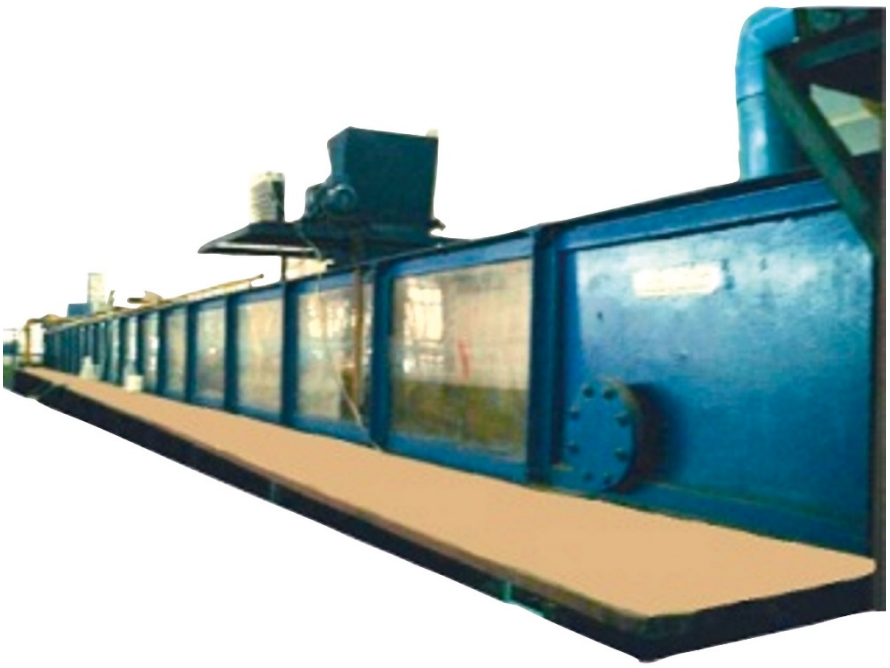
HF 566 SEDIMENT FLOW CHANNEL, 600 mm Wide



Typical Photograph

GENERAL DESCRIPTION:

The channel is designed for studying the sediment transport and bed forms as well as flow phenomena without sediment. It is a service unit to be used with optional accessories and models. Instruction manual is also included.

Under Frame

The channel bed rests on twin I-beam under frame which ensures static loading deflections are kept to a minimum. The length of the I-beam is about 6 m Each section is shipped with glass side walls. This simplifies site installation as there are less joints and is easier to ensure straight side walls throughout the length. To ensure minimum deflection, the I beam base frame of 18 m is supported by a fulcrum at the middle and adjustable height support at both up stream and down stream ends for a total of 3 supports. The number of supports is 5 for 30 m channel length.

Slope Adjustment

Each adjustable height support uses twin screws and with a system of worm and wheel gear boxes and miter gears which are intern driven by a motor. A slope scale is provided at one end of the flume.

Channel Bed

The channel bed is made of stainless steel with twin screw holes of equal distance along the channel length to hold accessories or models to the flume bed when used as a normal tilting flow channel. These holes can also be used for pressure tapping points to measure pressure loss along the channel length.

Side Walls

For safety reasons, the side walls are made of tempered glass. The walls are supported at interval by brackets with screws for vertical position adjustment.

Instrument Carriage

Top rails made of stainless steel tubes are attached to the top angle on each wall of the channel. Screws supporting the rails can be adjusted to ensure uniform height and in a straight line. A scale graduated in mm. is attached along the full length of one top angle of the walls. The instrument carriage is manually operated.

Head Tank

The head tank is made of stainless steel and its sides and bottom are curved to ensure smooth flow into the channel. Perforated plates are also provided in the head tank to further smoothen the flow.

Sediment Feeder

The channel bed may be filled by a sediment feeder with a slope stopper upstream and another one just before sediment trap at the downstream end of the channel. Feeding is by a screw.

Sediment Trap

A Sediment trap is provided at the down stream end of the channel. The trapped sediment can be discharged by a bottom value. The trap is covered when used as a normal flow channel.

Storage Tank

An underground concrete storage tank is recommended as standard. This tank is to be built by the user. However, above ground tank is available at additional cost.

Walkway

A steel walkway with a checker plate floor and side rails is provided on one side of the flume for ease of model installation and flow observations.

Circulating Pump

The pump is ceramic coated to minimize wear by sediment abrasion. A mechanical seal is used. A geared butterfly valve is provided to control accurate rate of flow.

Flow measurement

A flow digital display is used. In the case of an underground storage tank, a measuring tank with a calibrated weir is available as an option. The flow rate is controlled by a geared butterfly valve.

Model and Accessories

In the case of no sediment, the channel may be used as a normal tilting flow channel. All accessories and models have side seals to ensure no water seep or leak through the sides of the models. A wide variety of models and accessories are available as an option.

EXPERIMENT CAPABILITIES (Optional accessories and models required):

As Sediment Channel:

- Fixed smooth bed flow.
- Flow over mobile sand bed.
- Flow structures.
- Local scour.
- Mechanics of sediment transport.
- Bed form hysteresis.
- Depositionary features and fancies.
- Computational work.
- Flow over fixed gravel bed.

As Tilting Flow Channel:

- Flow measurement.
- Hydraulic jump.
- Analysis of model structures.
- Gauging structures.
- Velocity profile.
- Continuity and energy equations.
- Similarity laws.
- Roughened bed characteristics.
- Surge propagation.

TECHNICAL DATA:

- Channel cross section : 600 mm wide, 700 mm high
- Channel length : 18 m (Optional: 12 m)
- Tilting adjustment : -0.5 to 2%
- Side walls : Tempered glass
- Channel bed : Stainless steel
- Sediment feeder : Motorized
- Sediment trap : Stainless steel with cover and sediment recovery system
- Storage tank : Underground tank to be provided by user. Aboveground tank is optional
- Head tank : Stainless steel
- Sluice gate : Stainless steel, rack and pinion type, built-in at downstream end of flume
- Flow measurement : Flow digital display
- Instrument trolley : Motorized
- Software for data display and analysis by computer (separately supplied).
- Power supply : 380 V, 3 Ph, 50 Hz. Other power supply is available on request.

OPTIONAL ACCESSORIES AND MODELS:

As A Sediment Flow Channel:

- HF 566-010 Sediment drying oven.

As A Tilting Flow Channel:

- HF 566-017 Flow calibration tank
- HF 566-019 Stainless steel vernier hook and point gauge with vertical and horizontal movement
- HF 566-020 Basic weir plate with stainless steel 60˚ V notch and rectangular notch weir attachment.
- HF 566-022 Sharp crested weir
- HF 566-023 Broad crested weir, sharp edges
- HF 566-023A Round edge attachment for HF560-023
- HF 566-024 Crump weir
- HF 566-025 Trapezoidal weir
- HF 566-030 Ogee weir

OPTIONAL ACCESSORIES AND MODELS:

- HF 560-031 Dam spillway
- HF 560-032 USBR type 2,3 or 4 energy dissipater
- HF 560-033 Syphon spillway
- HF 560-034 Bridge pier, round or square edge
- HF 560-035 Culvert fittings, round or square, horizontal or drop inlet with or without entrance flare.
- HF 560-036 Vibration pile
- HF 560-040 Venturi flume
- HF 560-041 Parshall flume.
- HF 560-042 Submerged orifice made from stainless steel on plastics.
- HF 560-050 Sluice gate, rack and pinion drive with stainless steel attachment
- HF 560-052 Radial gate, rack and pinion drive with stainless steel attachment
- HF 560-060 Pitot tube with manometer board for measurement of flow velocity and various channel sections
- HF 560-061 Current meter
- HF 560-065 Lift and drag balance and models, large and small cylinders and aerofoil section
- HF 560-070 Roughened bed, gravel, sand, or corrugated
- HF 560-080 Wave generator with 3HP variable speed geared motor
- HF 560-082 Absorbing beach, plain, roughened, or permeable
- HF 560-085 End tank, stainless steel, at downstream end of flume
- Fiber glass or stainless steel above storage tanks with lids
- Other accessories and models can be supplied on request.
- Other optional equipment, please contact manufacturer (essom@essom.com)

Shipping Dimensions: One 40 ft. container (without storage tank)