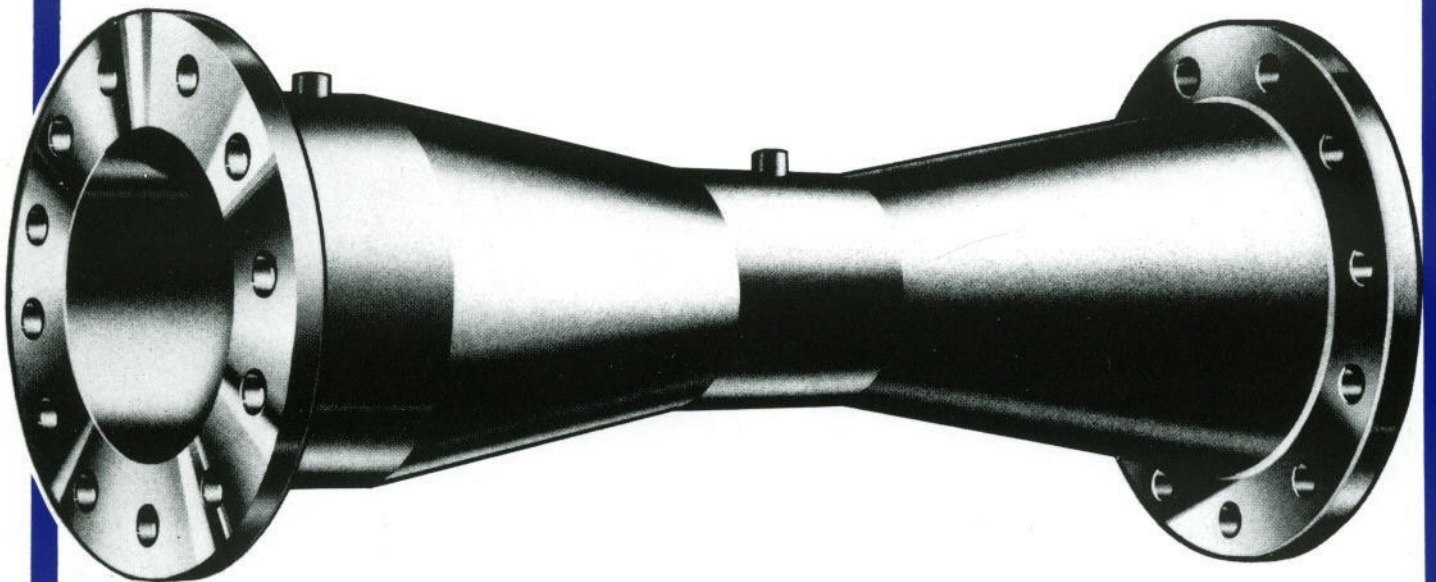


ASME type

# VENTURI TUBES



DESIGNED TO BE ECONOMICAL:  
LIGHT WEIGHT: VERSATILE: NON-CORROSIVE:  
AND ACCURATE TO MEET THE CUSTOMER'S  
FLOW REQUIREMENTS.

## ASME TYPE VENTURI

A complete line of differential pressure ASME Herschel type venturis are manufactured by Flow-Lin. This type of flow elements has been universally accepted as the most efficient primary device available. No other type of venturi or flow tube design has been more thoroughly researched, tested and proven than the ASME type.

Flow-Lin Venturis have been in operation in petrochemical, refining, gas pipeline, water, sewage and power plants. They are used whenever low pressure loss, high accuracy, short straight piping or fluid containing solids are encountered.

## OPTIMIZED DESIGN

Each Flow-Lin Venturi is designed and manufactured for a specific beta ratio or throat diameter necessary to produce the desired differential pressure consistent with minimum pressure loss, piping requirements, and best accuracy of measurement.

## HIGHEST ACCURACY

The completeness of published research data permits Flow-Lin to provide the venturis with 3/4 % accuracy without the need of laboratory flow calibration. This high accuracy is sustained indefinitely since there are no sharp edges protrusions to wear. Laboratory calibration to obtain 1/4 % accuracy is also available.

## LOW PERMANENT PRESSURE LOSS

Figure 1 shows the permanent pressure loss as percent of differential pressure for orifice plates, flow nozzles and venturis. Due to the low pressure loss, a venturi saves the user many dollars and frequently pays for itself in one year of continuous operation by greatly reducing pumping cost.

## PRESSURE LOSS CURVES

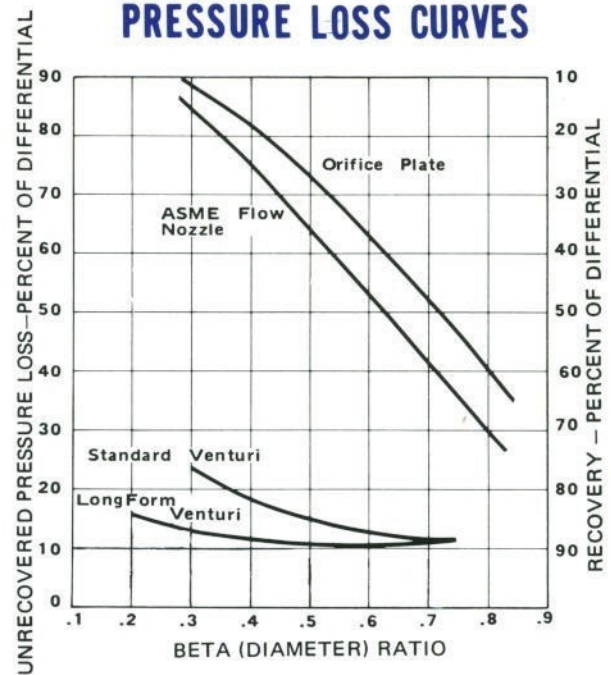


Figure 1.

## LIGHT WEIGHT

The fabricated venturi is more durable than cast venturi yet weighs considerable less, which results in a lower shipping cost and easier installation.

## MATERIALS OF CONSTRUCTION

Flow-Lin Venturis are built of carbon steel, chrom-moly steel, stainless steel, monel, nickel, bronze, PVC and other materials to suit specific applications.

## PIEZOMETER RING OR AVERAGING ANNULUS

ASME Fluid Meters has recommended the required straight pipe lengths preceding the venturi tubes to insure accurate flow measurement. If it is impossible to meet the recommended lengths, with or without the use of straightening vanes, Flow-Lin Venturis utilizing a piezometer ring or averaging annulus can be provided to reduce the measurement error.

## ORDERING INFORMATION

For all fluids specify:

Model number \_\_\_\_\_

Type of end fittings and rating \_\_\_\_\_

Materials of construction:

Throat \_\_\_\_\_

Body \_\_\_\_\_

Flanges \_\_\_\_\_

Pipe I. D. \_\_\_\_\_

Line size \_\_\_\_\_ & Pipe Schedule \_\_\_\_\_

Fluid \_\_\_\_\_

Units of flow \_\_\_\_\_

Max flow \_\_\_\_\_ Normal flow \_\_\_\_\_

Specific gravity:

Operating \_\_\_\_\_ Base \_\_\_\_\_

Temperature:

Operating \_\_\_\_\_ Base \_\_\_\_\_

Pressure: Operating \_\_\_\_\_

If liquid specify:

Viscosity @ Operating temperature \_\_\_\_\_

If gas specify:

Molecular weight \_\_\_\_\_

Base pressure \_\_\_\_\_

Gas composition \_\_\_\_\_

Specific heat ratio \_\_\_\_\_

Compressibility ratio ( $Z_f$ ) \_\_\_\_\_

Standard (Short) Form -

15° included angle outlet cone.

Long Form -

7° included angle outlet cone.

## CLEANOUT RODS

For fluid containing solids, such as sewage or slurry, Flow-Lin Venturis can be equipped with cleanout rods on the pressure taps as shown in Figure 2 for periodic cleaning when required.

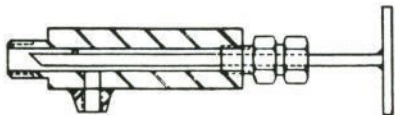
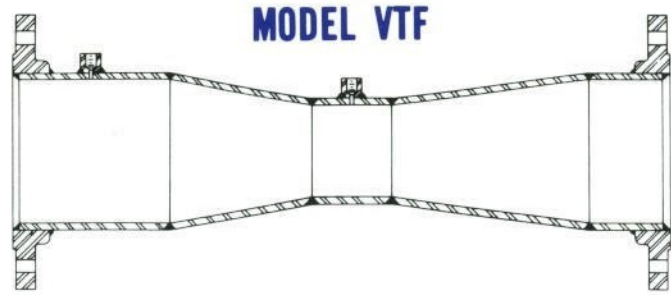
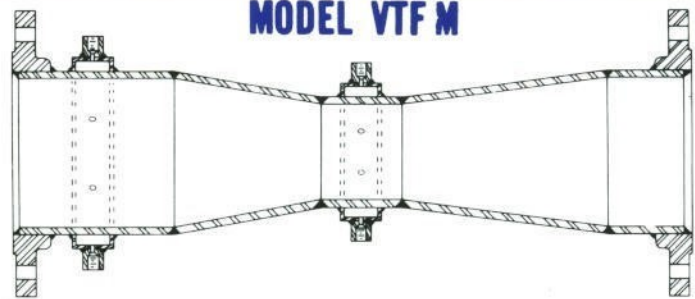


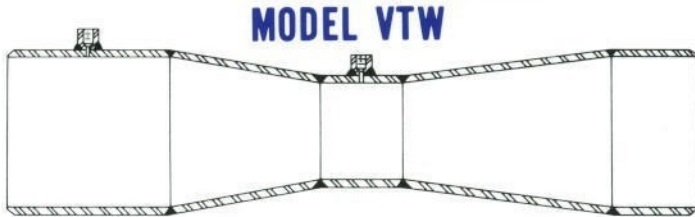
Figure 2.



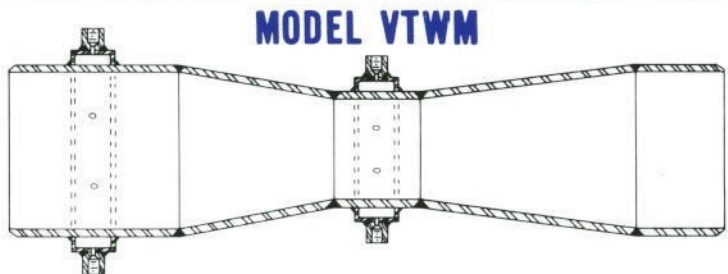
FULL FLANGED TYPE – SINGLE HIGH AND LOW PRESSURE TAPS



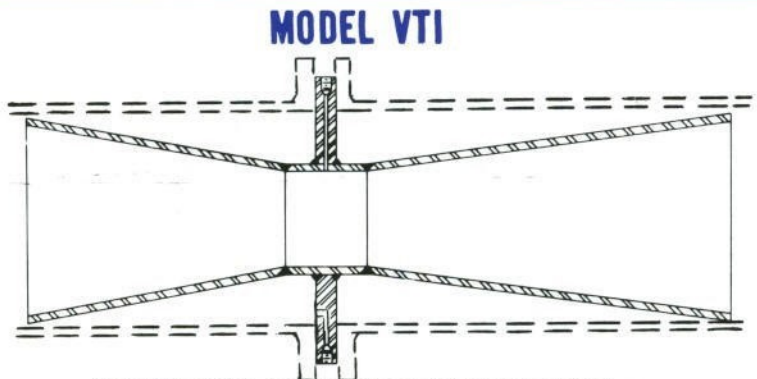
FULL FLANGED TYPE – MULTIPLE HIGH AND LOW PRESSURE TAPS WITH PRESSURE AVERAGING PIEZOMETER RING



WELD-IN TYPE – SINGLE HIGH AND LOW PRESSURE TAPS



WELD-IN TYPE – MULTIPLE HIGH AND LOW PRESSURE TAPS WITH PRESSURE AVERAGING PIEZOMETER RING



INSERT TYPE (TO FIT BETWEEN FLANGES) – SINGLE HIGH AND LOW PRESSURE TAPS

**DIMENSIONS & CAPACITY TABLES FOR ASME TYPE SHORT FORM VENTURIS**

Note 1 Any beta ratio, pipe diameter or differential may be specified as required.  
Any flange rating or type of end termination may be specified as required.  
Venturis are available in line size larger & smaller than those listed below.

Note 2 Upstream straight pipe requirements for ASME type Venturis are less than those of Proprietary Flow Tubes providing a shorter overall "laying length".

Note 3 Weld-in and Insert Venturis weigh approximately 30% less than Model VTF with 150 lb. flanges as listed  
To obtain capacity for a design differential other than 100" multiply capacity at 100" by  $\sqrt{\frac{\text{differential desired}}{100}}$

NOM. LINE SIZE	BETA RATIO Note 1	THROAT DIA. d Note 1	STD. PIPE DIA. D Note 1	LENGTH Note 2		APPROX. WT. LB. Note 3	FLOW RATES IN GPM OF WATER @ 60° F.			
				FLANGED TYPE	INSERT TYPE		Δ P IN INCHES OF W.C.			
							20"	50"	100"	200"
2	0.50	1.034	2.067	11	8	40	27.4	43.3	61.3	86.7
	0.60	1.240		10	7		40.9	64.8	91.6	130
	0.75	1.550		8	5		72	113	160	226
3	0.50	1.534	3.068	15	11	65	60	95	135	190
	0.60	1.841		14	10		90	143	202	286
	0.75	2.301		11	7		160	250	355	500
4	0.50	2.013	4.026	20	16	90	105	165	232	330
	0.60	2.416		18	13		156	245	347	491
	0.75	3.020		14	10		274	433	612	865
6	0.50	3.033	6.065	28	23	130	235	370	525	740
	0.60	3.639		25	20		351	553	785	1110
	0.75	4.549		20	15		620	985	1390	1970
8	0.50	3.991	7.981	38	31	175	410	645	915	1290
	0.60	4.789		33	26		613	964	1370	1930
	0.75	5.986		26	19		1075	1700	2405	3400
10	0.50	5.010	10.020	46	38	250	645	1020	1440	2040
	0.60	6.012		41	32		964	1525	2155	3050
	0.75	7.515		32	24		1695	2680	3790	5360
12	0.50	6.000	12.000	54	45	330	925	1460	2065	2920
	0.60	7.200		47	38		1385	2185	3085	4365
	0.75	9.000		38	29		2435	3845	5440	7690
14	0.50	6.625	13.250	59	49	450	1125	1780	2520	3560
	0.60	7.950		52	42		1680	2660	3766	5320
	0.75	9.938		42	32		2965	4690	6630	9380
16	0.50	7.625	15.250	68	57	600	1490	2360	3335	4720
	0.60	9.150		60	49		2230	3530	4984	7055
	0.75	11.440		48	36		3930	6215	8790	12430
18	0.50	8.625	17.250	77	64	700	1910	3020	4270	6040
	0.60	10.350		68	55		2855	4515	6380	9030
	0.75	12.940		54	41		5025	7950	11240	15900
20	0.50	9.625	19.250	86	72	860	2375	3755	5310	7510
	0.60	11.550		76	62		3550	5615	7940	11220
	0.75	14.440		60	46		6260	9900	14000	19800
24	0.50	11.625	23.250	102	86	1100	3465	5480	7750	10960
	0.60	13.950		90	74		5180	8190	11580	16380
	0.75	17.550		71	55		9125	14470	20420	28940

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