

# VENTURI CHANNEL DEBITFLO

Flow rate measurement in open channel

**AV 07**



Nominal flow rate  
7.5 m<sup>3</sup>/h

## INSTRUCTIONS MANUAL

**BAMO MESURES**

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Flow rate measurement  
in open channel  
**DEBITFLO**

08-01-2009

755 M1 019 B

**MES**

**755-19/1**

## 1. DEBITFLO LOCATION

Please consider carefully all following requirement to choose a suitable location of the open channel DEBITFLO.

### UPSTREAM SIDE SURROUNDINGS

To respect the minimum straight flow distance before the Venturi: the approach channel of the complete DEBITFLO is sufficient. However, it is better to **limit the slope of the input line at a minimal value.**

In case the slope is too high, **an undertow effect will be the consequence**, visible in the channel. In this case, the complete system will be operational only when the undertow (wave) is at a **greater distance than 30 times the highest water height of the DEBITFLO** (see the flow rate table at 100%).

**If the flow input line is not in the axis of the channel axe or through a valve, it is necessary to built up a longer approach channel.**

When the approach channel width is lower than the input line, it is necessary to built up a restriction input line in order **to avoid turbulences.**

**The best solution is to set up a basin for tranquilization** just before the approach channel, larger than the DEBITFLO and an input flow through a vertical pipeline.

### DOWNSTREAM SIDE SURROUNDINGS

The most important is to procure a free draining.

The DEBITFLO may **never get a drop pressure** back due to a bad drain off.

So, do not install a pipeline with a smaller diameter than the diameter of input line. Better to choose a really greater diameter and to design it with the highest possible slope value

**Never the height of downstream is over 80% of the upstream height.**

The most convenient when it is possible is to let **the flow output falling freely** in a cataract way.

## 2. LEVELLING THE DEBITFLO

### DIRECTION

- Install the DEBITFLO with its axis in the same axis of the flow.

### RAISING

- The bottom of the channel should be at the height of the input line bottom.

### LEVELLING

- Please use a bubble indicator to assure a perfect horizontal installation.

### 3. CARES FOR BEDDING

Before bedding the DEBITFLO in concrete, follow these recommendations to avoid any deformation inside the channel and unbalanced channel parts.

- The strengthening pieces are sufficient to keep optimal all dimensions of the channel during stocking and transport.
- These strengthening pieces are not designed to resist with the pressure due to materials (concrete, sand, foams, etc.) during bedding.
- Therefore, it is necessary to adapt bracing device, internal wood struts to balance the pressure from bedding materials and avoid restrictions/surface defects in the channel.
- Until all the materials are stabilized, dried, keep all the original strengthening pieces in place.
- Steel frameworks are of a good help for huge channels: drill into the external wood strengthening pieces to fix the channel to the structure.
- First bedding the ends of the channel and bottom of each strengthening pieces assure to keep a good position when filling is done with sand or weak concrete.

**No respect of these recommendations will cancel the manufacturer warranty.**

### UPSTREAM FINISHING

Coupling of DEBITFLO and input channel should be done of concrete, avoiding sudden changes of dimensions.

### DOWNSTREAM FINISHING

Coupling of DEBITFLO and output line should be done of concrete, keeping a freely falling.

### 4. FLOW RATE TABLE

HEIGHT %	HEIGHT mm	FLOW RATE l/s	FLOW RATE m <sup>3</sup> h
5,0	5	0,0	0,04
10,0	10	0,1	0,18
15,0	15	0,1	0,37
20,0	20	0,2	0,61
25,0	25	0,2	0,87
30,0	30	0,3	1,17
35,0	35	0,4	1,49
40,0	40	0,5	1,84
45,0	45	0,6	2,21
50,0	50	0,7	2,61
55,0	55	0,8	3,02
60,0	60	1,0	3,46
65,0	65	1,1	3,92
70,0	70	1,2	4,39
75,0	75	1,4	4,88
80,0	80	1,5	5,39
85,0	85	1,6	5,91
90,0	90	1,8	6,46
95,0	95	1,9	7,02
100,0	100	2,1	7,59

### 5. DIMENSIONS

*The drawing is on the next page.*

Throat width	b =	40.0 mm
Channel width	B =	100.0 mm
Venturi length	L =	200.0 mm
Raised bottom	P =	20.0 mm
Roughness	Ks =	0.06 mm
Maximal height	=	100.0 mm
Nominal temperature	=	20.0 °C

**AV 07**

Nominal flow rate 7.5 m<sup>3</sup>/h  
Overflowing rate 12 m<sup>3</sup>/h

VENTURI + approach channel  
Construction: Fiber reinforced polyester  
Roughness K = 0,06

