

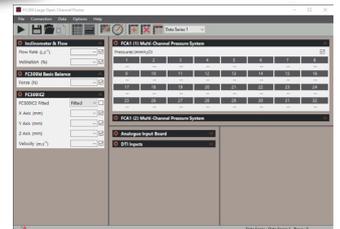
FLUMES

VDAS® FC300 (5, 7.5, 10, 12.5 AND 15 METRES)

A 300 mm wide, 5 to 15 m long flume for student study and advanced research into a wide range of fluid flow topics. A huge range of ancillaries are available to extend learning potential and offers the opportunity for innovative experimentation.



FC300-7.5 METRE CHANNEL



SCREENSHOT OF THE VDAS® SOFTWARE

KEY FEATURES

- Digital data acquisition for quick and accurate measurements
- Transparent sides for clear visibility, ideal for group demonstrations
- Stainless steel channel base plate and toughened glass channel walls provide long-lasting use
- Built-in re-circulating water supply for convenient laboratory use
- Bed plate pressure tappings at 0.25 metre intervals, providing detailed analysis potential

KEY SPECIFICATIONS

- Pump flow rate: 2100 l.min⁻¹ maximum.
- Digital inclinometer: High resolution of 0.05 degrees.

LEARNING OUTCOMES

- Sluice gate 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 (optional ancillary)
- Uniform flow in an inclined channel with investigations into the Chezy factor and coefficient
- A Venturi flume to indicate the discharge and surface profile, thus the derivation of the discharge coefficient
- Further experimentation with additional optional models
- With the optional Sediment Loop (FC300sl) and included permeable medium, sediment transport, scouring, ripple and dune formation and similar studies can be performed

DESCRIPTION

The FC300 Series channels are 300 mm in width, 450 mm in height, and are available in 5 metre, 7.5 metre, 10 metre, 12.5 metre and 15 metre lengths.

The flumes have various models available, giving students a wide choice of experimentation in open channel flow.

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

The flumes have pressure measurement tapings at 0.25 metre intervals along the working section. These tapings can connect either to a multi-tube manometer or to a 32-way pressure display. The 32-way pressure display connects to TecQuipment's VDAS® for real-time data acquisition.

Each FC300 is supplied with two level gauges (hook and point) and a Pitot tube, all of which mount onto and run along the instrument rails at the top of the flume. Measurements from these instruments combined with the digital flow meter provide the potential for extensive analysis of open channel flow for research or advanced study.

Bed-load transport can be investigated using the optional Sediment Loop (FC300sl). This ancillary provides a closed sediment circuit consisting of a sediment trap and feed mechanism which allows sand to be pumped from the trap to a feeder located above the working section between experiments.

The flume is made of transparent glass, precision-built to ensure parallel walls and a consistently accurate cross-section along its length. A sturdy steel square-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.

Screw jacks raise and lower the supports inclining the channel as required. The digital inclinometer gives an accurate display of the channel angle.

A pump with a speed controller, forces water up to the flow settling chamber at the upstream end of the channel. This gives smooth, uniform flow, free from entry effects.

STANDARD FEATURES

- Supplied with a comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer
- Versatile Data Acquisition System (VDAS-FC)

ACCESSORIES (INCLUDED)

- VDAS-FC
- Float switch
- Sluice gate
- Level gauges
- Pitot tube
- Sharp crested weir
- Powered end gate
- 10 x 25 kg bags of permeable medium, filter size 16/30, particle size 0.5 - 1.0 mm

AVAILABLE EXPERIMENTS

- Radial Gate (FC300b)
- Sluice Gate (Undershot Weir) (FC300c)
- Crump Weir (FC300d)
- Dam Spillway (FC300e)
- Ogee Weir with Tappings (FC300e2)
- Energy Dissipation (FC300e3)
- Venturi Flume (FC300f)
- Parshall Flume (FC300h)
- Bridge Piers: Cylinder, Round Nose, Square, Sharp Nose (FC300j)
- Roughened Bed (FC300k)
- Roughened Bed - Sand (FC300k2)
- Roughened Bed - Turf (FC300k3)
- Siphon Spillway (FC300l)
- Self Regulating Siphon (FC300l2)
- Lift and Drag (FC300ld)
- Vortex Induced Vibrations (FC300m)
- Wave Generator and Beach (FC300n)
- Culvert Model (FC300p)
- Rectangular and V-Notch Weirs (FC300q)
- Broad Crested Weir (FC300r)
- Trapezoidal Flume (FC300z)

RECOMMENDED INSTRUMENTATION

- Instrument Carrier (FC300ic)
- Digital Instrument Carrier (FC300ic2)
- Water Velocity Meter (FC300x)
- Multi-Tube Manometer (FC300w)
- 32-Way Pressure Display (FCA1)

RECOMMENDED ANCILLARY

- Sediment Loop (FC300sl)

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:

- FC300-5 metre channel:
Approximately 7.5 metres long, 2.2 metres wide, 2.1 to 2.73 metres high and 1925 kg
- FC300-7.5 metre channel:
Approximately 10 metres long, 2.2 metres wide, 2.1 to 2.78 metres high and 2450 kg
- FC300-10 metre channel:
Approximately 12.5 metres long, 2.2 metres wide, 2.1 to 2.83 metres high and 2975 kg
- FC300-12.5 metre channel:
Approximately 15 metres long, 2.2 metres wide, 2.1 to 2.89 metres high and 3500 kg
- FC300-15 metre channel:
Approximately 17.5 metres long, 2.2 metres wide, 2.1 to 2.95 metres high and 4100 kg

NOTE:

Heights are variable because they are dependant on the inclination of the channel and the instruments placed.

DIMENSIONS OF WORKING SECTION:

Nominally (5, 7.5, 10, 12.5 or 15) metres long, 300 mm wide and 450 mm deep

FLOW RATE:

2100 l.min⁻¹ maximum.

TILTING:

5 to 10 metre flumes inclinable by a minimum of: +2.5% (downwards) to - 0.5% (upwards)

Note: 12.5 and 15 metre flume tilting range (please enquire)

FLOW CHANNEL SECTION:

Model fixing points at 0.5 metre intervals

WATER STORAGE CAPACITY:

- FC300-5 metre channel: 2400 litres
- FC300-7.5 metre channel: 3600 litres
- FC300-10 metre channel: 4800 litres
- FC300-12.5 metre channel: 6000 litres
- FC300-15 metre channel: 7200 litres

ESSENTIAL SERVICES

WATER

- Clean water supply and drain

POWER SUPPLY (SPECIFY ON ORDER)

- 3 Phase, 380-415 VAC, 50/60 Hz, 9A

OR

- 3 Phase 220 - 240 VAC, 50/60 Hz, 16A

OPERATING CONDITIONS

OPERATING ENVIRONMENT:

Laboratory

STORAGE TEMPERATURE RANGE:

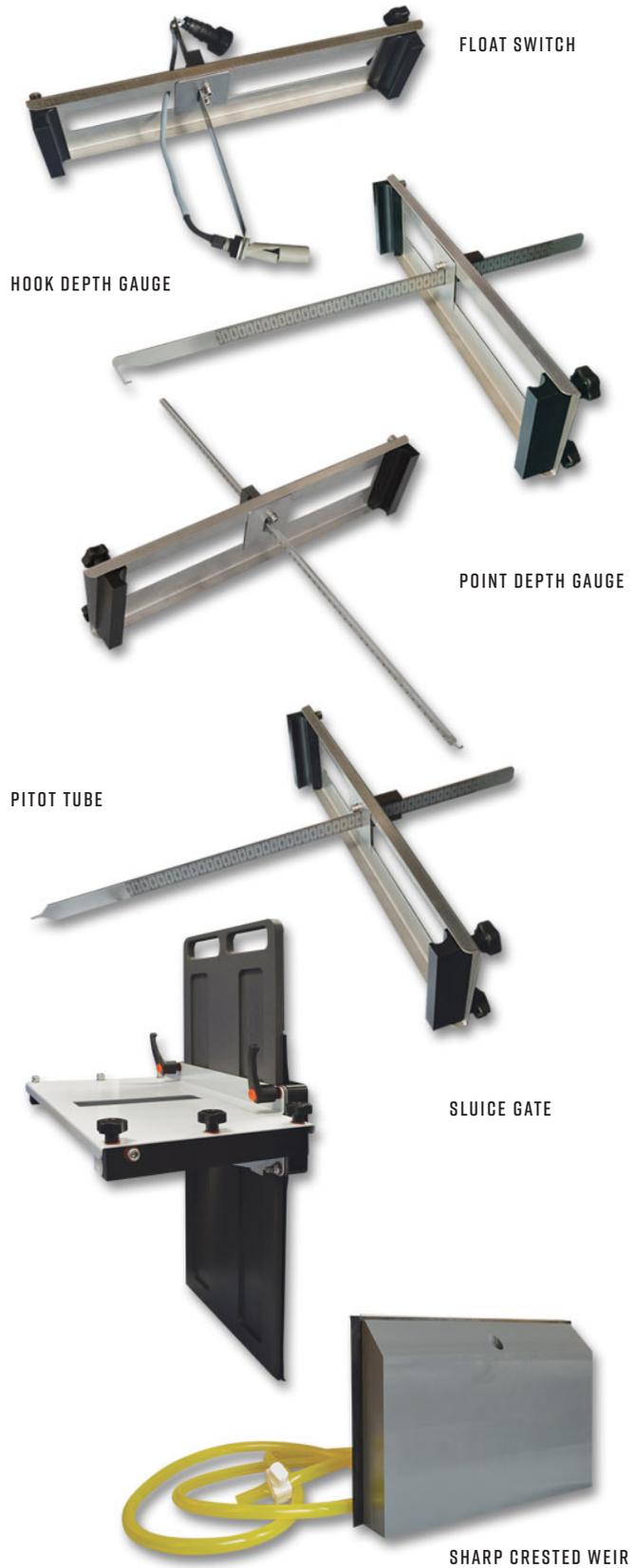
-25°C to +55°C (when packed for transport)

OPERATING TEMPERATURE RANGE: +5°C to +40°C

OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

INCLUDED ACCESSORIES



FLOAT SWITCH

HOOK DEPTH GAUGE

POINT DEPTH GAUGE

PITOT TUBE

SLUICE GATE

SHARP CRESTED WEIR