

## Flumes for measurement of flow in open channels



3.8

### General

For measurement of flow in open systems MJK supplies prefabricated flumes. The flumes are manufactured in glass fibre, PVC or stainless steel. The flumes are ready for installation or moulding.

### Special features

- Parshall, Venturi and Palmer & Bowlus flumes.
- The flumes are delivered as complete channel sections ensuring the best possible measuring accuracy.
- Standard types which cover the range from 35 m<sup>3</sup>/h to 2000 m<sup>3</sup>/h.
- Easy moulding and mounting.
- Preparations made for mounting of MJK extended sensor bracket

### Accessories

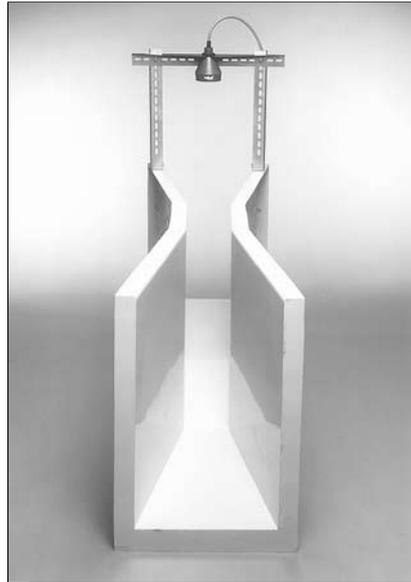


MJK prefabricated flumes are prepared for mounting of an extended bracket for an ultrasonic sensor. The bracket is made of stainless steel.

In places where it is not possible to use the extended sensor bracket for mounting of the ultrasonic sensor the standard MJK bracket for ultrasonic sensors can be used.

200220	Bracket for ultrasonic sensor
200230	Extended ultrasonic sensor bracket for flume, max. flume width 550 mm
200235	Extended ultrasonic sensor bracket for flume, max. flume width 950 mm

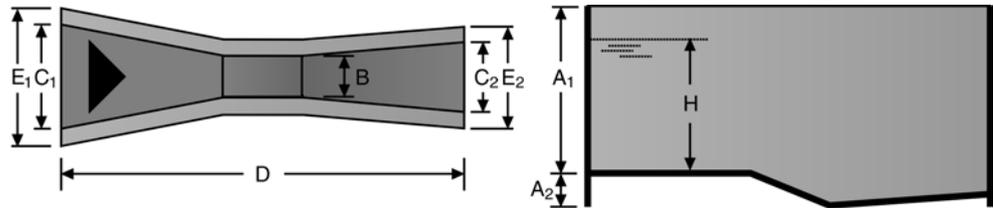
General



Specifications

Parshall flume				
Size	Q <sub>min</sub>	Q <sub>max</sub>	H <sub>max</sub>	Weight
2 inch - 50 mm	10 m <sup>3</sup> /h	100 m <sup>3</sup> /h	393 mm	10.3 kg
3 inch - 75 mm	27.5 m <sup>3</sup> /h	275 m <sup>3</sup> /h	591 mm	16.5 kg
6 inch - 150 mm	60 m <sup>3</sup> /h	600 m <sup>3</sup> /h	609 mm	33.0 kg
9 inch - 225 mm	120 m <sup>3</sup> /h	1200 m <sup>3</sup> /h	753 mm	43.5 kg
12 inch - 300 mm	200 m <sup>3</sup> /h	2000 m <sup>3</sup> /h	885 mm	100.0 kg
Material	Glass fibre			
pH range	pH 3-10			
Temperature range	-20°...+30° C; for short periods up to 90° C			

Dimension



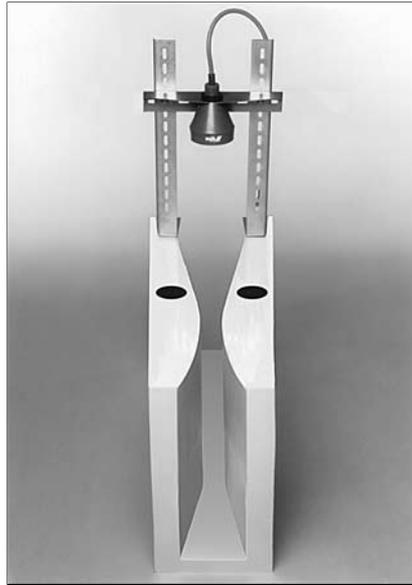
Size	A1	A2	B	C1	C2	D	E1	E2
2 inch	410	58	50.8	214	135	774	334	255
3 inch	610	75	76.2	259	178	914	379	298
6 inch	610	155	152.4	397	394	1525	517	514
9 inch	762	143	228.6	575	381	1626	695	501
12 inch	914	270	304.8	845	610	2867	965	730

All measurements in mm

Ordering

Parshall flume	
170001	2 inch flume, 1 - 100 m <sup>3</sup> /h
170002	3 inch flume, 3 - 275 m <sup>3</sup> /h
170003	6 inch flume, 6 - 600 m <sup>3</sup> /h
170004	9 inch flume, 9 - 1200 m <sup>3</sup> /h
170005	12 inch flume, 12 - 2000 m <sup>3</sup> /h

General



Venturi flumes are supplied standard as short throated Khafagi type:

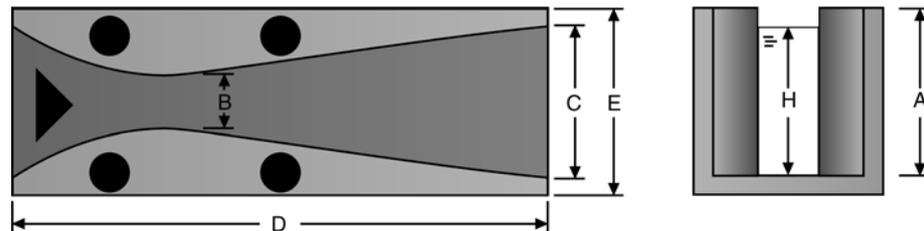
Venturi flumes are characterized by:

- Flat bottom, therefore suitable to be built into existing flumes.
- 3 sizes cover the range from 35 m<sup>3</sup>/h to 450 m<sup>3</sup>/h.
- Supplied in stainless steel AISI 316.
- Easy to build in. Prepared for moulding with air holes

Specifications

Venturi flume				
Size	Q <sub>min</sub>	Q <sub>max</sub>	H <sub>max</sub>	Weight
5 inch - 120 mm	3.5 m <sup>3</sup> /h	35 m <sup>3</sup> /h	125 mm	18.6 kg
5 inch - 120 mm	3.5 m <sup>3</sup> /h	120 m <sup>3</sup> /h	273 mm	28.5 kg
6 inch - 160 mm	10 m <sup>3</sup> /h	150 m <sup>3</sup> /h	267 mm	38.9 kg
8 inch - 200 mm	15 m <sup>3</sup> /h	200 m <sup>3</sup> /h	281 mm	54.0 kg
8 inch - 200 mm	15 m <sup>3</sup> /h	450 m <sup>3</sup> /h	467 mm	76.0 kg
Material	AISI 316			
pH range	3-12 pH			
Temperature range	-20...+60° C; for short periods up to 90° C			

Dimension



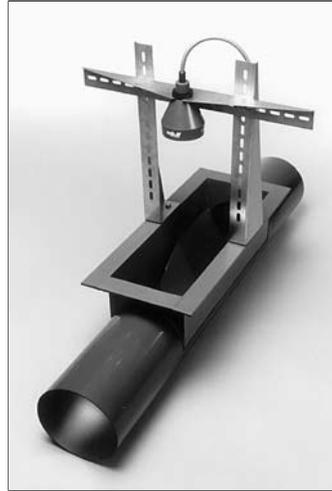
Size	A	B	C	D	E
5 inch	150	120	300	1050	400
5 inch	300	120	300	1050	400
6 inch	300	160	400	1400	500
8 inch	320	200	500	1750	600
8 inch	520	200	500	1750	600

All measurements in mm

Ordering

Venturi flume	
170050	5 inch flume, 3.5 - 35 m <sup>3</sup> /h
170052	5 inch flume, 3.5 - 120 m <sup>3</sup> /h
170063	6 inch flume, 10 - 150 m <sup>3</sup> /h
170072	8 inch flume, 15 - 200 m <sup>3</sup> /h
170076	8 inch flume, 15 - 450 m <sup>3</sup> /h

General



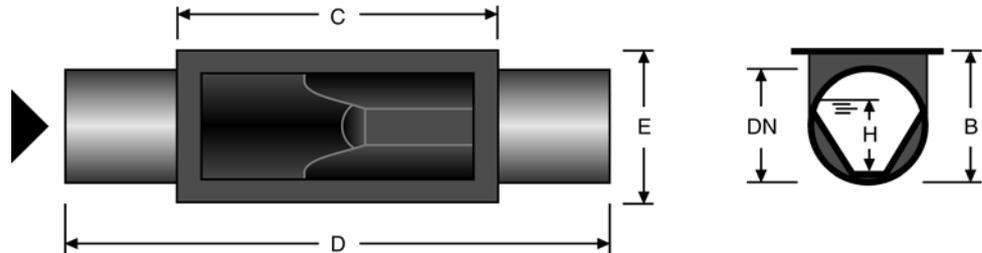
Palmer & Bowlus flumes are designed for installation in partly full pipes. Palmer & Bowlus flumes are characterized by:

- Connection to standard pipelines
- Many applications in waste water for measuring continuous flow and storm flow
- Flumes are often mounted in wells, where only a few adjustments for installation are made
- The simple form keeps the flume clean. The MJK designed measuring shaft provides simple cleaning
- Dimensions DN 200, DN 250 and DN 300 are supplied in glass fibre reinforced polyester/PVC. The larger flumes are supplied in PVC.

Specifications

Palmer & Bowlus flume					
Size	DN	Qmin	Qmax	Hmax	Weight
8 inch	200 mm	14 m³/h	70 m³/h	151 mm	7 kg
10 inch	250 mm	22 m³/h	110 m³/h	179 mm	8.5 kg
12 inch	300 mm	40 m³/h	200 m³/h	240 mm	16 kg
15 inch	400 mm	65 m³/h	325 m³/h	277 mm	22 kg
24 inch	600 mm	220 m³/h	1100 m³/h	453 mm	15.6 kg
30 inch	800 mm	350 m³/h	1750 m³/h	540 mm	30.1 kg
Material	8, 10, 12 and 15 inch: Glass fibre reinforced polyester / PVC 24 and 30 inch: PVC				
pH range	3-10 pH				
Temperature range	-20...+30° C, glass fibre reinforced polyester shortly up to 90° C				

Dimensions

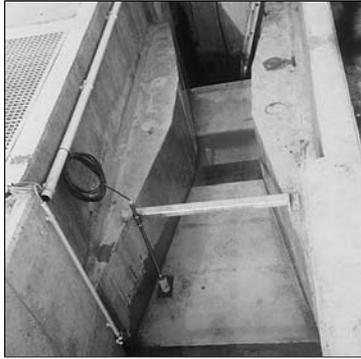


Size	DN	DN inside	B	C	D	E
8 inch	200	194	260	650	1190	290
10 inch	250	244	310	700	1190	335
12 inch	300	308	360	820	1250	400
15 inch	400	384	500	1100	1500	480
24 inch	600	590	700	1330	1700	690
30 inch	800	788	900	1670	2800	887

All measurements in mm

Ordering

Palmer & Bowlus flume	
170080	8 inch flume, 14 - 70 m³/h
170081	10 inch flume, 22 - 110 m³/h
170082	12 inch flume, 40 - 200 m³/h
170084	15 inch flume, 65 - 325 m³/h
170086	24 inch flume, 220 - 1100 m³/h
170088	30 inch flume, 350 - 1750 m³/h



MJK designs and manufactures flumes according to application. Our standard flumes can be supplied in other materials than the specified.

*Parshall flume made in acid proof steel delivered at Ringsted Sewage Plant in Denmark. Note how the bottom is made so the mounted pressure transmitter can measure all the way to zero.*

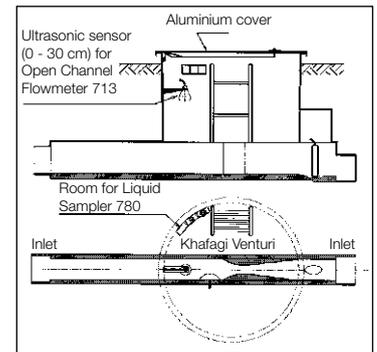
*Flume for measuring surface water for the river Maas near Maastricht in the Netherlands.*

*Customer: Waterschap Roer en Overmaas*



*Measuring box supplied for wastewater outlet at dairy. With the little flow that is measured it is best to use a prefabricated measuring box where the 90° weir is mounted directly on the measuring box.*

*Sketch of special manufactured measuring well with Khafagi flume. The well is manufactured in glass fibre reinforced polyester and is supplied with aluminium cover. In the well there is a handling platform on which the sampling equipment etc. can be placed.*



*We offer calculation and drawing of large flumes for moulding on location.*

Open Channel Flowmeter 713 is used for measuring waste water from industrial and municipal plants with all well known flumes and weirs.

The flowmeter is very easy to operate. The functions are logically built up and after starting up, the flowmeter is operated by only 4 function keys.



Function key for flow  $Q_{(t)}$  :

- the flow right now
- average flow for the last hour
- average flow today
- average flow for the last 24 hours

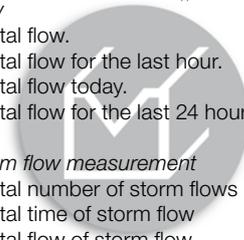


Summed quantities  $\Sigma Q_{(t)}$  :  
*Flow*

- total flow.
- total flow for the last hour.
- total flow today.
- total flow for the last 24 hours.

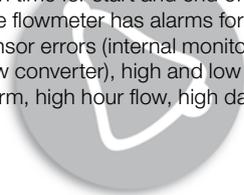
*Storm flow measurement*

- total number of storm flows
- total time of storm flow
- total flow of storm flow.
- amount at last storm flow.
- storm flow start/end



Function key for alarms:

- display of the previous 9 alarms with time for start and end of alarm.
- The flowmeter has alarms for: sensor errors (internal monitoring of flow converter), high and low flow alarm, high hour flow, high day flow.



Function key for sampler:

- total number of samples
- total number of samples today
- total number of samples for the last 24 hours.



The flowmeter has outputs for transmission of measuring and counting values for connection to printer or data transmitter.

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