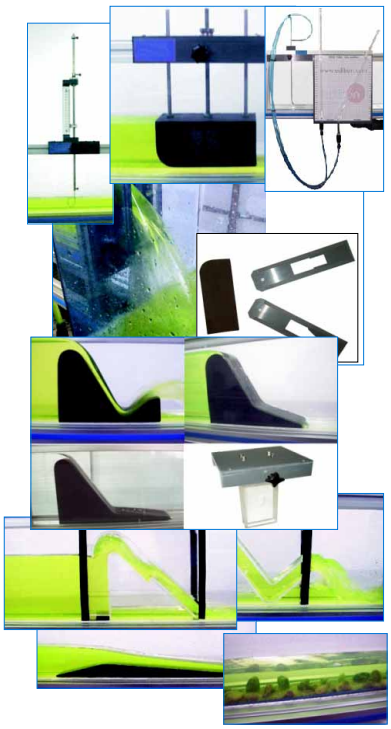
Flow Channels (section: 80 x 300 mm)

CF

Technical Teaching Equipment

Some available Accessories:



CF. Flow Channels (section: 80 x 300 mm)
Available Versions:
- CF80/2. Flow Channel (section: 80 x 300 mm), length: 2.5 m.
- CF80/5. Flow Channel (section: 80 x 300 mm), length: 5 m.

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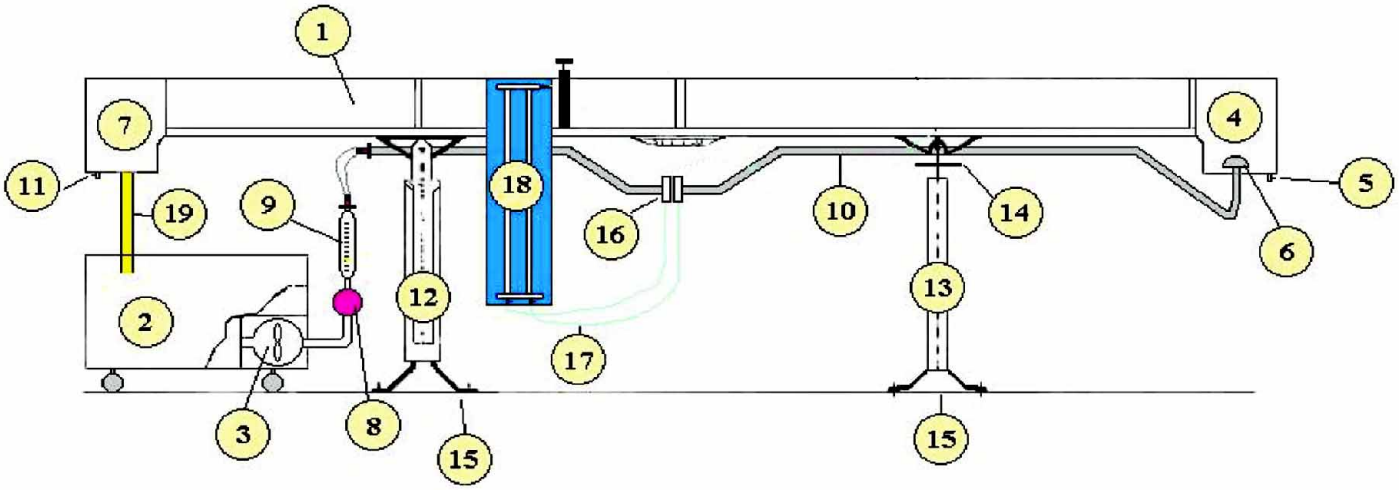
PROCESS DIAGRAM AND ELEMENTS ALLOCATION



Number	Description
1	Channel of rectangular section with transparent walls.
2	Storage tank.
3	Impulsion pump.
4	Inlet tank.
5	Drain valve of the inlet tank.
6	Stilling of the flow in the inlet.
7	Reception tank.

Number	Description
8	Regulation valve of the flow in the inlet.
9	Flow meter.
10	Pipe.
11	Drain valve of the reception tank.
12	Support.
13	Support.
14	Wheel to control the inclination of the channel.

Number	Description
15	Anchorages to the floor.
16	Diaphragm flow meter.
17	Connection tubing between the diaphragm and the manometric tubes panel.
18	Manometric tubes panel and hand pump.
19	Discharge tube to the storage tank.

ISO 9001:2000 Certificate of Approval

European Union Certificate

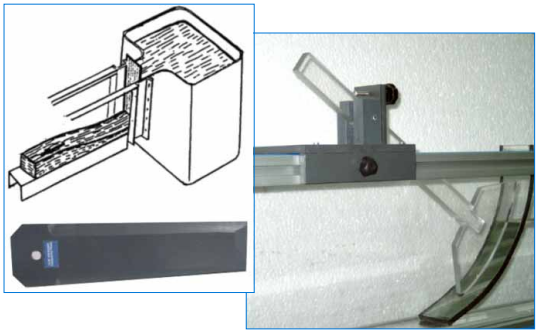
Certificates ISO 14001: 2004 and ECO-Management and Audit Scheme (environmental management)

Worlddidac Quality Charter Certificate Worlddidac Member

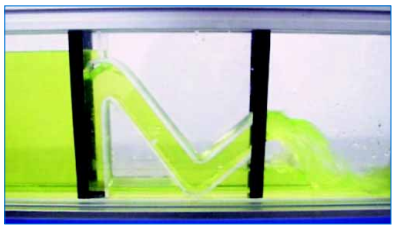
CFTP. Pitot tube and manometer board

CFRM. Level gauge for measurement of the water height (hook and point gauge)

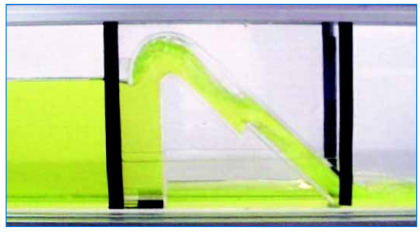
CFVDG. Broad and thin crested weirs



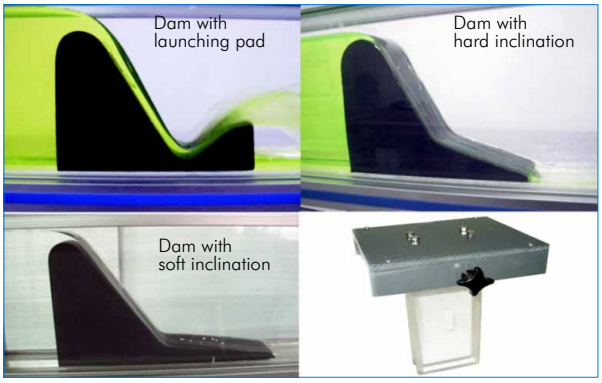
CFCVR. Vertical flat gate and radial gate



CFSDL. Syphon spillway

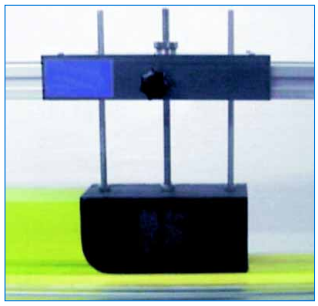


CFSDS. Air regulated syphon



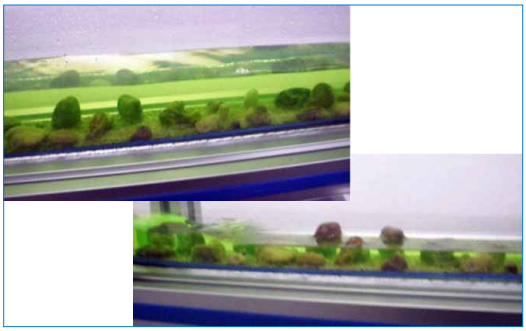
CFPVP. Dams spillway and flow splitters (3 different models of dams)

CFVC. Crump weir

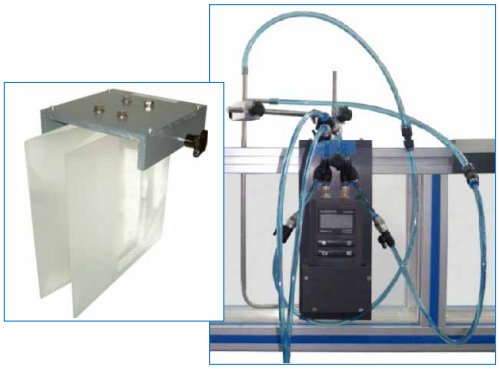


CFCA. Culvert fitting

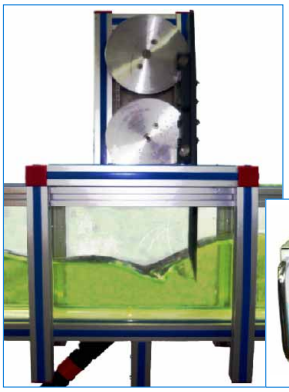
CFVEN. Venturi flume



CFPLR. Artificial roughened bed (3 different models)



CFTVC. Venturi tube, with pressure transducers, converter and differential pressure digital indicator for input flow measurement



CFGO. Wave generator

CFPR. Adjustable undershot weir

DESCRIPTION

Channel of rectangular section with transparent walls through which water flows. Water is taken from the storage tank by means of a hydraulic pump and, by the pipe, it is driven to the inlet tank, where there is a soothing of flow. After that, the water flows through the channel that discharges in the reception tank. Finally it comes back to the storage tank, completing the closed circuit.

To regulate the flow through the channel, there is a valve at the output of the pump.

To measure the flow there is an diaphragm flowmeter. The flow also can be measured with the flowmeter of the Basic Hydraulic Feed System (FME00/B).

The channel is assembled on two supports, with a system to control the inclination of the channel.

There is a wide range of available accessories.

SPECIFICATIONS

Anodized aluminium structure and supports in painted steel.

Main metallic elements in stainless steel.

Channel of rectangular section with transparent walls, formed by methacrylate transparent sections.

There are several channel versions to chose:

- **-CF80/2. Flow channel (section: 80 x 300 mm), length: 2.5 m.**
- **-CF80/5. Flow channel (section: 80 x 300 mm), length: 5 m.**

The channel is assembled on supports, with a system to control the inclination of the channel. Channel slope: adjustable.

Inlet tank (capacity: 38 litres), with stilling of flow and with drain valve.

Reception tank (capacity: 38 litres), with drain valve.

Flow control valve.

Pipes.

Diaphragm flowmeter.

Manometric tubes panel. It is formed by two methacrylate tubes of 500 mm. of length, with a graduated panel and a hand pump.

FME00/B. Basic Hydraulic Feed System:

- **Storage tank (capacity: 140 litres approx).**
- **Impulsion pump:**
  - **Single-phase, 220V/50Hz or 110V/60Hz.**
  - **0.37 KW.**
  - **2800 r.p.m.**
  - **30-80 l./min. at 20.1-12.8m.**
- **Safety switch ON/OFF.**
- **Flowmeter.**
- **Flow control valve.**

Cables and Accessories, for normal operation.

Manuals:

This unit is **supplied with the following manuals:** Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices Manuals.

Available accessories:

- **CFTP. Pitot tube and manometer board.**
- **CFRM. Level gauge for measurement of the water height (hook and point gauge).**
- **CFVDG. Broad and thin crested weirs. (One broad weir and 2 thin weirs).**
- **CFCVR. Vertical flat gate and radial gate.**
- **CFSDL. Syphon spillway.**
- **CFPVP. Dams spillway (3 different models) and flow splitters.**
- **CFCA. Culvert fitting.**
- **CFVC. Crump weir.**
- **CFVEN. Venturi flume.**
- **CFSDS. Air regulated syphon.**
- **CFFS. False floor sections. (2 different models).**
- **CFPLR. Artificial roughened bed. (3 different models).**
- **CFTVC. Venturi tube, with pressure transducers, converter and differential pressure digital indicator for input flow measurement.**
- **CFGO. Wave generator.**
- **CFPR. Adjustable undershot weir.**

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit: (in function of the accessories used)

1.- Measurement of the water height and the velocity along the channel.
2.- Measurement of the flow with weirs of thin wall.
3.- Measurement of flow with changes in the channel section.
4.- Measurement of flow using Venturi flume.
5.- Control of the flow by gates.
6.- Level control using syphons.
7.- Flow on overflow dams.
8.- Flow among the pillars of a bridge.
9.- Connection of a channel to a culvert.
10.- Characterization of the hydraulic jump.
11.- Profiles of the water free surface.
12.- Investigation of flow and supercritical flow states.
13.- Measurement of water levels.
14.- Discharge processes on an underwater weir.
15.- Amount of energy in flows in open channels.
16.- Function of a syphon weir.
17.- Flow rate and drain coefficients of a syphon weir.
18.- Pipe flows.
19.- Comparison of overflow and syphon weirs.
20.- Observation of the throw of the water.
21.- Generation of different flow states by damming the down-stream water.
22.- Observation of the flow under an undershot weir:
-Observation of hydraulic motion on discharge.
23.- Relationship between dam height and discharge.
24.- Observation of discharges under a radial gate:
-Observation of hydraulic motion on discharge.
25.- Hydrostatic pressure on a weir.
26.- Investigations on waves.
27.- Behaviour of structures in rough sea.
28.- Applying and understanding Manning's formula.
29.- Understanding sub- and super-critical flow.
30.- Learning how to apply force-momentum and steady flow energy equations to simple flow situations.
31.- Investigation of the transition from running to shooting flow.

Other possible practices:

32.- Filling of the Pitot tube.
33.- Filling of the venturi meter with analog output.
34.- Filling of the manometric tubes.
35.- Calculation of water flow.
36.- Use of level gauge for measurement of the water height.

REQUIRED SERVICES

- Electrical supply: 220V./50Hz or 110V./60Hz.
- Water supply and drainage.

DIMENSIONS & WEIGHTS

CF80/2:	-Dimensions: 3600 x 1000 x 1700 mm. approx.
	-Weight: 250 Kg. approx.
CF80/5:	-Dimensions: 6050 x 1000 x 1700 mm. approx.
	-Weight: 350 Kg. approx.

AVAILABLE ACCESSORIES

- CFTP. Pitot tube and manometer board.
- CFRM. Level gauge for measurement of the water height (hook and point gauge).
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AVAILABLE VERSIONS

Offered in this catalogue:

- CF80/2. **Flow Channel (section: 80 x 300 mm), lenght: 2.5 m.**
- CF80/5. **Flow Channel (section: 80 x 300 mm), lenght: 5 m.**

Offered in other catalogues:

- CFC80/2. Computer Controlled **Flow Channel (section: 80 x 300 mm), lenght: 2.5 m.**
- CFC80/5. Computer Controlled **Flow Channel (section: 80 x 300 mm), lenght: 5 m.**

- CFG300/5. **Flow Channel (section: 300 x 450 mm), length: 5 m.**
- CFG300/7. **Flow Channel (section: 300 x 450 mm), length: 7.5 m.**
- CFG300/10. **Flow Channel (section: 300 x 450 mm), length: 10 m.**
- CFG300/12. **Flow Channel (section: 300 x 450 mm), lenght: 12.5 m.**

- CFGC300/5. Computer Controlled **Flow Channel (section: 300 x 450 mm), length: 5 m.**
- CFGC300/7. Computer Controlled **Flow Channel (section: 300 x 450 mm), length: 7.5 m.**
- CFGC300/10. Computer Controlled **Flow Channel (section: 300 x 450 mm), length: 10 m.**
- CFGC300/12. Computer Controlled **Flow Channel (section: 300 x 450 mm), length: 12.5 m.**

✱Specifications subject to change without previous notice, due to the convenience of improvements of the product.

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