

Programme area 4b

Hydraulics for Civil Engineering

4b



Contents

Fundamentals of Fluid Mechanics

■ Hydrostatics.....	162
■ Hydrodynamics.....	162
■ Discharge	163
■ Pipe Flow	164
■ Turbomachines	164
■ Transient Flow	165

Hydraulic Engineering

■ Open-Channel Flow.....	166
■ Sediment Transport.....	167
■ Seepage Flow	168

Catalogues

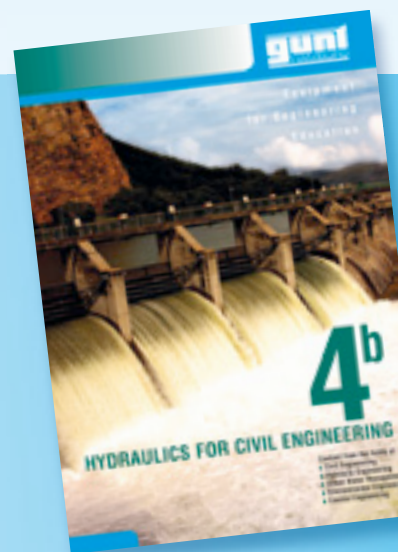
This is where you can find extensive information, product descriptions and datasheets:

Offline

- Print catalogue, programme area 4b „Hydraulics for Civil Engineering“

Online

at www.gunt.de/static/s10_1.php



Fundamentals of Fluid Mechanics

Hydrostatics



www.gunt.de/g.s?44.1.169



HM 115

Hydrostatics Trainer

A well equipped hydrostatics bench allowing numerous experiments on the topic of hydrostatics of liquid and gases

Order number: 070.11500



HM 150.06

Stability of Floating Bodies

Determining metacentre and buoyancy using rectangular hull cross-section

Order number: 070.15006



HM 150.39

Floating Bodies for HM 150.06

Comparison of two different hull shapes: hard chine and round hull

Order number: 070.15039

Fundamentals of Fluid Mechanics

Hydrodynamics



www.gunt.de/g.s?44.1.170



HM 150.18

Osborne Reynolds Experiment

Visualisation of laminar and turbulent flow

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15018



HM 150.07

Bernoulli's Principle

Static pressure and total pressure distribution along the venturi nozzle

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15007



HM 150.08
Measurement of Jet Forces

Demonstration of the principle of linear momentum and impact forces on interchangeable deflectors with different deflection angles

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15008



HM 150.21
Visualisation of Streamlines in an Open Channel

Demonstrating flow and flow around various drag bodies and weirs using ink as contrast medium

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15021



HM 150.10
Visualisation of Streamlines

Investigation of flow around models in laminar, two-dimensional flow using ink as contrast medium

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15010

Fundamentals of Fluid Mechanics

Discharge



www.gunt.de/g.s?44.1.171



HM 150.09
Horizontal Flow from a Tank

Demonstration of Torricelli's theorem in a visual form

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15009



HM 150.12
Vertical Flow from a Tank

Determination of flow rate coefficients and flow rate for various water heads and experiments on discharge jets

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15012

Fundamentals of Fluid Mechanics

Pipe Flow



www.gunt.de/g.s?44.1.172



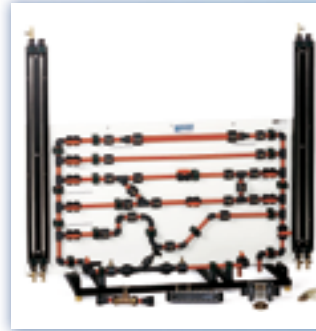
HM 150.01

Pipe Friction for Laminar/ Turbulent Flow

Determining the critical Reynolds number

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15001



HM 150.11

Pressure Losses in a Piping System

Investigating the influence of flow rate and cross-sectional profiles on pressure loss in pipes and fittings

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15011



HM 164

Open Channel and Closed Channel Flow

Flow processes on different structures in open and closed channel flows

Order number: 070.16400



HM 111

Various Pipe Networks

Investigation and analysis of different pipe systems in relation to pressure and flow rates

Order number: 070.11100

Fundamentals of Fluid Mechanics

Turbomachines



www.gunt.de/g.s?44.1.173



HM 150.19

Operating Principle of a Pelton Turbine

Model of a free jet turbine with adjustable nozzle and determination of the efficiency

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15019



HM 150.20

Operating Principle of a Francis Turbine

Model of a reaction turbine with adjustable guide vanes and determination of the efficiency

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15020



HM 150.04

Centrifugal Pump

Determining the characteristics of a typical centrifugal pump

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15004



HM 150.16

Series and Parallel Connected Pumps

Determining the characteristic curves and hydraulic power output and comparison of series and parallel operating modes

Recommended for water supply:
HM 150 Base Module for Experiments in Fluid Mechanics

Order number: 070.15016

Fundamentals of Fluid Mechanics

Transient Flow




www.gunt.de/g.s?44.1.174



HM 156

Water Hammers and Surge Chamber

Investigation and visualisation of water hammers in pipes and demonstration of how a surge chamber works


Order number: 070.15600 

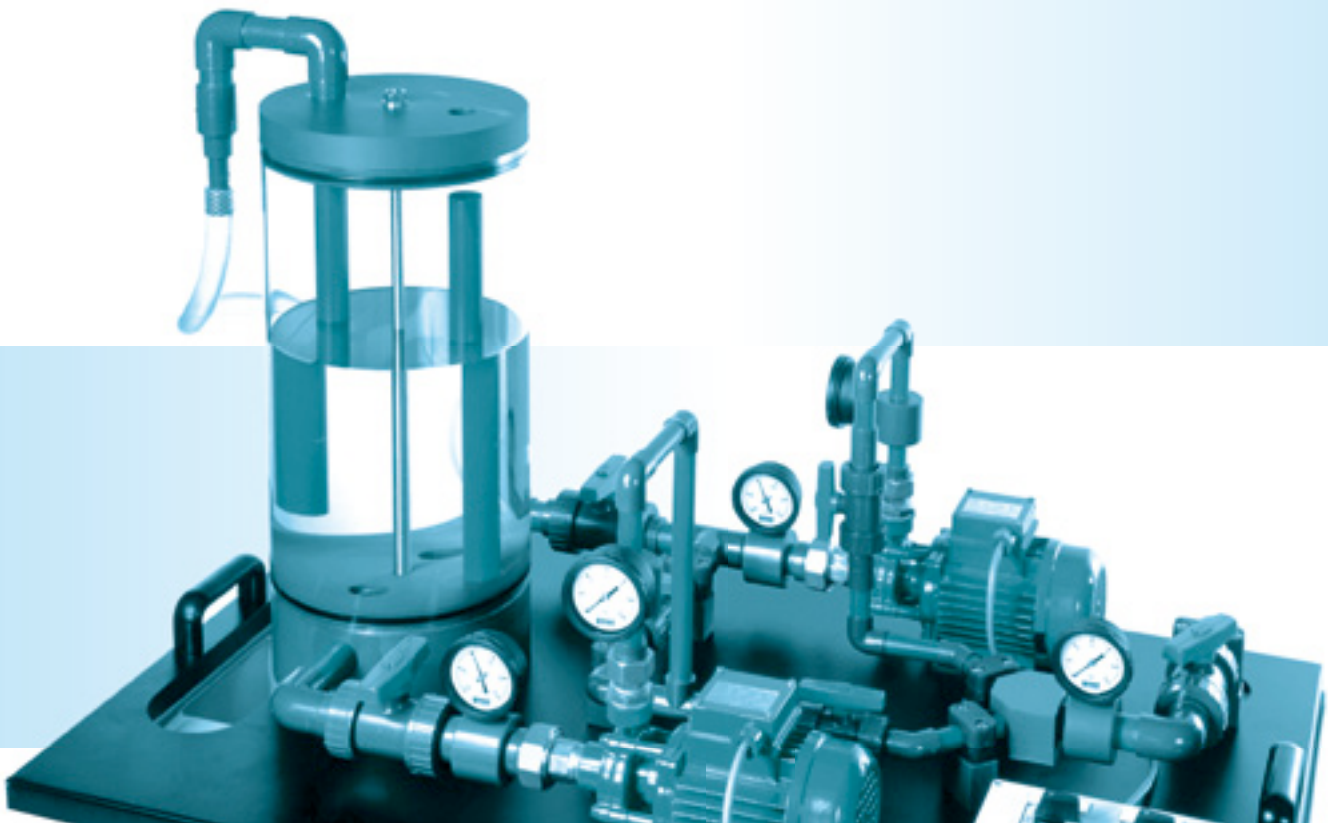


HM 143

Transient Drainage Processes in Storage Reservoirs

Demonstration of the function of a rainwater retention basin and a dam

Order number: 070.14300 



Hydraulic Engineering

Open-Channel Flow



www.gunt.de/g.s?44.1.175



HM 160
Experimental Flume 86x300mm
Experimental section for performing flow experiments in open flumes with lengths of 2,5m or 5m available, closed water circuit and inclination adjustment

Order number: 070.16000



HM 162
Experimental Flume 309x450mm
Experimental sections for performing flow experiments in open flumes with lengths of 5m, 7,5m, 10m or 12,5m available, closed water circuit and inclination adjustment

Order number: 070.16200



HM 161
Experimental Flume 600x800mm
Experimental sections for performing flow experiments in open flumes of 16m length, closed water circuit and inclination adjustment

Order number: 070.16100



HM 162.32
Control Structure: Ogee-Crested Weir with 2 Weir Outlets

Order number: 070.16232



HM 162.30
Discharge Measurement: Plate Weirs

Order number: 070.16230



HM 162.46
Change in Cross-Section: Piers

Order number: 070.16246



HM 162.41
Wave Generator

Order number: 070.16241

Hydraulic Engineering

Sediment Transport



www.gunt.de/g.s?44.1.176



HM 166
Fundamentals of Sediment Transport
Investigation of the movement of sediment in flows

Order number: 070.16600



HM 140
Open-Channel Sediment Transport
Comprehensive investigation of sediment motion

Order number: 070.14000



HM 168
Sediment Transport in River Courses
Investigation of sediment migration with and without structures

Order number: 070.16800



HM 142
Separation in Sedimentation Tanks
Solid/liquid separation in a sedimentation tank and visualisation of flow conditions

Order number: 070.14200

Hydraulic Engineering

Seepage Flow



www.gunt.de/g.s?44.1.177



HM 152

Potential Flow

Visualisation of streamlines in a Hele-Shaw cell using ink as contrast medium

Order number: 070.15200



HM 167

Ground Water Flow

Three-dimensional investigations and demonstration of flood and drainage

Order number: 070.16700



CE 116

Cake and Depth Filtration

Investigation of the basic principles of filtration: Darcy's equation

Order number: 083.11600



HM 165

Studies in Hydrology

Basic experiments in the areas of the percolation action of rain and in ground water flow


Order number: 070.16500



HM 145

Advanced Hydrological Investigations

Advanced experiments in the areas of the percolation action of rain and in ground water flow

Order number: 070.14500 



HM 141

Hydrographs after Precipitation

Correlations between precipitation and percolation; storage capacity and drainage methods

Order number: 070.14100



HM 169

Viusualisation of Seepage Flows

Graphical determination of flow fields and investigation of water pressure on structures

Order number: 070.16900



Data Acquisition and Visualisation



Optimal evaluation and analysis of conducted experiments

The GUNT software always has comprehensive online help explaining the functions and application.

The GUNT software is developed and maintained in-house by a group of experienced engineers.