

# TecQuipment Ltd

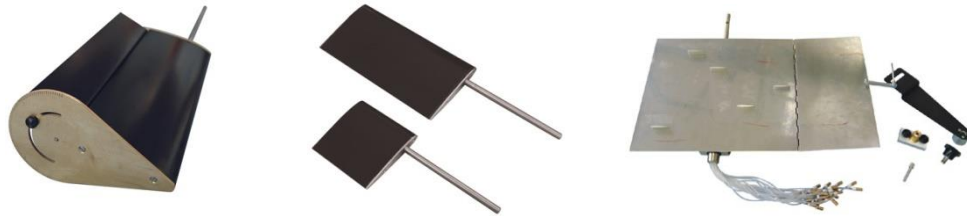
**Technical teaching equipment for engineering**



# Product Ranges

- Aerodynamics
- Control Engineering
- Engineering Science
- Fluid Mechanics
- Materials Testing and Properties
- Structures
- Theory of Machines
- Thermodynamics and Heat Transfer
- Renewable Energy

# Aerodynamics



Airflow Bench  
(AF10)

Subsonic Wind Tunnel (AF100) and selection of models



# Control Engineering, Process Control and Instrumentation



Process Trainer (CE117)



Ball and Beam Apparatus (CE106)

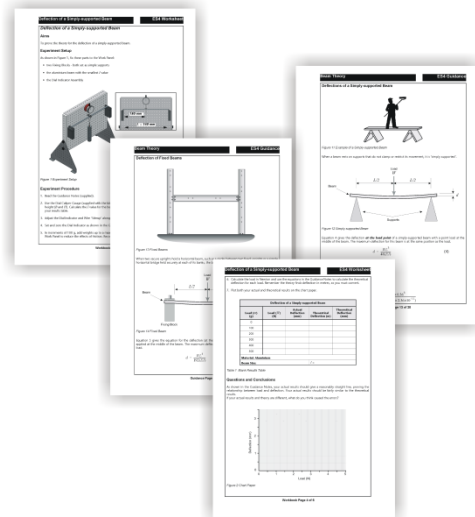
Process Training System (TE3300)



# Engineering Science



Engineering Science  
Work Panel (ES1)



Engineering Science Forces  
Kit (ES2)



Engineering Science Full  
Set (ESF)

# Fluid Mechanics

Impact of a Jet (H8)



Pressure Measurement (H30)

Pipe Friction (H7)



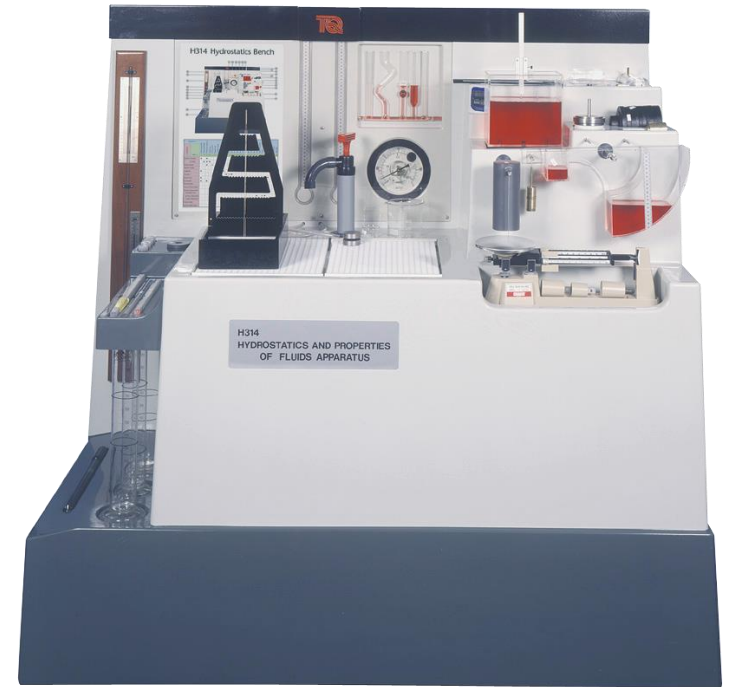
Centrifugal Pump Module (MFP101)



# Fluid Mechanics



5-Metre Flow Channel (H12)



Hydrostatics and Properties of Fluids (H314)

# Fluid Mechanics: Fundamentals

- 28x fundamental Fluid Mechanics experiments
- Modular Hydraulics Bench
- Fundamentals of Fluid Mechanics
- Visual experiments
- Experiments:
  - Pressure, friction & flow measurement
  - Vortex, weirs, pipes, jets, orifices
  - Laminar & Turbulent flow, cavitation
  - Pipe surge & water hammer





# Fluid Mechanics: Hydrostatics

- 15x Hydrostatics experiments
- Experiments in properties of fluids: pressure, stability, viscosity
- Small scale experiments
- All-in-one system



# Fluid Mechanics: Fluid Power

- 13x stand alone experiments for studying pumps, fans and compressors
- Modular system
- Compatible with the TecQuipment VDAS<sup>®</sup> Versatile Data Acquisition System

Centrifugal Pump  
Module (MFP101)

**VDAS**



# Fluid Mechanics: Features & Benefits

- Feature: Comprehensive range of products covers all classic fluid mechanics experiments
- Benefit: Full laboratories can be equipped using TecQuipment products

# Fluid Mechanics: Features & Benefits

- Feature: Experimental capabilities covering all years of a degree course
- Benefit: Only one laboratory is required for study through years 1 to 4, saving cost of additional equipment

# Fluid Mechanics: Features & Benefits

- Feature: Fundamentally correct measurements
- Benefit: Measurements are taken directly, not calculated, ensuring that experiments are accurate and realistic

# Fluid Mechanics: Features & Benefits

- Feature: Modular Concept
- Benefits
  - Cost effective and flexible for tight budgets
  - Experiments can be purchased in line with curriculum requirements

# Fluid Mechanics: Features & Benefits

- Feature: Compatible with the TecEquipment VDAS<sup>®</sup> Versatile Data Acquisition System
- Benefits:
  - Data acquisition can be added at any time
  - Software can be installed on any PC
  - Only one system required for the complete lab

# Fluid Mechanics: Safety features

- Laboratory scale experiments
- Designed for Education
  - Low voltage power supplies
  - Sealed psu to prevent contact with water
  - Manuals designed specifically for education - unlike industrial products
- All moving parts guarded
- Pressure vessels are overrated and include pressure relief valves



# Materials Testing and Properties



Universal Testing Machine (SM1000) **VDAS**



Rotating Fatigue Machine (SM1090)

**VDAS**



Thin Cylinder (SM1007)

**VDAS**

# Strength of Materials: Strain experiments

- 5x strain gauge experiments
- Fundamental Stress and Strain Measurement
- VDAS<sup>®</sup> Versatile Data Acquisition System
- Experiments:
  - Thin Cylinder
  - Thick Cylinder
  - Diaphragm
  - Strain Gauge Trainer
  - Strain Gauge Kit



Thin Cylinder  
(SM1007)

**VDAS**

# Strength of Materials: Materials Testing

- 13x Destructive Materials Testing experiments
- VDAS<sup>®</sup> Versatile Data Acquisition System
- Experiments:
  - Torsion
  - Fatigue
  - Creep
  - Universal Testing Machines
  - Impact Testing
  - Hardness Testing



Rotating Fatigue  
Machine (SM1090)

**VDAS**

# Strength of Materials: Free-Standing Structures

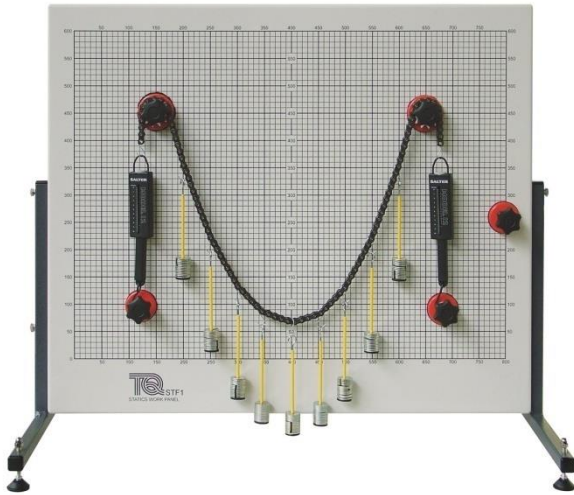
- 3x advanced Structures experiments
- VDAS<sup>®</sup> Versatile Data Acquisition System
- Experiments:
  - Unsymmetrical Cantilever
  - Beam testing
  - Loading and Buckling of Struts



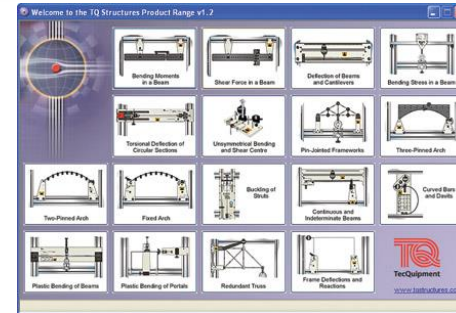
# Strength of Materials : Safety features

- All moving part guarded with interlocks
- Low voltage power supplies
- Automatic stop switching to disable machines after tests
- Pressure systems overrated to ensure safety
- Robust steel construction to ensure safety under high loads

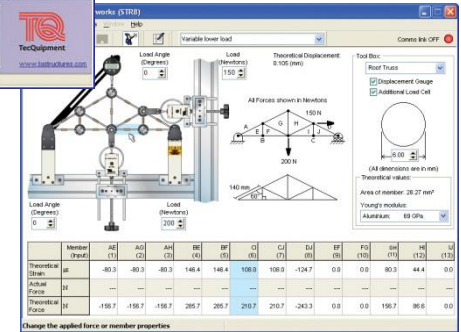
# Structures



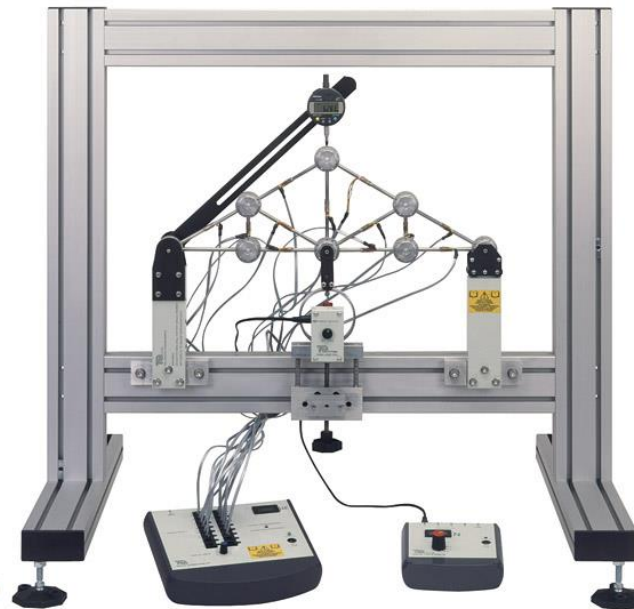
Statics Fundamentals – Suspension Cable Demonstration (STF2)



Structures Virtual Experimentation Pack



Pin-Jointed Frameworks (STR8) and Structures Software (STRS)



# Structures: Modular Structures

## ● Experiments:

- Bending Moment in a Beam
- Shear Force in a Beam
- Deflection of Beams & Cantilevers
- Bending Stress in a Beam
- Torsion of Circular Sections
- Unsymmetrical Bending and Shear Centre
- Pin-Jointed Frameworks
- Three-Pinned Arch
- Two-Pinned Arch
- Fixed Arch
- Plastic Bending of Beams
- Buckling of Struts
- Continuous & Indeterminate Beams
- Curved Bars & Davits
- Plastic Bending of Portals
- Redundant Truss
- Frame Deflections & Reactions
- Simple Suspension Bridge
- Bending Moments in a Portal Frame



# Theory of Machines



Universal Vibration Apparatus  
(TM16 range)

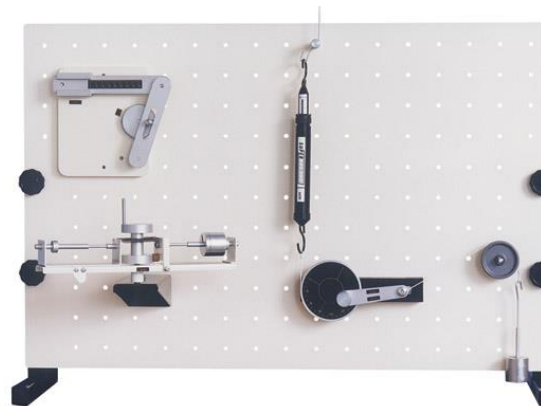


Whirling of Shafts (TM1001)

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Static and Dynamic Balancing  
(TM102)



Mechanical Science Experiments  
(RE300 range)



# Thermodynamics



Twin-Shaft Gas Turbine (GT185)



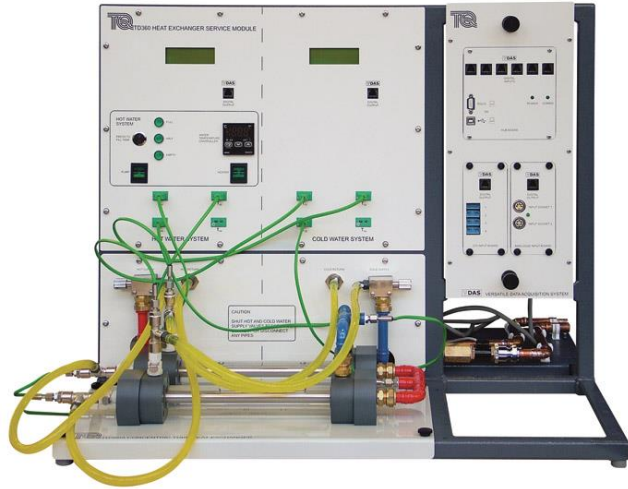
Small Engine Test Set (TD200) with Versatile Data Acquisition System

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Two-Stage Compressor Test Set (GT103)

# Heat Transfer



Bench-Top Heat Exchangers (TD360)



Flat-Plate Solar Energy Collector (TE39)



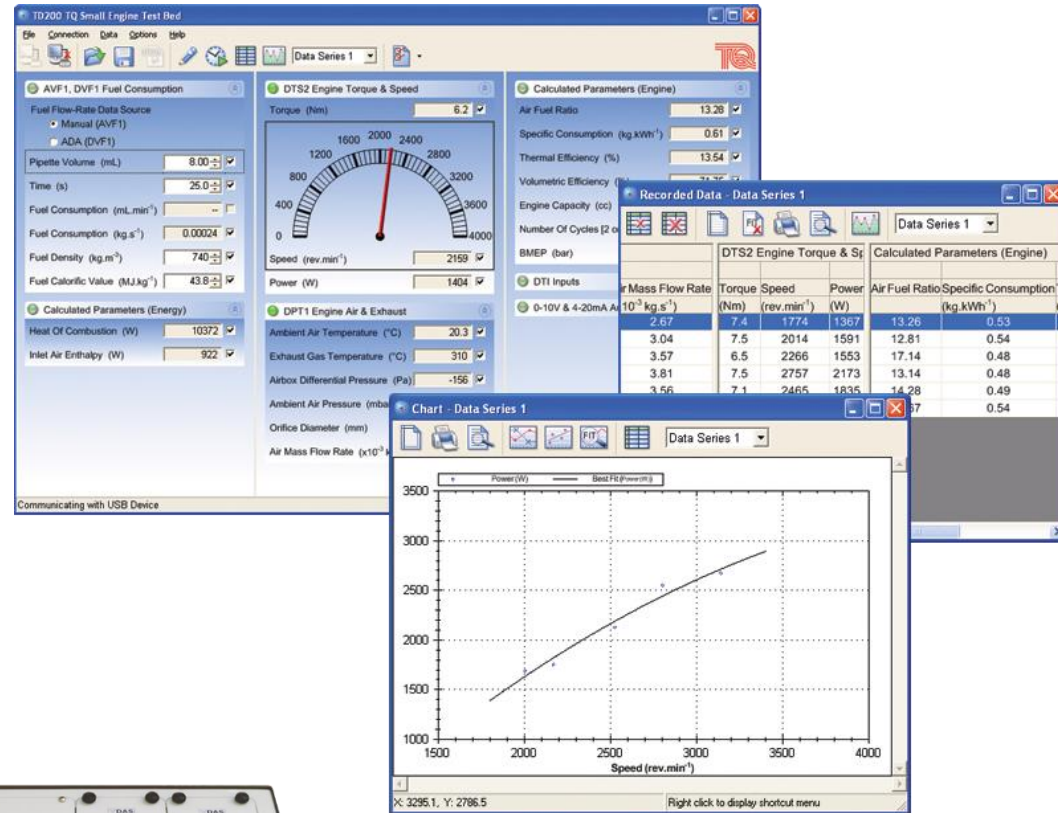
Cross-Flow Heat Exchanger (TE93)



# Versatile Data Acquisition System



Centrifugal Pump Test Set (H47) running with the VDAS software

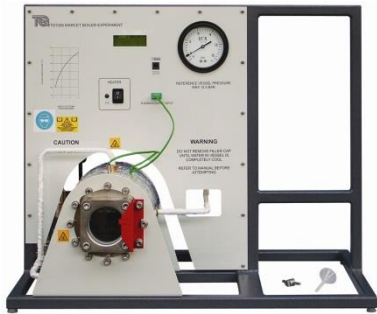


Bench-Mounted VDAS Module (VDAS-B)



# Product Development

- Continuous Product Development Programme
- Updating existing designs



Marcet Boiler (TD1006)

**VDAS**



Free and Forced Convection (TD1005)

**VDAS**



Boyle's Law (TD1000)

**VDAS**

Gay Lussac's Law (TD1001)

**VDAS**



# Why Choose TecEquipment?

- Complete Solution
- Fundamentally Correct, Scalable, Repeatable
- Quality & Reliability
- Product Development - Investing in the Future
- After Sales Support
- Global Agents/Distributors – 3 way Partnership
- Close, Direct Relationship with Customers
  - Consultancy
  - Technical Support
- Safety - Designed for Education

