

Plasti-Fab®

PRODUCTS FOR THE WATER AND WASTEWATER INDUSTRY

H FLUMES HS & HL FLUMES

PRODUCT BULLETIN
HF-2, REV. 1

H FLUMES HS FLUMES HL FLUMES

FOR METERING WIDE RANGES OF FLOW

SIZES:

H Flumes from .5' to 4.5'
HS Flumes from .4' to 1.0'
HL Flumes, 4.0'

H Flumes are capable of monitoring flows that vary over wide ranges with a high degree of accuracy. Unlike the Parshall, Palmer-Bowlus or others which have a useable range of approximately 10:1, the H Flume is capable of providing accurate measurement for applications with flow ranges of 100:1 or more. This wide range gives excellent resolution at low flows and the capacity to handle higher flows. Because of this, the H Flume and two variations, the HS and HL flumes, have been used effectively for some time by the Soil and Agricultural Branches of the Federal and various State Governments for stream, drainage basin, and storm water runoff studies.

Plasti-Fab fiberglass H Flumes are available in a variety of sizes and can be used to measure flows ranging from zero to 80 cfs. HS Flumes are typically recommended for lower flows, not exceeding 0.8 cfs. The 4.0' HL Flume may be recommended for larger flows up to 111 cfs.

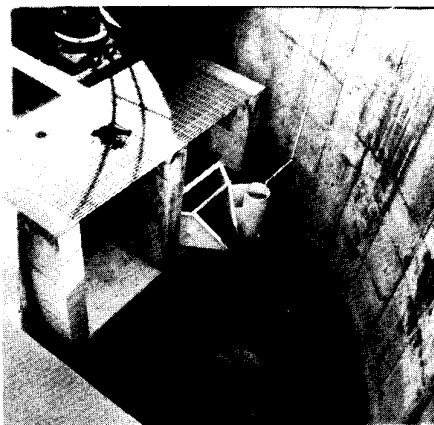
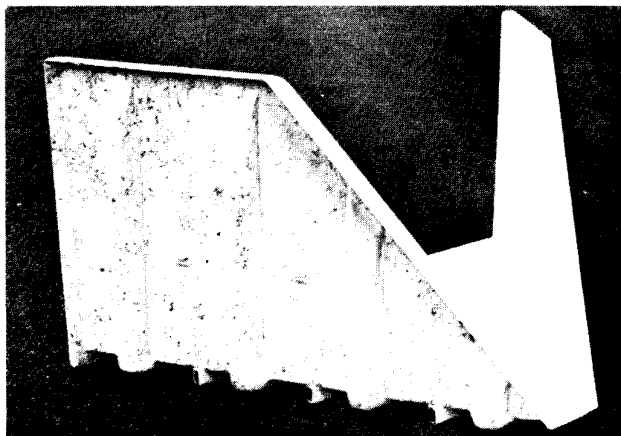
APPROACH CHANNEL

The channel carrying water to the H Flume should be rectangular, having the same depth and width as the H Flume and a length of 3 to 5 times the depth of the flume. Entrance channels are available from Plasti-Fab.

EXIT CHANNEL

The H Flume is generally installed with a free spill off of the downstream end. It was not originally intended to be used with pipe at either the inlet or outlet end, but with the present day need to measure industrial and municipal waste water, which is usually in a pipeline, the H Flume can often be installed quite satisfactorily.

As for the exit channel, if water is permitted to flow or spill away from the H Flume in such a way that it does not slow down the flow through the flume notch, the H Flume may then be used in conjunction with an outlet pipe.



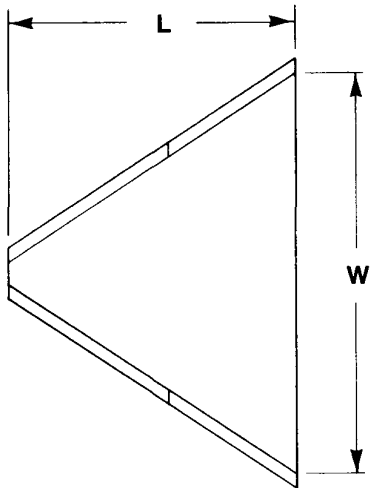
INSTALLATION

The H Flume must be installed level, with the floor of the flume at the same elevation as the inlet channel. The velocity of the water entering the flume must be subcritical and not turbulent. The water must spill from the flume or flow unimpeded in a manner comparable to spilling off of the end.

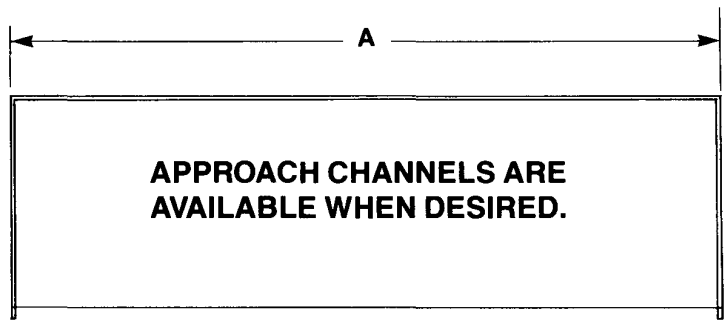
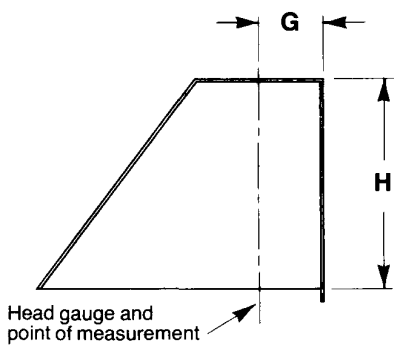
EXAMPLES OF INSTALLATIONS

- A large industrial plant with a process or cooling water effluent of X gpm with roof drains and parking lot drains tied to the same effluent line that produce a flow of 50 X gpm during a rainstorm.
- Industrial plants, particularly food processors, where they have a periodic washdown of 50 to 100 times normal flow.
- Municipal sewage systems where present day flow may be very small, but future growth is expected to produce much higher flows. Note, often a double Parshall is used for this, and correctly so, but due to particular circumstances the H flume has been used to good advantage.
- Municipal sewage treatment plants that have very wide swings in flow rate, such as in resort areas.
- Portable — Plasti-Fab has supplied several special H Flumes to government agencies for temporary installation in the field.

STANDARD H, HS AND HL FLUME DIMENSIONS



FLUME SIZE	H	W	L	G	A
0.4 HS	0'-4 ³ / ₁₆ "	0'-5"	0'-7 ³ / ₁₆ "	2 ³ / ₈ "	2'-0"
1.0 HS	1'-0"	1'-0 ⁵ / ₈ "	1'-6"	6"	5'-0"
0.5 H	0'-6"	0'-11 ³ / ₈ "	0'-8 ¹ / ₈ "	1 ⁷ / ₈ "	2'-6"
0.75	0'-9"	1'-5 ¹ / ₈ "	1'-0 ¹ / ₈ "	2 ¹ / ₁₆ "	3'-9"
1.0	1'-0"	1'-10 ³ / ₁₆ "	1'-4 ³ / ₁₆ "	3 ⁵ / ₈ "	5'-0"
1.5	1'-6"	2'-10 ³ / ₁₆ "	2'-0 ⁵ / ₁₆ "	5 ³ / ₈ "	4'-6"
2.0	2'-0"	3'-9 ⁵ / ₈ "	2'-8 ³ / ₈ "	7 ³ / ₁₆ "	6'-0"
2.5	2'-6"	4'-9"	3'-4 ¹ / ₂ "	9"	7'-6"
3.0	3'-0"	5'-8 ³ / ₈ "	4'-0 ⁵ / ₈ "	10 ⁷ / ₈ "	9'-0"
4.0 HL	4'-0"	12'-9 ⁵ / ₈ "	6'-0"	1'-0"	12'-0"
4.5 H	4'-6"	8'-6 ⁵ / ₈ "	6'-0 ¹ / ₁₆ "	1'-4 ³ / ₁₆ "	13'-6"



APPROACH CHANNELS ARE AVAILABLE WHEN DESIRED.

CAPACITIES OF VARIOUS H, HS AND HL FLUMES

H = Head in feet Q = Capacity in cubic feet per second

FLUME SIZE	.4 HS	1.0 HS	.5	.75	1.0	1.5	2.0	2.5	3.0	4.0 HL	4.5
H	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
0.02	0.0002	0.0004	0.0004	0.0006	0.0007	0.0011	0.0014	0.0018	0.0021	0.005	0.0031
0.1	0.0042	0.0074	0.0101	0.0126	0.015	0.020	0.025	0.030	0.035	0.089	0.050
0.3	0.044	0.060	0.105	0.119	0.132	0.157	0.183	0.209	0.234	0.565	0.311
0.5		0.176		0.370	0.398	0.454	0.509	0.564	0.620	1.42	0.785
0.7		0.367		0.813	0.851	0.942	1.03	1.13	1.22	2.71	1.49
0.9		0.646			1.53	1.65	1.78	1.92	2.05	4.48	2.45
1.0						2.09	2.25	2.41	2.57	5.56	3.04
1.4						4.60	4.82	5.06	5.33	11.2	6.11
1.9							9.85	10.2	10.5	21.7	11.8
2.0								11.5	11.9	24.3	13.2
2.4								17.6	18.1	36.5	19.7
2.5									19.9	39.9	21.6
2.9									28.3	55.9	30.2
3.0										60.3	32.7
3.9										111.0	60.2
4.4											80.0

SOURCE: USDA Agricultural Handbook No. 224.

Plasti-Fab®, INC.

P.O. Box 100
Tualatin, Oregon 97062
503/692-5460