Fluid Friction in Pipes

AFT/P

DESCRIPTION

This unit allows the detailed study of fluid friction head losses which occur when a fluid flows through pipes, fittings and flow metering elements.

SPECIFICATIONS

Anodized aluminium structure and panel in painted steel. Main metallic elements in stainless steel.
Diagram in the front panel with similar distribution to the elements in the real unit.
Quick connections.
Rapidity and facility to replace parts of the unit, in case of failure or breaking.
Transparent elements.
Flowmeter, range: 600-6000 l/h. (10-100 l/min.).
Pipes:
- Rough pipe of diameter D= 17 mm. (PVC).
- Rough pipe of diameter D= 23 mm. (PVC).
- Smooth pipe of diameter D= 6.5 mm. (methacrylate).
- Smooth pipe of diameter D= 16.5 mm. (PVC).
- Smooth pipe of diameter D= 26.5 mm. (PVC).

Manometers:
- 2 Manometric tubes. Range: 1000 mm. H_2O.
- 2 Bourdon type manometers. Range: 0-2.5 bar.

34 Pressure takings.
Inclined seat valve.
Floodgate valve.
Flow regulation valves.
Membrane valve.
Inline strainer.
Ball valves.
Abrupt broadening.
Abrupt contraction.
Venturi tube of transparent plastic.
Diaphragm of transparent plastic.
Symmetrical bifurcation.
Two 90° elbows (in S).
T-junction.
Inclined T-junction.
45° elbow and 90° elbow.
Pipes in parallel configurations.
Pipe section with a Pitot tube and static tapping.
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.

EXERCISES AND PRACTICAL POSSIBILITIES

Some Practical Possibilities of the Unit:

1.- Load loss by friction in a rough pipe of 17 mm of interior diameter.
2.- Load loss by friction in a rough pipe of 23 mm of interior diameter.
3.- Load loss by friction in a smooth pipe of 6.5 mm of interior diameter.
4.- Load loss by friction in a smooth pipe of 16.5 mm of interior diameter.
5.- Load loss by friction in a smooth pipe of 26.5 mm of interior diameter.
6.- Influence of the diameter in the load loss by friction in rough pipes.
7.- Influence of the diameter in the load loss by friction in smooth pipes.
8.- Load loss by friction in smooth and rough pipes.
9.- Friction coefficient in a rough pipe of 17 mm of interior diameter.
10.- Friction coefficient in a rough pipe of 23 mm of interior diameter.
11.- Friction coefficient in a smooth pipe of 6.5 mm of interior diameter.
12.- Friction coefficient in a smooth pipe of 16.5 mm of interior diameter.
13.- Friction coefficient in a smooth pipe of 26.5 mm of interior diameter.
14.- Influence of the diameter in the friction coefficient in rough pipes.
15.- Influence of the diameter in the friction coefficient in smooth pipes.
16.- Friction coefficient in smooth and rough pipes.
17.- Load losses in the inclined seat valve.
18.- Load losses in the floodgate valve.
19.- Load losses in the filter.
20.- Load losses in the membrane valve.
21.- Load losses in an abrupt broadening.
22.- Load losses in the Venturi.
23.- Load losses in the diaphragm.
24.- Load losses in an abrupt contraction.
25.- Load losses in the accessories.
26.- Flow measurements by load loss in a Venturi.
27.- Flow measurements by load loss in a diaphragm.
28.- Flow measurements by means of load loss.
29.- Load losses in a symmetrical bifurcation.
30.- Load losses after two 90° elbows.
31.- Load losses in a T-junction.
32.- Load losses for a 90° elbows.
33.- Load losses on the ball valve.
34.- Load losses for an elbow of 45°.
35.- Load losses in a inclined T-junction.
36.- Study of laminar regime.
37.- Study of turbulent regime.

Other possible practices:

38.- Filling of the manometers.
39.- Universal graph for the pipe calculation.

REQUIRED SERVICES

- Water supply and drainage.
- Drainage.

DIMENSIONS & WEIGHTS

- AFT/P dimensions: 2300 x 850 x 1100 mm. approx.
- AFT/P weight: 100 Kg. approx.

RECOMMENDED ACCESSORIES (for AFT/P)

- FME00. Hydraulics Bench.

OR

- FME00/B. Basic Hydraulic Feed System.

OPTIONAL

AFT/CAL. **Computer Aided Learning Software (Results Calculation and Analysis)**.

AVAILABLE VERSIONS

Offered in this catalogue:

- AFT. **Fluid Friction in Pipes, with Hydraulics Bench (FME00).**
- AFT/B. **Fluid Friction in Pipes, with Basic Hydraulic Feed System (FME00/B).**
- AFT/P. **Fluid Friction in Pipes** (only panel).

Offered in other catalogue:

- AFTC. Computer Controlled **Fluid Friction in Pipes, with Hydraulics Bench (FME00).**

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

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