

VERSIONS

●AFT Fluid Friction in Pipes Equipment.

●AFTC Fluid Friction in Pipes Equipment, computer controlled.

DESCRIPTION

The **Fluid Friction in Pipes Equipment** of EDIBON,S.A. has been designed for studying the behaviour of incompressible fluids, and it enables the study of head losses in pipes as well as in other hydraulic accessories.

The equipment is a **fully instrumented self-contained unit**.

The test equipment consists of:

- **Vertical aluminium panel** where all elements to be tested are placed.
- **Water and mercury differential manometers.**
- A **Basic Feed Hydraulic System "FME00/B"** with a 140 litre tank, a centrifugal pump and all the necessary elements.

Among the elements to be tested are the following:

- **Flowmeter.**
- **Artificially roughened pipes** of 17 and 23 mm. inner diameter.
- **Smooth-bore roughened pipes** of 3.5, 14 and 27 mm. inner diameter.
- **Inclined seat valve.**

- **Gate valve.**
- **Filter.**
- **Diaphragm valve.**
- **Sudden enlargement.**
- **Perspex Venturi.**
- **Perspex orifice-meter.**
- **Sudden contraction.**
- **Parallel pipes.**
- **90° and 45° elbows and "T".**
- **Angle "T".**

The equipment includes a system of pressure tapings with quick action self-sealing connections placed both before and after every element to be tested. Such connections can be easy and rapidly connected to either one of the two manometers supplied.

The circuits have ball valves that are needed for distributing the flow through the different elements to be tested, in such a way that any pipe can be selected without disconnecting the system.

PRACTICAL POSSIBILITIES

- Determining the friction head losses in pipes.
- Calculation of the friction coefficient in pipes.
- Determining the relationship between pipe friction coefficients and Reynolds' number for laminar, transitional or turbulent flow regimes.
- Head losses through different hydraulic connections and accessories.
- Flow measurement by means of head losses.
- Practical training on the use of water or mercury manometers.
- Confirming the relationship between head loss due to fluid friction and velocity for flow of water.
- Analysis of the influence of the diameter and the ruggedness of the pipes in the head losses.
- Demonstrating the application of differential head devices in the measurement of flow rate and velocity.

REQUIRED SERVICES

- Electrical supply: 220-110 V/50-60 Hz.
- Water supply.
- Drainage system.

DIMENSIONS AND WEIGHTS

- Equipment dimensions:
 - * Vertical panel, where all elements to be tested are placed, included water and mercury manometers: 2100 x 280 x 1100 mm.
 - * "FME00/B" Basic Hydraulic Feed System, used with the panel: 1100 x 750 x 650 mm.
- Shipping volume, approx: 1.75 m³.
- Net weight, approx: 110 Kgr.
- Gross weight, approx: 200 Kgr.

RECOMMENDED ACCESSORIES

- Mercury for refilling the manometer.
- Stopwatch.
- For "AFTC" version": Computer (PC) 486 or higher.

SPECIFICATIONS

- The equipment is a **fully instrumented self-contained unit**.
- The equipment is **mounted on a aluminium rigid structure** (35x35 mm section), with rigid and undeformable joint systems and with aesthetic detail.
- The **vertical panel is made of anodized aluminium**.
- **Quick connections**.
- **Rapidity and facility to replace parts of the equipment**, in case of failure or breaking.
- There are **transparent elements to allow better visualization** of the process.
- A **system of isolating valves**, ported quick release manometer connection valves and self-sealing pressure tappings **ensure fast accurate results**.
- **Test piping:**
 - Artificially roughened pipe of 17 mm. inner diameter.
 - Artificially roughened pipe of 23 mm, inner diameter.
 - Smooth-bore pipe of 3.5 mm, inner diameter.
 - Smooth-bore pipe of 14 mm, inner diameter.
 - Smooth-bore pipe of 27 mm, inner diameter.
- **Pipes length:** 1750 mm, approximately.
- **Number of tapping points:** 34.
- **Water and mercury differential manometers**.
- Includes a **GRP service module (FME00/B Basic Hydraulic Feed System)**, with flow measurement, pump, starter, etc.
- **Centrifugal pump:**
 - Maximum head: 14 m.
 - Maximum flow: 1.5 l/s.
 - Power: 0.5 HP.
- **Water tank** of 140 l.
- **Flowmeter:** 300-6000 l/h.
- **Didactic Instruction manual** provides installation, commissioning and maintenance data, together with student exercises.
- **"FME00/B" Basic Hydraulics Feed System** supplied with the equipment **can be used with other equipments of this range**.
- For **"AFTC"** Fluid Friction in Pipes Equipment, computer controlled, **Interface and Control Software are included**.
- Possibility of **future update of equipment working and control**.

ORDER INFORMATION

- **AFT** Fluid Friction in Pipes Equipment.
- **AFTC** Fluid Friction in Pipes Equipment, computer controlled.

* Specifications subject to change without previous notice, due to continuous improvements of the product.

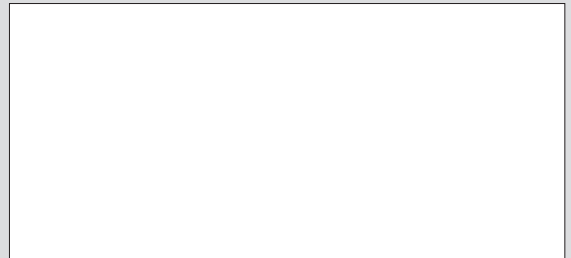


EDIBON, S.A.

TEACHING EQUIPMENTS

C/ San José 11-13, 28921 ALCORCON. Madrid. SPAIN
Phone: 34-91-6198683 FAX: 34-91-6198647
E-mail: edibon@edibon.com
Web site: www.edibon.com

DISTRIBUTED BY:



Edition: ED06/99