



FC80 (2.5 AND 5)

FLOW AND SEDIMENT TRANSPORT CHANNELS

An 80 mm, wide 2.5 or 5 m long flow and sediment transport channel with a starter kit of models and instruments. It provides students with the ability to study the varying effects of sediment transport, bedform dynamics and fluid flow around weirs and other objects in an open channel.



FC80-2.5 METRE CHANNEL

KEY FEATURES

- Includes four models with the flume for immediate experimentation potential
- Digital flow meter for quick and accurate measurements
- Transparent sides for clear visibility, ideal for group demonstrations
- Stainless-steel beam and toughened glass channel walls, provides long-lasting use with sedimentation
- Built-in, recirculating water supply for convenient laboratory use

KEY SPECIFICATIONS

- Digital flow meter: 10 to 200 litres per minute
- Pump flow rate: 0 to 180 litres per minute
- Digital inclinometer: High resolution of 0.05 degrees

LEARNING OUTCOMES

- Investigations in fixed and smooth bedform
- Mechanics of sediment transport
- Local (bridge) scour experiments, to understand scour holes and effects on the integrity of a structure
- Two sluice gates for investigations into hydraulic jump, specific energy and the determination of discharge coefficient
- Submerged sharp-crested weir reveals the relationship between head over a weir and discharge
- A broad-crested weir and the effects of changing the profile of the weir
- Uniform flow in an inclined channel with investigations into the Chézy factor and coefficient
- A Venturi flume to indicate the discharge and surface profile, thus the derivation of the discharge coefficient



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DESCRIPTION

The FC80 Series channels are 80 mm in width, 250 mm high and are available in 2.5 metre and 5 metre lengths.

The flumes have a built-in re-circulating water supply connected to a digital flow meter for accurate measurements during experimentation.

They have a built-in sediment trap and include sediment (graded sand), a trowel and a rake, for detailed experimentation into sediment transport.

Also included with the flumes are four different models, so students have the ability of immediate experimentation in open channel flow.

The models included are:

- Broad-crested weir
- Sharp-crested weir
- Venturi flume
- Two sluice gates

The channel is made of toughened glass, precision-built to ensure parallel walls and a consistently accurate cross-section along its length. A sturdy steel U-section firmly supports the channel throughout its length. It has a floor-standing frame that supports the working section at a convenient eye-level position for students. A jack raises and lowers the screw support and the digital inclinometer gives an accurate adjustment of the channel angle.

A pump with a control valve, forces water up to flow settling chamber at the upstream end of the channel. This gives smooth, uniform flow, free from entry effects. The downstream end of the channel has a windowed section for visualisation of flow and a settling chamber upon exit. The pump has a stainless steel shaft and urethane impeller, providing excellent wear resistance to sediment in water.

TecQuipment makes a selection of extra (optional) models for use with the flow channels – see Recommended Ancillaries for details.

STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer

ACCESSORIES (INCLUDED)

- Broad and sharp-crested weir
- Two sluice gates
- Venturi flume
- Two instrument level gauges
- Pitot tube
- Sediment trap stainless steel
- 50 kg each of two grades of sediment (graded sand), trowel and rake

RECOMMENDED ANCILLARIES

- Cylindrical Gate (FC80a)
- Radial Sector Gate (FC80b)
- Crump Weir (FC80d)
- Dam Spillway (FC80e)
- Streamlined Hump (FC80g)
- Siphon Spillway (FC80l)
- Parshall Flume (FC80h)
- Culvert Model (FC80p)
- Roughened Bed (FC80k)
- Wave Generator and Beach (FC80n)
- Flow Splitter (FC80u)
- Bridge Piers - Cylinder, Round, Square, Sharp Nose (FC80j)

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DETAILED SPECIFICATIONS

TecEquipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NETT DIMENSIONS AND WEIGHT:

FC80-2.5

Approximately: 3.15 metres long, 1.2 metres wide, 1.4 metres tall and 228 kg

FC80-5

Approximately: 5.65 metres long, 1.2 metres wide, 1.4 metres tall and 410 kg

DIMENSIONS OF WORKING SECTION:

FC80-2.5

Nominally 2.5 metres long, 250 mm high and 80mm wide

FC80-5

Nominally 5 metres long, 250 mm high and 80mm wide

FLOW CHANNEL SECTION:

- Toughened glass channel walls

FLOW RATE:

- 0 to 180 litres per minute

TILTING:

- Flume inclinable by -1 to +3 degrees

WATER TANK:

- 320 litre tank capacity with level gauge

PUMP SPECIFICATIONS:

- Submersible pump, stainless steel shaft, urethane impeller and silicon carbide mechanical seal
- Pump power: 0.5kW
- Max flow of pump: 12 m³/h
- Number of limnimeters: 2

OPERATING CONDITIONS

POWER SUPPLY (SPECIFY ON ORDER)

Single phase, 220 - 240 VAC, 50 Hz, 4 A

OR

Single phase, 110 - 120 VAC, 60 Hz, 6 A

INCLUDED ANCILLARIES AND INSTRUMENTS

