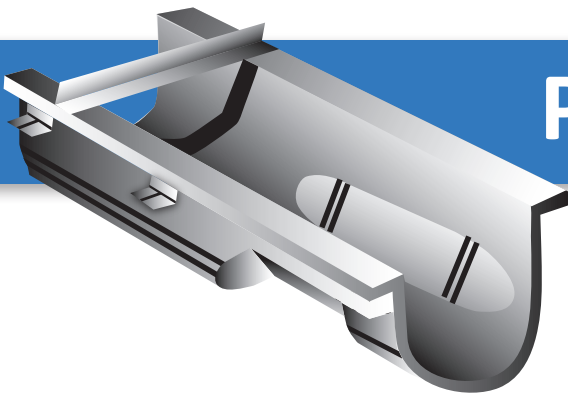


Palmer-Bowlus Flumes

Reinforced Fiberglass Polymer



Permanent Flumes • Insert/Invert Flumes • Cutback/Exit Flumes

Kenco Palmer-Bowlus flumes are designed and manufactured to meet or exceed the needs of the wastewater and chemical industry. Manufacturing fiberglass products and providing our customers quality service since 1954, **Kenco Plastics** has developed an enviable reputation. Our flumes include features and benefits such as the following:

- The Palmer-Bowlus trapezoidal throat design is used which assures a high velocity critical flow, translating into minimal flow restriction, low energy loss and better measuring accuracies at both low flow and peak capacity.
- The smooth gelcoated fluid contact surfaces decreases friction and prevent solids buildup.
- All flumes are made with chopped and sprayed fiberglass (minimum 30% content by weight) and reinforced polyester materials assuring a long maintenance free performance.
- A one-piece molded construction makes installation quick, easy and cost effective.
- Integral 2 1/2" flanges, anchor clips and right angle tie-bars are permanently attached for added strength and rigidity during shipping, installation and usage.
- A wide selection of industry standard optional measuring and interface equipment are available.
- All components are made with corrosion resistant materials for maximum application performance.

Sizes, Capacities & Weights

Flume Size "D" Dimension	Approximate Maximum Discharge			Head at Approx. Max. Discharge
	*CFS	*MGD	*GPM	
4"	0.12	0.07	54	3.0 in.
6"	0.30	0.19	132	4.2 in.
8"	0.69	0.45	310	6.0 in.
10"	1.12	0.72	502	7.2 in.
12"	1.67	1.08	752	8.4 in.
15"	3.09	1.99	1385	10.8 in.
18"	4.61	2.98	2071	12.6 in.
21"	7.04	4.55	3161	15.0 in.
24"	9.47	6.10	4248	16.8 in.
27"	13.09	8.44	5873	19.2 in.
30"	16.52	10.66	7413	21.0 in.
36"	29.97	19.37	13451	27.0 in.
42"	43.77	28.29	19645	31.4 in.

Shipping Weights

Permanent	Insert/Invert	Exit/Cutback
10 lb.	7 lb.	5 lb.
15 lb.	10 lb.	8 lb.
20 lb.	15 lb.	12 lb.
25 lb.	20 lb.	17 lb.
33 lb.	25 lb.	20 lb.
50 lb.	33 lb.	30 lb.
75 lb.	50 lb.	45 lb.
125 lb.	75 lb.	65 lb.
150 lb.	90 lb.	80 lb.
	110 lb.	100 lb.
	130 lb.	115 lb.
	175 lb.	160 lb.
	200 lb.	185 lb.

*Permanent flume only



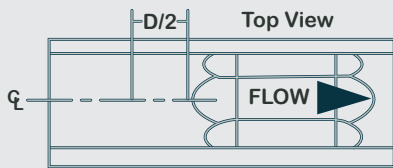
Palmer-Bowlus Flumes

Specification Data

Permanent Flumes

Typically used in new construction or when it is possible to cement a flume into place between pipe ends. The upstream approach section provides for a smooth flow into the flume. Various optional accessories are sometimes required for installation.

(See the next page for details and options available)

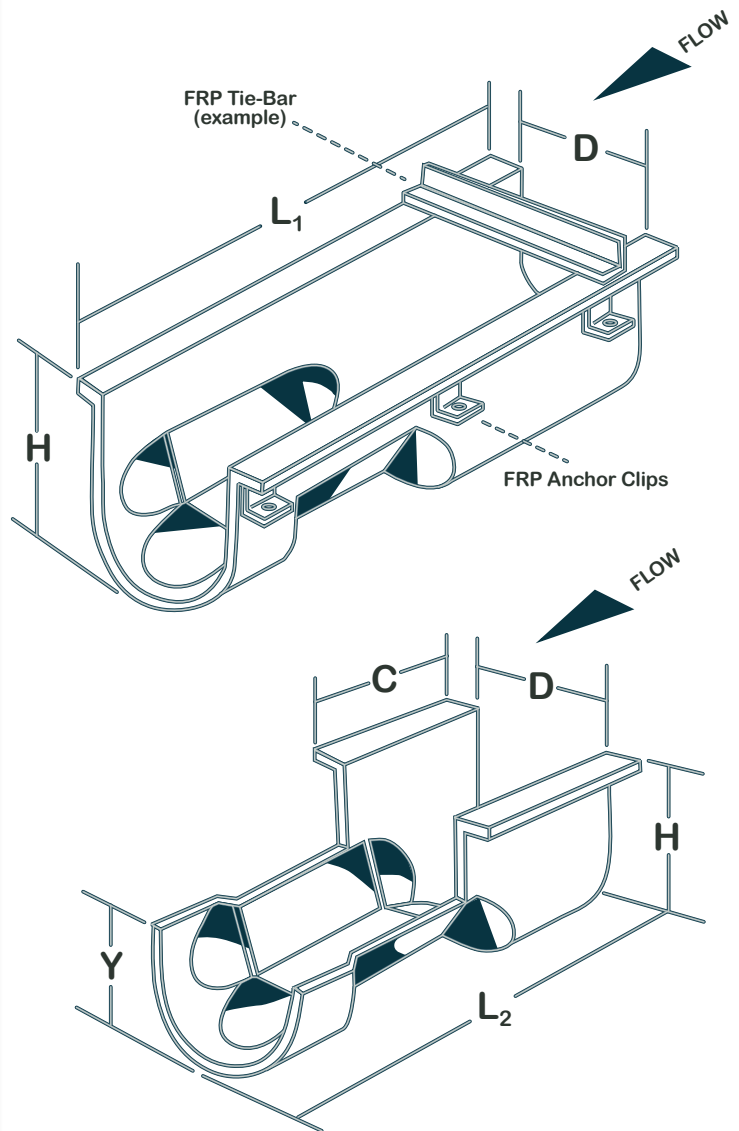
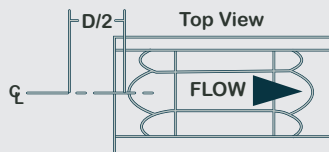


Exit/Cutback Flume

Generally exit flumes are used within the discharge pipe of a manhole. This type of flume maximizes the space for accurate upstream monitoring and sampling.

Insert Flumes

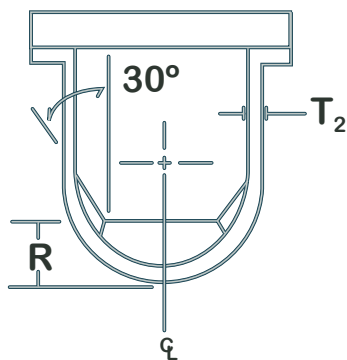
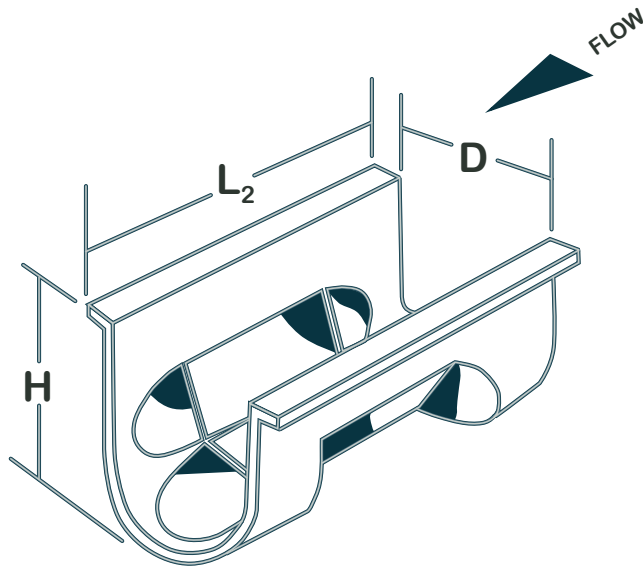
This flume is designed to be placed into an existing half section of pipe. The O.D. of this flume should fit the I.D. of the pipe section.



Note: Dimensions are provided for reference only. All specifications are subject to change without notice.

D	D/2	L ₁	L ₂	H	R	Y	C	T ₂
4"	2"	17"	10"	6"	2/3"	1 13/16"	4 5/8"	3/16"
6"	3"	25"	14"	8"	1"	2 13/16"	6 5/8"	3/16"
8"	4"	33"	18"	10"	1 1/3"	3 13/16"	8 5/8"	3/16"
10"	5"	41"	22"	12"	1 2/3"	4 13/16"	10 5/8"	3/16"
12"	6"	49"	26"	14"	2"	5 13/16"	12 5/8"	3/16"
15"	7 1/2"	61"	32"	17"	2 1/2"	7 5/16"	15 5/8"	3/16"
18"	9"	73"	38"	20"	3"	8 13/16"	18 5/8"	3/16"
21"	10 1/2"	85"	44"	23"	3 1/2"	10 5/16"	21 5/8"	1/4"
24"	12"	97"	50"	26"	4"	11 13/16"	24 5/8"	1/4"
27"	13 1/2"	109"	56"	29"	4 1/2"	13 5/16"	27 5/8"	1/4"
30"	15"	121"	62"	32"	5"	14 13/16"	30 5/8"	1/4"
36"	18"	145"	74"	38"	6"	17 13/16"	36 5/8"	5/16"
42"	21"	169"	86"	44"	7"	20 13/16"	42 5/8"	5/16"

Palmer-Bowlus Flumes



T_2 = Wall Thickness

Options

- Embedded Staff Gauge: Calibration units 1" and 1/4" increments
- Stilling wells in 12", 10", 8" and 6" I.D. can be supplied attached. Material: Fiberglass
- Ultrasonic level sensor instrumentation support bracket. Material: Stainless Steel
- Bubbler tube, insert molded and fitted to connect with standard flow meter tubing. Material: Stainless Steel
- NPT connections available for remote stilling well attachment. Material: Fiberglass
- 2 1/2" wide standard end flanges. Material: Fiberglass
- Bulkheads available for flumes smaller than adjoining pipe. Material: Fiberglass
- Wide variety of adapters for inlet and outlet pipeline connections. Material: Fiberglass

Customized Flumes

- Recessed cavities can be molded for below surface mounting of sensing instruments.
- High-Temp and chemical resistant fiberglass polyester resins are available.
- Special flume walls with thicker fiberglass laminations are available.

Engineering Details

Head vs. Flow Sizing

For measurement accuracy, use flume sizes to match actual flows. Sizing to nominal pipe size is not always correct. Optimum flow readings are obtained by selecting a flume size that has flow rates between Maximum and Minimum Discharge rates. Typically oversized flumes reduce the accuracy of the flow projections.

When the pipeline size is larger than the flume, the approach section of the permanent flume is needed to smooth the flow before it reaches the point of measurement.

Pipeline Design

Incoming flows should be non-turbulent and be lower than the velocity in the throat of the flume. The upstream pipeline grade should be designed to be equal to or less than 2%.

Downstream fluid depths must be less than 90% of the upstream depth. Any hydraulic jumps must not occur in the flume throat but downstream from the flume throat.

A depth of flow measuring device should be located at a point equal to 1/2 the diameter of the pipe, upstream from the flume entrance.

