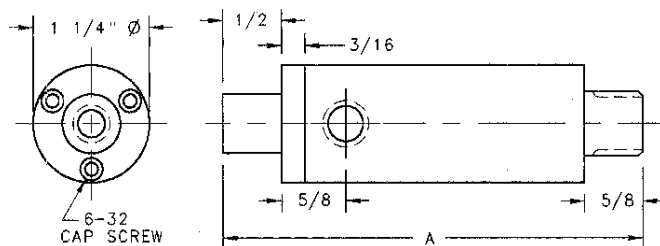
"Hg	1.5	3	6	9	12	15	18
HAVR062MSS	6.0	11	25	40	61	89	137
HAVR093MSS	1.9	3.9	8.9	16.5	28.8	56	
HAVR093LSS	1.7	3.7	9.2	22.2			

"Hg	0	1.5	3	6	9	12	15	18
HAVR062MSS	.53	.51	.49	.44	.38	.30	.19	.06
HAVR093MSS	1.23	1.16	1.10	.92	.69	.46	.22	
HAVR093LSS	1.4	1.27	1.13	.75	.40			

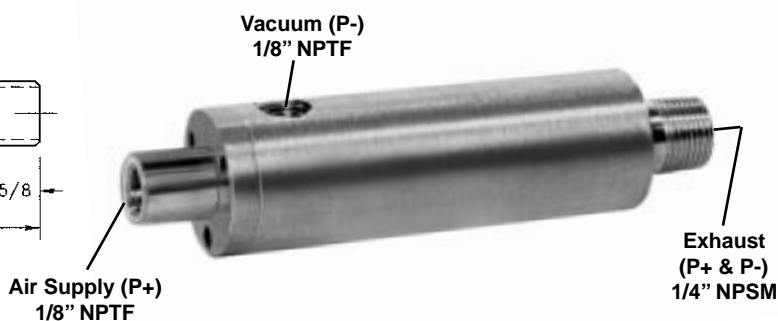
• Sound levels recorded with mufflers.  
• Materials of construction: 316 and 303 stainless steel

• Operating temperature (degrees): 0 to 400 F  
• All data recorded at 70-75 psig air supply.

### SINGLE STAGE



	AV116SS	AV147SS	AV191SS
A	3 1/16"	3 5/16"	3 9/16"

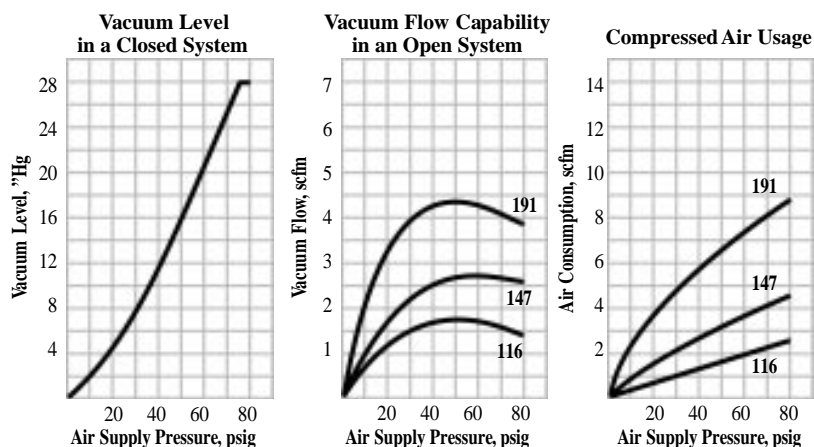


**Stainless Steel Single Stage pump quickly generates vacuum. Two piece construction has no gaskets or seals. Ideal for corrosive environments, sanitary "wash down" applications or high purity applications.**

### "H" Version

Produces vacuum levels up to 28.2" Hg and vacuum flow rates up to 4.3 scfm.

Model Number	AV116HSS	AV147HSS	AV191HSS
Vacuum Level, "Hg	28.0	28.2	28.2
Vacuum Flow, scfm	1.7	2.8	4.3
Air Consumption, scfm	2.7	4.3	8.1
Weight, oz.	9	9	9
Sound Level, dBA	70	72	82
Materials	316 SS	316 SS	316 SS



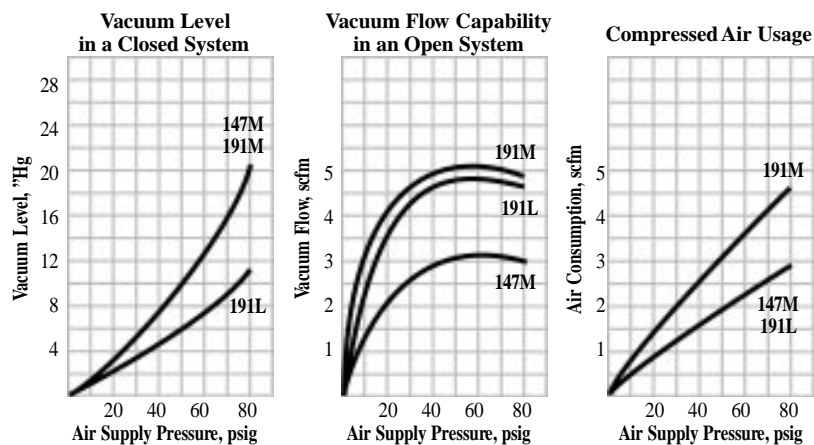
Time in Seconds to Evacuate a Volume of 1 Cubic Foot									
"Hg	1.5	3	6	9	12	15	18	21	24
AV116HSS	1.3	3.1	6.7	11.9	19	29.8	43	100	134
AV147HSS	.7	1.7	4.0	6.6	10.4	15.5	22	32.5	48
AV191HSS	.4	1.0	2.4	4.2	6.3	9.3	14.5	20.8	31.5

Vacuum Flow Rate, scfm vs. Vacuum Level, "Hg										
"Hg	0	1.5	3	6	9	12	15	18	21	24
AV116HSS	1.7	1.49	1.41	1.21	1.0	.81	.62	.53	.37	.22
AV147HSS	2.8	2.6	2.37	1.95	1.72	1.39	1.15	.91	.66	.36
AV191HSS	4.3	4.0	3.63	3.02	2.62	2.33	1.76	1.27	.98	.58

### "M" and "L" Versions

Produce medium and low vacuum levels and vacuum flow rates up to 5.2 scfm, **but with substantially lower levels of air consumption than the "H" versions.**

Model Number	AV147MSS	AV191MSS	AV191LSS
Vacuum Level, "Hg	18.5	18.0	10.0
Vacuum Flow, scfm	3.1	5.2	4.8
Air Consumption, scfm	2.7	4.3	2.7
Weight, oz.	9	9	9
Sound Level, dBA	70	75	70
Materials	316 SS	316 SS	316 SS



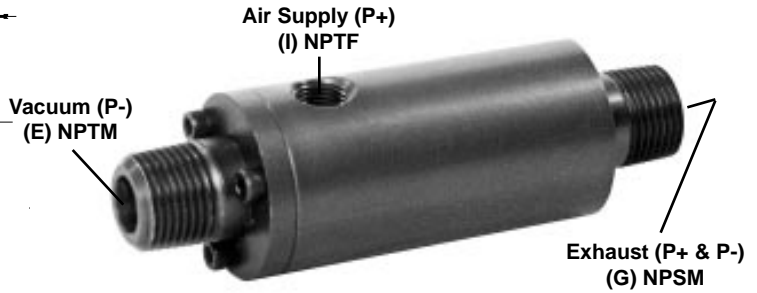
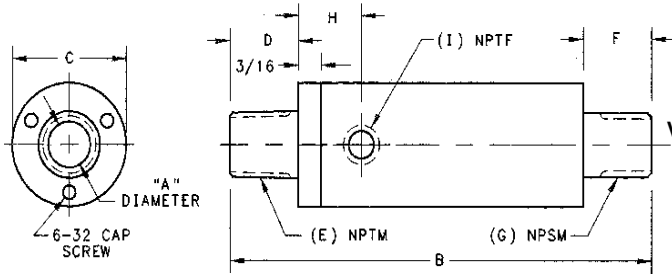
Time in Seconds to Evacuate a Volume of 1 Cubic Foot									
"Hg	1.5	3	6	9	12	15	18		
AV147MSS	.7	1.5	3.7	6.3	10.3	17.7	41		
AV191MSS	.3	.7	2.0	3.4	5.5	9.5			
AV191LSS	.3	.9	2.5	6.4					

Vacuum Flow Rate, scfm vs. Vacuum Level, "Hg										
"Hg	0	1.5	3	6	9	12	15	18		
AV147MSS	3.1	2.84	2.73	2.34	1.81	1.31	.73	.19		
AV191MSS	5.2	4.54	4.10	3.31	2.80	2.08	1.35			
AV191LSS	4.8	4.28	3.58	2.21	.63					

• Sound levels recorded with mufflers, see page 24.  
 • Materials of construction: 316 stainless steel

• Operating temperature (degrees): 0 to 400 F  
 • All data recorded at 70-75 psig air supply.

### SINGLE STAGE



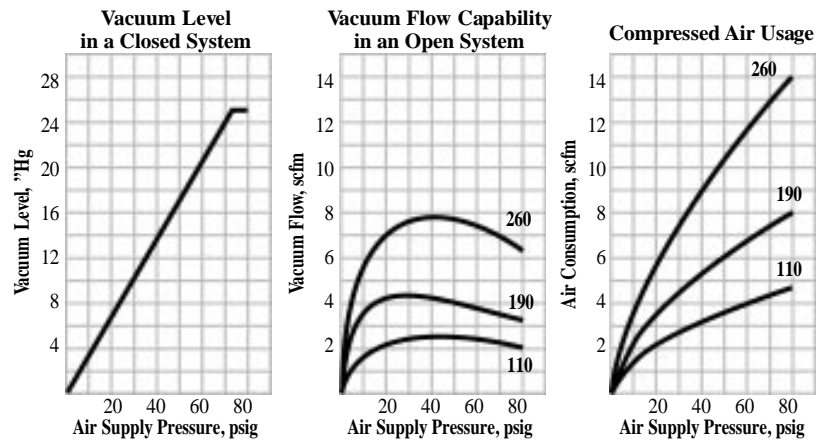
	A	B	C	D	E	F	G	H	I
TD110HSS	9/64"	3 7/16"	1"	5/8"	1/4"	5/8"	1/4"	5/8"	1/8"
TD190HSS	3/16"	3 1/2"	1"	5/8"	1/4"	5/8"	1/4"	5/8"	1/8"
TD260HSS	1/4"	3 1/2"	1"	5/8"	1/4"	5/8"	1/4"	5/8"	1/8"
TD380MSS	3/8"	4"	1 1/4"	3/4"	3/8"	3/4"	3/8"	5/8"	1/8"
TD500MSS	1/2"	4 13/16"	1 1/2"	1"	1/2"	1"	1/2"	5/8"	1/8"
TD750LSS	3/4"	6"	2"	1 1/4"	1"	1 1/4"	1"	27/32"	1/4"

**Stainless Steel Single Stage design with straight thru vacuum passage. Ideal for use in corrosive environments or in sanitary "wash down" applications. No moving parts, gaskets or seals.**

### "H" Version

Produces vacuum flow rates up to 7.6 scfm and vacuum levels up to 25.4"Hg.

Model Number	TD110HSS	TD190HSS	TD260HSS
"A" Diameter	9/64"	3/16"	1/4"
Vacuum Level, "Hg	24.8	25.0	25.4
Vacuum Flow, scfm	2.3	4.2	7.6
Air Consumption, scfm	4.2	7.4	13.0
Weight, oz.	9	9	9
Materials	316 SS	316 SS	316 SS



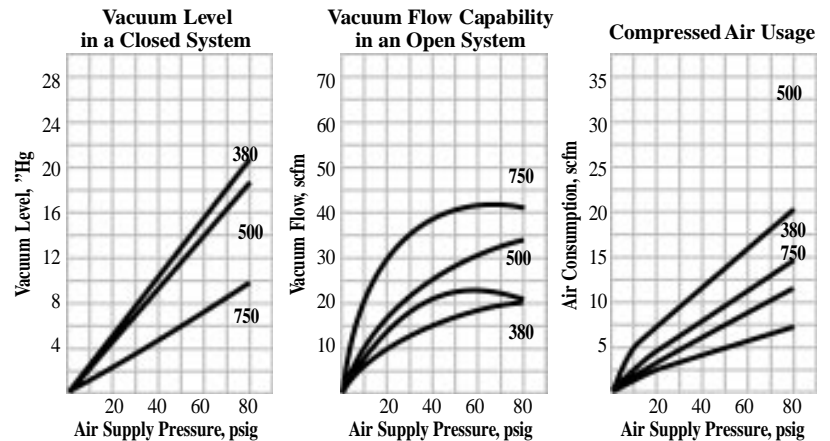
Time in Seconds to Evacuate a Volume of 1 Cubic Foot									
"Hg	1.5	3	6	9	12	15	18	21	24
TD110HSS	1.2	2.6	6.3	10.4	18.7	30.5	52	80	129
TD190HSS	.6	1.4	3.0	5.2	9.5	13	20.4	34.6	60
TD260HSS	.3	.75	2.0	3.5	5.3	8.6	14.7	25.4	39

Vacuum Flow Rate, scfm vs. Vacuum Level, "Hg										
"Hg	0	1.5	3	6	9	12	15	18	21	24
TD110HSS	2.3	2.0	1.82	1.41	1.16	.82	.50	.34	.18	.08
TD190HSS	4.2	3.85	3.36	2.64	2.13	1.59	1.15	.80	.50	.31
TD260HSS	7.6	6.9	6.5	5.0	3.0	2.7	2.0	1.1	.66	.50

### "M" and "L" Versions

Produce vacuum flow rates up to 43.0 scfm and vacuum levels up to 17.6"Hg.

Model Number	TD380MSS	TD500MSS	TD750LSS
"A" Diameter	3/8"	1/2"	3/4"
Vacuum Level, "Hg	17.6	15.0	4.1
Vacuum Flow, scfm	17.6	33.0	43.0
Air Consumption, scfm	20.0	29.7	19.7
Weight, oz.	14	22	42
Materials	316 SS	316 SS	316 SS



Time in Seconds to Evacuate a Volume of 1 Cubic Foot									
"Hg	1.5	3	6	9	12	15			
TD380MSS	.1	.3	.7	1.4	2.6	4.2			
TD500MSS	.1	.2	.3	.7	1.2				

Vacuum Flow Rate, scfm vs. Vacuum Level, "Hg									
"Hg	0	1.5	3	6	9	12	15		
TD380MSS	17.6	15.2	14.5	11.5	8.5	5.5	2.6		
TD500MSS	33	29.8	28.5	20.9	12.6	5.2			
TD750LSS	43	29	5.0						

• Materials of construction: 316 stainless steel

• Operating temperature (degrees): 0 to 400 F  
• All data recorded at 70-75 psig air supply.