

# **WESTFALL**

WESTFALL MANUFACTURING COMPANY

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# Venturi Flow Meter

Model 2300



# WESTFALL

## Westfall Venturi Tubes

### Experience

No company has more experience than Westfall Manufacturing Co. in the design and fabrication of the Fiberglass Venturi Flow Meter. We have manufactured more than 10,000 meters since 1965 and have been involved in direct design of the tubes and special tooling to manufacture these products. We draw from many years of design experience and have developed computer software that will quickly size, price, and generate manufacturing drawings for your special requirements. We have been the manufacturer of fiberglass venturies for several large suppliers. We are proud of this record of successful applications.

### Why FRP?

FRP (Fiberglass Reinforced Plastic) provides the capability to fabricate our standard product in many sizes or in special line sizes to meet your particular application. Completely made in the USA, these tubes are light in weight, providing savings in material, shipping and installation cost. With proper material selection and manufacturing practice FRP flowmeters are dimensionally stable and will assure the user of accurate flow measurement for many years. In many instances they are much superior to metal designs. They are highly corrosion resistant and can be manufactured for use with a wide range of line fluids, line pressures and temperature conditions. No other single material provides as much versatility!

### Express Service

Pricing and tube dimensions for standard units or for special applications can be supplied to you via your fax within minutes. Fax or call your design criteria to us and we will send you dimensions, documentation and your cost for any FRP Venturi tube which can be fabricated by Westfall Manufacturing Company. (Fax 401-253-6530, phone 401-253-3799.)

**Information required for Express Service: pipe I.D., meter type (central flange venturi, grouted in line, etc.), line fluid, line temperature, line pressure, throat material, throat diameter or approximate differential pressure, maximum flow.**

## Description/Specification

### Description

The Model 2300 is an all fiberglass design, utilizing DERAKANE\* Epoxy Vinyl Ester Resin. \*DERAKANE is a Trademark of The Dow Chemical Company. It is non-corrosive, self scouring, dimensionally stable and can be used with line temperatures to 180 degrees F with standard resin. Up to 250 degrees F with high temperature resin. The WESTFALL Model 2300 can be supplied with Bronze, Stainless Steel or other metal throat materials and/or with coated carbon steel holding flange. The high and low pressure connections are 316 Stainless Steel. The tube is supplied ready to install with integral neoprene flange gaskets. Size range is for piping from 3/4" to 120".

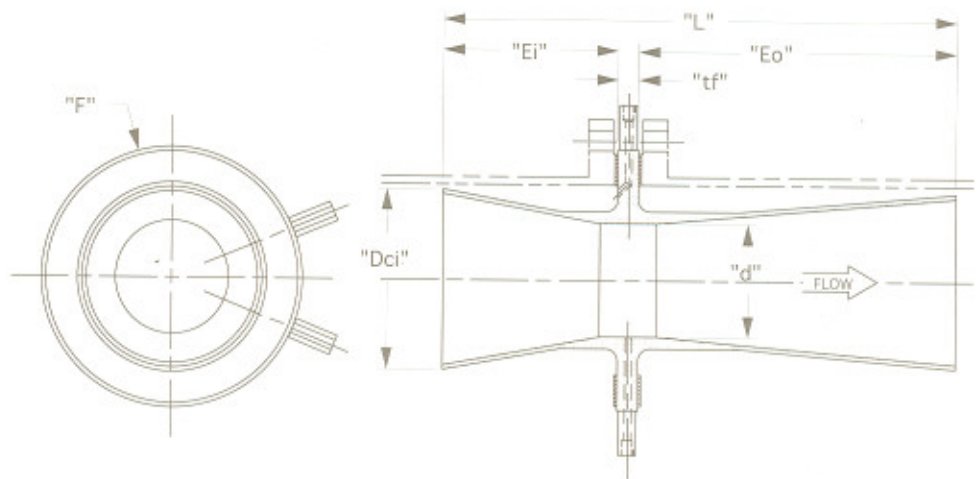
The Model 2300 is of short laying length design with high accuracy and low permanent pressure loss. The flow conditioning within the inlet section allows for closer coupling with upstream pipe fittings. Should pressure drop be of importance in a particular piping network, the outlet cone can be extended to satisfy the user's headloss requirements.

### Typical Specification

The flow metering element design shall be of the differential pressure producing type for insertion within the pipe line. The inlet shall consist of a conic convergent section for flow conditioning. The throat inlet section included angle shall not exceed 22 degrees and shall have a minimum length of 0.5 times the throat diameter. The throat section shall be cylindrical with a length at least 0.5 times the throat diameter and with sharp intersections to support a protected and stable throat pressure profile. Meters with blended radii will not be considered. Devices amplifying the differential pressure by causing change in the direction of the flow stream cross sections within the throat section shall not be considered. The outlet cone shall have a divergent included angle of 10 degrees. The outlet cone length may be selected to minimize laying length or to maximize pressure recovery.

The entire flowmeter, inlet section, throat section, outlet cone and integral flange shall be fabricated of thermosetting epoxy vinyl ester resin, reinforced with not less than 30% fiberglass by weight. Pressure connections shall be 316 stainless steel. The pressure connecting passage shall be within the integral mounting flange. The device shall be designed for mounting between ANSI flanges and include flange gaskets. The metering element shall not have debris collecting annular chambers or cavities and shall have a single pressure connection for high pressure and a single pressure connection for low pressure sensing of the differential pressure. The manufacturer shall furnish a flow versus differential curve to the design engineer for approval.

The device performance and metering similitude shall be substantiated by the manufacturers traceable independent testing, and/or ASME. Performance substantiation shall include coefficient value, constancy with Reynolds Number, predictability, effects from installation and line pressure loss from hydraulic shape. The tube coefficient shall be independent of line size and be constant and predictable to low Reynolds Numbers. The uncalibrated accuracy shall be at least  $\pm 0.75\%$  of actual flow based on a 2 X Standard Deviation value calculated from a significant sample size. The device shall be a WESTFALL Model 2300 or approved equal.



## Capacity and Dimensions

### Westfall Manufacturing Model 2300

Tube Size	"D"	"d"	"β"	"L"	150# "F"	300# "F"	"tf"	"Dci"	"Ei"	"Eo"	"GPM**"	"Lbs.***"
6A	6	2.680	0.4467	20.7	8.750	9.875	0.875	5.7	7.4	12.5	406	10
6B	6	3.580	0.5967	16.0	8.750	9.875	0.875	5.7	5.2	10.0	750	9
6C	6	4.320	0.7200	10.9	8.750	9.875	0.875	5.7	3.3	6.7	1153	8
8A	8	3.580	0.4475	27.9	11.000	12.125	0.875	7.6	10.3	16.8	724	14
8B	8	4.770	0.5963	21.7	11.000	12.125	0.875	7.6	7.4	13.4	1332	12
8C	8	5.760	0.7200	14.9	11.000	12.125	0.875	7.6	4.9	9.1	2050	10
10A	10	4.770	0.4770	34.1	13.375	14.250	0.875	9.5	12.5	20.7	1293	20
10B	10	5.760	0.5760	28.7	13.375	14.250	0.875	9.5	10.1	17.8	1923	18
10C	10	7.200	0.7200	18.9	13.375	14.250	0.875	9.5	6.5	11.5	3203	16
12A	12	5.760	0.4800	40.9	16.125	16.625	0.875	11.4	15.2	24.9	1887	30
12B	12	7.200	0.6000	32.7	16.125	16.625	0.875	11.4	11.7	20.2	3038	26
12C	12	8.640	0.7200	22.9	16.125	16.625	0.875	11.4	8.1	13.9	4612	22
14A	14	6.260	0.4471	49.6	17.750	19.125	0.875	13.3	19.1	29.6	2214	40
14B	14	8.640	0.6171	36.7	17.750	19.125	0.875	13.3	13.3	22.5	4413	35
14C	14	10.080	0.7200	26.9	17.750	19.125	0.875	13.3	9.7	16.2	6278	30
16A	16	7.200	0.4500	56.7	20.250	21.250	0.875	15.2	21.9	33.9	2930	50
16B	16	10.080	0.6300	40.6	20.250	21.250	0.875	15.2	14.9	24.9	6050	42
16C	16	11.520	0.7200	30.8	20.250	21.250	0.875	15.2	11.3	18.6	8200	35
18A	18	8.640	0.4800	61.9	21.625	23.500	0.875	17.1	23.5	37.5	4245	65
18B	18	10.080	0.5600	54.3	21.625	23.500	0.875	17.1	20.0	33.5	5854	55
18C	18	12.960	0.7200	34.7	21.625	23.500	0.875	17.1	12.8	21.0	10371	45
20A	20	10.080	0.5040	66.6	23.875	25.750	0.875	19.0	25.0	40.8	5812	80
20B	20	11.520	0.5760	58.3	23.875	25.750	0.875	19.0	21.4	36.0	7695	70
20C	20	14.400	0.7200	38.6	23.875	25.750	0.875	19.0	14.3	23.4	12807	60
24A	24	11.520	0.4800	82.6	28.250	30.500	0.875	22.8	31.5	50.2	7548	125
24B	24	14.400	0.6000	66.0	28.250	30.500	0.875	22.8	24.4	40.8	12158	110
24C	24	17.040	0.7100	47.8	28.250	30.500	0.875	22.8	17.9	29.0	17774	95
30A	30	12.960	0.4320	108.1	34.750	37.500	1.250	28.5	42.8	64.0	9465	220
30B	30	17.040	0.5680	89.0	34.750	37.500	1.250	28.5	32.8	54.9	16780	200
30C	30	21.600	0.7200	57.9	34.750	37.500	1.250	28.5	21.5	35.1	28830	160
36A	36	17.040	0.4733	124.8	41.250	44.000	1.250	34.2	47.9	75.7	16492	380
36B	36	21.600	0.6000	99.1	41.250	44.000	1.250	34.2	36.6	61.2	27349	330
36C	36	25.920	0.7200	69.5	41.250	44.000	1.250	34.2	25.9	42.3	41514	280
42A	42	18.720	0.4457	149.7	48.000	50.750	1.500	39.9	58.7	89.5	19794	580
42B	42	25.920	0.6171	110.5	48.000	50.750	1.500	39.9	40.9	68.1	39723	500
42C	42	30.240	0.7200	81.0	48.000	50.750	1.500	39.9	30.2	49.3	56500	410
48A	48	21.600	0.4500	170.5	54.500	58.750	1.500	45.6	66.7	102.3	26369	880
48B	48	30.240	0.6300	122.0	54.500	58.750	1.500	45.6	45.3	75.1	54443	740
48C	48	34.560	0.7200	92.6	54.500	58.750	1.500	45.6	34.7	56.4	73798	600

\*Rate of flow in gallons per minute @100 inches of water differential.

\*\*Estimated shipping weight.

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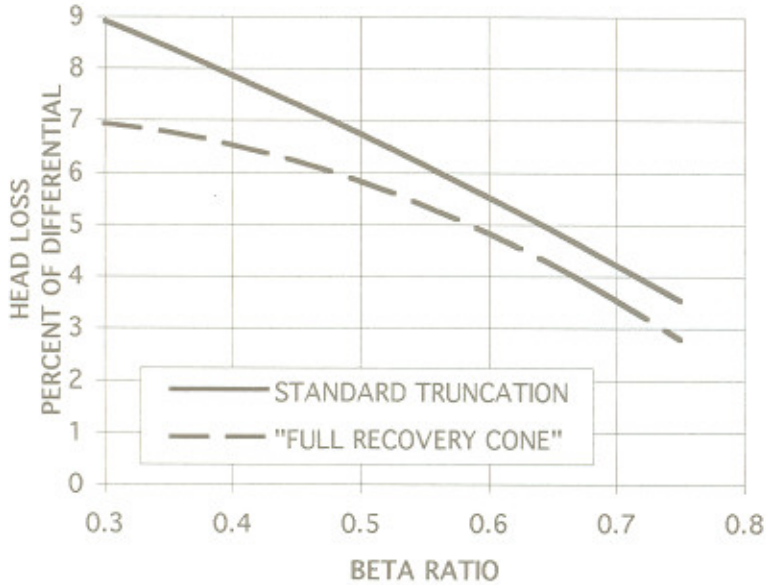
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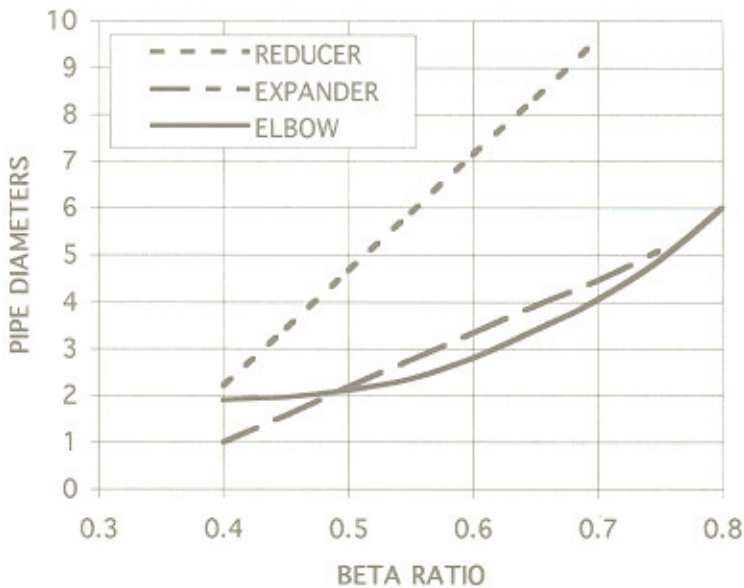
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## Design Information

### Head Loss Curve



### Piping Curve



## Product List

- Vacuum Diatomaceous Earth Water Filter
- Diatomaceous Earth Recovery Flume
- Turnkey Filter System
- Dry Chemical Feeder
- Injection Mixer
- 3-Way Control Valve
- Rotary Drum Vacuum Filter
- Venturi Flow Meter