Webtec Products Limited

Portable Bi-directional Hydraulic Testers
Measures Flow, Temperature and Pressure

Quality Hydraulic Test Equipment from the Webster Range
## CONTENTS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PAGE No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td><strong>DHT 402/752/752HP</strong> Bi-Directional Digital Hydraulic Testers</td>
<td>4</td>
</tr>
<tr>
<td><strong>DHT 401/751</strong> Bi-Directional Digital Hydraulic Testers</td>
<td>6</td>
</tr>
<tr>
<td><strong>HT 252/402</strong> Bi-Directional Analogue Hydraulic Testers</td>
<td>8</td>
</tr>
<tr>
<td><strong>HT 502/752/752HP</strong> Bi-Directional Analogue Hydraulic Testers</td>
<td>10</td>
</tr>
<tr>
<td><strong>DHCR 5/10/16/50/125/400/750/750HP</strong> Bi-Directional Digital Hydraulic Testers</td>
<td>12</td>
</tr>
<tr>
<td><strong>DHC 50/125</strong> Bi-Directional Digital Hydraulic Testers</td>
<td>14</td>
</tr>
<tr>
<td><strong>DHC 51/151</strong> Bi-Directional Digital Hydraulic Testers</td>
<td>16</td>
</tr>
<tr>
<td><strong>HC 50/125</strong> Hydratest Analogue Hydraulic Testers</td>
<td>18</td>
</tr>
<tr>
<td><strong>HC 300</strong> Hydratest Analogue Hydraulic Tester</td>
<td>20</td>
</tr>
</tbody>
</table>

*Continued over page*
## CONTENTS

_Continued from previous page_

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PAGE No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HPM 400 Series</strong> Handheld Digital Test System</td>
<td>22</td>
</tr>
<tr>
<td><strong>Accessories and Optional Equipment</strong></td>
<td></td>
</tr>
<tr>
<td>Phototachometer TH2;</td>
<td>26</td>
</tr>
<tr>
<td>Phototachometer TH1A;</td>
<td>26</td>
</tr>
<tr>
<td>Loading Valve LT400R;</td>
<td>26</td>
</tr>
<tr>
<td>Loading Valve HV180 and HV400;</td>
<td>26</td>
</tr>
<tr>
<td>LT10 Remote Flowmeter;</td>
<td>26</td>
</tr>
<tr>
<td>Low Pressure Gauge Kit BP40;</td>
<td>27</td>
</tr>
<tr>
<td>Automatic Cutout and Low Pressure Gauge;</td>
<td>27</td>
</tr>
<tr>
<td>Fitting Kit of Adaptors;</td>
<td>27</td>
</tr>
<tr>
<td>Carrying Case for HC and DHC;</td>
<td>27</td>
</tr>
<tr>
<td>Carrying Case for HCR and DHCR</td>
<td>27</td>
</tr>
</tbody>
</table>
INTRODUCTION

DIGITAL OR ANALOGUE TESTERS AND BI-DIRECTIONAL LOADING VALVE WITH INTERNAL SAFETY PROTECTION

The Webster Hydraulic Testers manufactured by Webtec Products Limited are designed to accurately measure flow, pressure, temperature and speed. Models are available with digital or analogue readouts, loading valves and remote readouts to suit a wide range of testing needs. These easy to use diagnostic testers measure flow in BOTH directions; they can be connected anywhere in the hydraulic system to pinpoint hydraulic faults, reduce machine downtime; help in preventive maintenance and condition monitoring.

Testers with built-in loading valve can be used to simulate normal machine operation. The built-in safety discs protect the machine and operator in event of excessive pressure, allowing oil to safely bypass the loading valve INTERNALLY with no loss of oil from the hydraulic circuit, reducing costs of replacing oil and environmental hazards. The remote readout tester allows the engineer to use the readout at the most convenient position for example, in the cab of the vehicle while operating the controls or reading the pressure and flow while adjusting a relief valve etc.

The external input on digital testers can be calibrated by the operator to any flow block manufactured by Webtec Products Limited. Analogue testers with remote input are calibrated during manufacture. Testers can be supplied with a complete range of accessories which include adapter fitting kits, low pressure gauges and tachometers.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
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</tr>
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</table>

Flow Ranges and Available Options (Denoted by asterisk)  † Optional loading valve
Quality Hydraulic Test Equipment from the Webster Range

HOW & WHY YOU NEED TO TEST

Testing a hydraulic motor

Testing an agricultural tractor

Testing an excavator

Testing a hydraulic press

For the Mobile, Industrial and Agricultural Industries
Quality Hydraulic Test Equipment from the Webster Range

BENEFITS OF TESTING

The Webster hydraulic tester enables you to quickly pinpoint which component is malfunctioning and causing low system performance. The problem could be internal leakage in the pump, motor or valve. The following diagrams show the typical tests which can be used to quickly locate a defective pump, valve, cylinder or motor. Any of these components can cause slow operation and machine malfunction.

PUMP TEST

The tester is connected to the pump outlet as shown. The pump is started and the pressure is increased by turning the loading valve handle to simulate the normal operation of the machine. Flow is recorded at various pressures throughout the operating range. The pump output and internal leakage can then be compared with the manufacturer's specification. Pump cavitation problems can be checked by recording the pump flow at various engine speeds. Case drain leakage can be measured by connecting the remote block.

DIRECTIONAL CONTROL RELIEF VALVE AND CYLINDER TEST

The tester is connected into circuit as shown. With the machine running as in the pump test, the flow is recorded at various pressures. The readings obtained can then be compared with the results of the pump test to determine the control and relief valve leakage. When the pressure is increased to the maximum relief setting, the flow indicated by the tester will fall to zero. If the pressure is low, adjust the relief valve. It is not unusual for a relief valve to start opening below its maximum pressure setting and if the machine is operated above the cracking pressure, considerable leakage will occur causing loss of machine performance. The flow may be tested in both directions.
Digital Hydraulic Testers

Additional Input for Remote Flow, Temperature and Speed Measurement

- Up to 800 lpm
- Up to 480 bar
- Bi-Directional

The Webster DHT Series Digital Tester accurately measures flow, pressure, temperature and speed. Webster testers are designed for testing hydraulic pumps, motors, valves and hydrostatic transmissions.

This easy to use diagnostic unit can pin point hydraulic system faults which reduces downtime and helps with preventive maintenance.

The remote flow input can be easily calibrated by the operator for any Webster flow block. The remote input feature allows main hydraulic circuits and drain leakage flows to be measured simply at the turn of a switch.

The tester comprises a turbine flow block and large easy to read digital display which indicates both flow and temperature. Speed and remote flow are selected by switch when required. The flow readout is scaled in lpm, gpm, and US gpm, selected by a push button.

Optional accessories for the tester include a phototachometer and remote flow blocks covering 0.1 - 800 lpm Flow Range.

Features

- **ACCURATE** measurement of flow, with automatic linearisation giving an accuracy of 1% of reading over a wide range.
- **SAFE** to use in both directions of flow. Internal oil by-pass protects system and operator against over-pressure.
- **BI-DIRECTIONAL** for unrestricted connection and simplified testing.
- **FAST** checks on pumps, motors, valves, cylinders and hydrostatic transmissions.
- **REMOTE INPUTS**
  - 1 - Flow
  - 1 - Temperature
  - 1 - Speed
- **ECONOMICAL** low power consumption from standard battery. Automatic "Power Off" feature.
- **PORTABLE AND LIGHTWEIGHT** with angled case for easier viewing and cleaning.
### Specifications

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<td>US gpm</td>
<td>lpm</td>
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<td>4.5 - 80</td>
<td>5.3 - 100</td>
<td>10 - 400</td>
<td>420</td>
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<tr>
<td>DHT 752</td>
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<td>5.5 - 180</td>
<td>6.6 - 200</td>
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<td>5.5 - 180</td>
<td>6.6 - 200</td>
<td>20 - 800</td>
<td>480</td>
</tr>
</tbody>
</table>

### Connections
Flow block connection by flexible hoses 1 - 2 metres (3 - 6ft) long.

### Adaptors
Adaptor Fitting kits and flanges are available to suit the range of flow blocks. Consult the sales office.

### Measurement and Indication

#### Flow
Measured by the electronic count of an axial turbine. The large digital display reads in lpm, gpm or US gpm, selected by push button and indicated by a cursor arrow on the display.
**Accuracy** ± 1% of reading over normal flow range.

#### Pressure
Glycerine filled dual scale pressure gauge bar / psi connected by capillary tube to the flow block.
**Accuracy** ±1.6% of full scale.

### Construction

#### Readout
DHT Testers are microprocessor based instruments providing flexibility and high accuracy. Data presentation is by 8 digit liquid crystal display with 8mm (0.32") high characters. Temperature is permanently displayed and the internal flow or external flow or speed is selected by the rotary switch. The readout is programmed to refresh the display each second. "Fast" update, (1/3 second), can be selected to show changing flow conditions when testing relief valves etc. Low power micro-circuitry minimises battery consumption. An automatic switch turns the power off one hour after the last operation. The standard 9 volt battery is available worldwide and gives at least 6 months normal testing.

#### Turbine Block
High tensile aluminium block houses a six blade turbine rotating on a stainless steel bearing and shaft. Built-in flow straightener reduces flow turbulence and allows accurate flow measurement in both directions.

### General

#### Loading Valve
The integral loading valve gives progressive pressure loading in either flow direction. Replaceable safety discs relieve to **internally by-pass** the oil if the maximum pressure is exceeded. Safety discs with different pressure ranges up to 480 bar are available. Consult sales office for further information.

#### Remote Inputs
An additional flow block can be connected into the panel. This input can easily be calibrated by switching to program mode and keying in the calibration value supplied with each block. The tachometer input can be programmed for one or more reflective marks.

#### Seals
Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

### Dimensions

| DHT302, DHT402: | 240mm Wide, 205mm High, 180mm Deep, Mass 8kg. |
| DHT752, DHT752HP: | 255mm Wide, 215mm High, 205mm Deep, Mass 10kg. |

### Operators Manual
Full instructions are supplied with each tester

### Accessories
DHT Testers can be used with a wide range of accessories, e.g. Remote Flow blocks, Low Pressure Gauge kit, and Phototachometer. Please refer to the Optional Equipment bulletin.

### How to Order
Specify model from table above together with optional equipment and adaptor fitting kit as required, e.g., DHT 752HP with TH 2 and BA 10 is a 20 - 800 lpm 480 bar tester with tachometer and magnetic base.
Digital Hydraulic Testers

Flow, Pressure and Temperature

- Up to 800 lpm
- Up to 420 bar
- Bi-Directional

- Simplified Controls

The Webster DHT401 and DHT751 Digital Testers accurately measure flow, pressure and temperature. Webster Testers are designed to conveniently check the performance of hydraulic pumps, motors, valves and hydrostatic transmissions.

This easy to use diagnostic tester has simplified controls and can pin point hydraulic system faults, reducing downtime and helping in preventive maintenance.

The tester comprises a turbine flow block and a large easy to read digital display which indicates both flow and temperature.

The Tester has a built-in loading valve to simulate the working pressure during normal machine operation. The built-in safety discs protect the machine and operator in event of excessive pressure, allowing oil to safely bypass the loading valve INTERNALLY with no spillage of oil from the hydraulic circuit, eliminating clean-up costs and environmental hazards.

Features

- ACCURATE measurement of flow, pressure and temperature.
- SAFE to use in both directions of flow. Internal oil by-pass protects system and operator against overpressure.
- BI-DIRECTIONAL for unrestricted connection and simplified testing.
- FAST checks on pumps, motors, valves, cylinders, hydrostatic transmissions.
- EASY to operate controls. Simply “Switch on” and connect into the hydraulic system.
- ECONOMICAL low power consumption from standard battery. Automatic “Power Off” feature.
- PORTABLE AND LIGHTWEIGHT with angled case for easier viewing and cleaning.
Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Part No.</th>
<th>Flow Range</th>
<th>Temperature Range</th>
<th>Pressure Range</th>
<th>Port Size (SAE &amp; metric threads available)</th>
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<tbody>
<tr>
<td>DHT401</td>
<td>FT8283</td>
<td>10 - 400 lpm</td>
<td>0 - 120 °C</td>
<td>420 bar</td>
<td>1&quot; BSPF</td>
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<td>DHT751</td>
<td>FT8840-1</td>
<td>20 - 800 lpm</td>
<td>0 - 120 °C</td>
<td>350 bar</td>
<td>1 1/2&quot; Flange</td>
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</table>

Connections
Flow block connection by flexible hoses 1 - 2 metres (3 - 6ft) long.

Adaptors
Adaptor Fitting kits and flanges are available to suit the range of flow blocks. Consult the sales office.

Measurement and Indication
Flow
Measured by the electronic count of an axial turbine designed to minimise the effects of variation in temperature and viscosity. The large digital display reads in lpm. 
Accuracy: ± 1% of full flow.

Pressure
Glycerine filled dual scale pressure gauge 0 - 420 bar, 0 - 6000 psi connected by capillary tube to the flow block. 
Accuracy: ± 1.6 % of full scale.

Construction
Readout
DHT Testers are microprocessor based instruments providing flexibility and high accuracy with varying oil viscosity.

Flow and Temperature are permanently displayed. Data presentation is by 8 digit liquid crystal display with 8mm high characters.

The readout is programmed to refresh the display each second. An alternative "FAST" update, (1/3 second), can be supplied to show changing flow conditions when testing relief valves etc. Low power micro-circuitry minimises battery consumption.

Temperature
Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is permanently displayed in °C.
Accuracy: ± 1°C.

General
Loading Valve
The integral loading valve allows progressive pressure loading in either flow directions. Safety discs relieve at 440 bar to internally by-pass the oil if the maximum pressure is exceeded. Safety discs with different pressure ranges up to 480 bar are available. Consult the sales office for details.

Seals
Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

Dimensions
DHT401: 240mm Wide, 205mm High, 180mm Deep, Mass 8kg.
DHT751: 255mm Wide, 215mm High, 205mm Deep, Mass 10kg.

Operators Manual
Full instructions are supplied with each tester.

Adaptors
Adaptor Fitting kits and flanges are available to suit the range of flow blocks. Consult the sales office.

Temperature
Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is permanently displayed in °C.
Accuracy: ± 1°C.

Consult Sales office for US gpm models.
The Webster Series 2 Testers are designed for testing hydraulic pumps, motors, valves and hydrostatic transmissions. The remote input feature allows main hydraulic circuits and drain leakage flows to be measured at the same time. This easy to use diagnostic unit can pin point hydraulic system faults, reducing downtime and help in preventive maintenance.

Accurately measuring flow, pressure and temperature, testers are ideal for conveniently checking, hydraulic system performance or locating faults while operating directional control valves or adjusting valve settings. Webster turbines are designed for continuous monitoring or intermittent use commissioning and servicing hydraulic systems up to 420 bar, 6000 psi pressure.

The pressure loading valve with internal by-pass safety discs, allows progressive build up of pressure to check the flow throughout the working range.

Features
- **ACCURATE** measurement of flow, pressure, temperature and speed
- **BI-DIRECTIONAL** for unrestricted connection and simplified testing
- **SAFE** to use in both directions of flow. Internal oil by-pass protects system, tester and operator against over-pressure
- **REMOTE INPUT** of flow and temperature enables checks on double piston pumps etc.
- **FAST** checks on pumps, valves, motors, cylinders, hydrostatic transmissions
- **ECONOMICAL** low power consumption from standard battery. Automatic "Power Off"
- **WIDE RANGE** of operation 10 - 400 lpm
  Maximum pressure 420 bar, 6000 psi
- **PORTABLE AND LIGHTWEIGHT** with angled case for easier viewing and cleaning
Specifications

<table>
<thead>
<tr>
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<th>Part No</th>
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<th>Pressure Range</th>
<th>Temperature Range</th>
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<td>FT6359</td>
<td>10-300 lpm</td>
<td>High 0-300 lpm</td>
<td>Low 0-60 lpm</td>
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<td>10-400 lpm</td>
<td>High 0-400 lpm</td>
<td>Low 0-80 lpm</td>
<td>Pressure 0-420 bar</td>
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Connections
By flexible hoses (1 - 2 metre minimum length). Inlet and Outlet ports:

HT252 1"BSPF
HT402 1"BSPF

Adaptors
Adaptor Kit Part No. FT 5781 comprising 10 adaptors and 2 bonded seals for HT 302 and HT 402 testers to provide 1" BSPF, 3/4" BSPF, 1/2" BSPF, 1 5/16" JIC Male, 9/16"SAE '0' Ring Female.

Measurement and Indication

Flow
Measured by the electronic count of an axial turbine designed to minimise the effects of variation in temperature and viscosity. The large analogue readout meter has high / low scales selected by a switch.
Accuracy ± 2% of full scale

Pressure
Glycerine filled dual scale pressure gauge 0 - 420 bar, 0 - 6000 psi connected by capillary tube to the flow block.
Accuracy ± 1.6% of full scale.

Temperature
Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is displayed in °C for either the internal or remote flow block.
Accuracy ± 2°C.

Speed
Rotational speed of motors, shafts etc., can be measured by optional phototachometer using one or more retro-reflective marks. Range 600 - 8000 rpm.
Accuracy ± 2% of full scale.

Construction

Readout
HT Series Testers comprise a turbine flow block, pressure gauge and temperature sensor built into a steel case complete with read-out panel, selector switch, integral loading valve and connections for optional equipment. For clear accurate readings the tester has both High and Low scales.
Low power micro-circuitry minimises battery consumption. An automatic switch turns the power off one hour after the last operation.

General

Loading Valve
The integral loading valve gives progressive pressure loading in either flow direction. Replaceable safety discs relieve at 440 bar to internally by-pass the oil if the maximum pressure is exceeded.

Remote Inputs
An additional flow block can be connected into the panel. This input can be calibrated to the range of Webster Flow blocks, 0.1 to 800 lpm. Specify the additional flow block when ordering.

Seals
Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

Dimensions
240mm Wide, 205mm High, 180mm Deep, Mass 8Kg.

Operators Manual
Full instructions are supplied with each tester.

Accessory Equipment
HT testers can be used with a wide range of accessories e.g. Phototachometer, mechanical tachometer, low pressure gauge and separate flow blocks. For further information, see the optional equipment section.

How to Order
Specify model from table above together with optional equipment and adaptor fitting kit as required e.g. HT 402 with TH2, BAI 0 and FT 5781 is a 10 - 400 lpm tester with tachometer, magnetic base and adaptor kit.
Analogue Hydraulic Testers

Remote Input of Flow, Temperature and Speed

- Up to 800 lpm
- Up to 480 bar
- Bi-Directional

Features

- **ACCURATE** measurement of flow, pressure, temperature and speed
- **BI-DIRECTIONAL** for unrestricted connection and simplified testing
- **SAFE** to use in both directions of flow. Internal oil by-pass protects system, tester and operator against over-pressure
- **REMOTE INPUT** of flow and temperature enables checks on double piston pumps etc.
- **FAST** checks on pumps, valves, motors, cylinders, hydrostatic transmissions
- **ECONOMICAL** low power consumption from standard battery. Automatic "Power Off"
- **WIDE RANGE** of operation 20 - 800 lpm
  
  Maximum pressure 480 bar (HT 752HP)
- **PORTABLE AND LIGHTWEIGHT** with angled case for easier viewing and cleaning

The Webster Series 2 Testers are designed for testing hydraulic pumps, motors, valves and hydrostatic transmissions. The remote input feature allows main hydraulic circuits and drain leakage flows to be measured at the same time. This easy to use diagnostic unit can pin point hydraulic system faults, reducing downtime and help in preventive maintenance.

Accurately measuring flow, pressure and temperature, testers are ideal for conveniently checking, hydraulic system performance or locating faults while operating directional control valves or adjusting valve settings. Webster turbines are designed for continuous monitoring or intermittent use commissioning and servicing hydraulic systems up to 420 bar, 6000 psi pressure.

The pressure loading valve with internal by-pass safety discs, allows progressive build up of pressure to check the flow throughout the working range.
Specifications

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<tr>
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<th>Scales High</th>
<th>Pressure Range</th>
<th>Temperature Range</th>
<th>Port Size (SAE &amp; metric threads available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HT502</td>
<td>20-600 lpm</td>
<td>0-600 lpm</td>
<td>0-350 bar</td>
<td>0-120°C</td>
<td>1 1/2&quot; Flange</td>
</tr>
<tr>
<td>HT752</td>
<td>20-800 lpm</td>
<td>0-800 lpm</td>
<td>0-350 bar</td>
<td>0-120°C</td>
<td>1 1/2&quot; Flange</td>
</tr>
<tr>
<td>HT752HP</td>
<td>20-800 lpm</td>
<td>0-800 lpm</td>
<td>0-480 bar</td>
<td>0-120°C</td>
<td>1 7/8&quot; - 12 UN</td>
</tr>
</tbody>
</table>

Connections
By flexible hoses (1 - 2 metre minimum length).
Inlet and Outlet ports:

Adaptors
Adaptor Fitting and flanges are available to suit the range of flow blocks. Consult the sales office

Measurement and Indication

Flow
Measured by the electronic count of an axial turbine designed to minimise the effects of variation in temperature and viscosity. The large analogue readout meter has high / low scales selected by a switch.
Accuracy ± 2% of full scale

Pressure
Glycerine filled dual scale pressure gauge 0 - 420 bar, 0 - 6000 psi connected by capillary tube to the flow block.
Accuracy ± 1.6% of full scale

Temperature
Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is displayed in °C for either the internal or remote flow block.
Accuracy ± 2°C.

Speed
Rotational speed of motors, shafts etc., can be measured by optional phototachometer using one or more retro-reflective marks. Range 600 - 8000 rpm.
Accuracy ± 2% of full scale

Construction

Readout
HT Series Testers comprise a turbine flow block, pressure gauge and temperature sensor built into a steel case complete with read-out panel, selector switch, integral loading valve and connections for optional equipment. For clear accurate readings the tester has both High and Low scales.
Low power micro-circuitry minimises battery consumption. An automatic switch turns the power off one hour after the last operation.
The standard 9 volt battery is available worldwide and gives 12 months of normal testing.

Turbine Block
High tensile aluminium block houses a six blade turbine rotating on a stainless steel bearing and shaft. Built-in flow straightener reduce turbulence and allow accurate flow measurement in both directions.

General

Loading Valve
The integral loading valve gives progressive pressure loading in either flow direction. Replaceable safety discs relieve at 440 bar to internally by-pass the oil if the maximum pressure is exceeded.

Remote Inputs
An additional flow block can be connected into the panel. This input can be calibrated to the range of Webster Flow blocks, 0.1 to 800 lpm. Specify the additional flow block when ordering.

Seals
Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

Dimensions
255mm Wide, 215mm High, 205mm Deep, Mass 10Kg.

Operators Manual
Full instructions are supplied with each tester.

Accessory Equipment
HT testers can be used with a wide range of accessories e.g. Phototachometer, mechanical tachometer, low pressure gauge and separate flow blocks. For further information, see the optional equipment section.

How to Order
Specify model from table above together with optional equipment and adaptor fitting kit as required e.g. HT 402 with TH2, BAI 0 and FT 5781 is a 10 - 400 lpm tester with tachometer, magnetic base and adaptor kit.
Digital Hydraulic Testers

Flow, Pressure, Temperature and Speed

- Up to 800 lpm
- Up to 420 bar
- Bi-Directional

The Webster DHCR Series Digital Tester with remote flow block accurately measures flow, pressure, temperature and speed. Webster testers are designed for checking hydraulic pumps, motors, valves and hydrostatic transmissions.

This easy to use diagnostic unit can pin point hydraulic system faults, reduce downtime and help in preventative maintenance. Main hydraulic circuits, drain leakage flows and dual pumps can be measured simply at the turn of a switch.

The readout can be used in the most convenient position; for example, in the cab of a vehicle, with the flow blocks installed anywhere in the circuit.

The tester comprises a digital readout with two flow inputs and one flow block connected remotely by a 2 metre long cable and micro-bore hose assembly to the left hand side of the readout. An optional flow block can be connected via a cable to the front of the readout. Flow inputs can be easily calibrated by the operator to a wide range of Webster flow blocks. The readout is scaled in lpm, gpm, US gpm, selected by push button.

In addition to the range of flow blocks, other optional accessories include different length hoses, pressure loading valves and a phototachometer.

Features

- **ACCURATE** measurement of flow, with automatic linearisation giving an accuracy of 1% of reading over a wide range.
- **SAFE** to use in both directions of flow. Internal oil by-pass protects the system, tester and operator against over-pressure.
- **BI-DIRECTIONAL** for unrestricted connection and simplified testing up to 420 bar and 800 lpm.
- **FAST** checks on pumps, motors, valves, cylinders and hydrostatic transmissions.
- **REMOTE INPUTS**
  - 2 - Flow and Temperature
  - 1 - Pressure
  - 1 - Speed
- **ECONOMICAL** low power consumption from standard battery. Automatic "Power Off" feature.
- **PORTABLE AND LIGHTWEIGHT** Aluminium and steel construction.
Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Normal Flow Range</th>
<th>Max. Flow Range</th>
<th>Max Pressure</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>± 1% of indicated reading</td>
<td>lpm</td>
<td>gpm</td>
<td>US gpm</td>
</tr>
<tr>
<td>DHCR 5</td>
<td>0.3 - 5*</td>
<td>0.07 - 1.1*</td>
<td>0.08 - 1.3*</td>
<td>0.1 - 5</td>
</tr>
<tr>
<td>DHCR 10</td>
<td>0.4 - 10*</td>
<td>0.09 - 2.2*</td>
<td>0.10 - 2.6*</td>
<td>0.2 - 10</td>
</tr>
<tr>
<td>DHCR 16</td>
<td>0.5 - 16*</td>
<td>0.11 - 3.5*</td>
<td>0.13 - 4.2*</td>
<td>0.3 - 16</td>
</tr>
<tr>
<td>DHCR 50</td>
<td>10 - 50</td>
<td>2.2 - 10</td>
<td>2.6 - 13</td>
<td>2 - 60</td>
</tr>
<tr>
<td>DHCR 125</td>
<td>10 - 120</td>
<td>2.2 - 25</td>
<td>2.6 - 32</td>
<td>5 - 150</td>
</tr>
<tr>
<td>DHCR 400</td>
<td>20 - 300</td>
<td>4.4 - 66</td>
<td>5.0 - 80</td>
<td>10 - 400</td>
</tr>
<tr>
<td>DHCR 750</td>
<td>25 - 750</td>
<td>5.5 - 165</td>
<td>6.6 - 200</td>
<td>20 - 800</td>
</tr>
<tr>
<td>DHCR 750HP</td>
<td>25 - 750</td>
<td>5.5 - 165</td>
<td>6.6 - 200</td>
<td>20 - 800</td>
</tr>
</tbody>
</table>

Add R suffix to model number i.e. DHCR400R for model supplied with Bi-Directional loading valve.

Connections
Flow block connection by flexible hoses or steel pipes (200 mm minimum length).

Adaptors
Adaptor Fitting kits and flanges are available to suit the range of flow blocks. Consult the sales office.

Measurement and Indication
Flow
Measurement by the electronic count of an axial turbine or precision gears designed to minimise the effects of variation in temperature and viscosity. The large digital display reads in lpm, gpm or US gpm, selected by push button and indicated by a cursor arrow on the display. Webster flowmeters allow accurate flow measurement in both directions.

Accuracy: See above table.

Pressure
Glycerine filled dual scale pressure gauge
0 - 420 bar, 0 - 6000 psi.
Accuracy ± 1.6% of full scale.

Temperature
Sensed by a thermistor pickup in the oil flow for fast response. Temperature is permanently displayed in °C or °F for either the internal or external flow block.
Accuracy ± 1 °C, 2 °F.

Speed
Rotational speed of motors, shafts etc, can be measured by optional phototachometer and the readout can be programmed for one or more reflective marks.
Range 300 - 6000 rpm.
Accuracy ± 1/4% of full scale with one count per revolution.

Construction
Readout
DHCR Testers are microprocessor based instruments providing flexibility and high accuracy. Data presentation is by 8 digit liquid crystal display with 8mm high characters. Temperature is permanently displayed and flow input one or two or speed is selected by the rotary switch. The readout is programmed to refresh the display each second. "Fast" update, (1/3 second), can be selected to show changing flow conditions when testing relief valves, etc. Low power micro-circuitry minimises battery consumption while the tester is working and switches off automatically one hour from the last operation. A standard 9 volt battery is available worldwide and gives typically 6 months normal testing.

Flow Block
Two flow blocks can be connected into the readout and selected as required. The readout can easily be calibrated to any Webster flow block by switching to program mode and keying the calibration number supplied with each block. Turbine flowmeters have 6 blades and rotate on a stainless steel bearing which is housed in a high tensile aluminium body. Built-in flow straighteners reduce flow turbulence. Gear flowmeters have two 14 tooth gears running on low friction stainless steel ball bearings in a high tensile aluminium body.

General
Optional Loading Valve
The Bi-Directional loading valve which is built in to the flow block gives a smooth pressure loading in both directions. Internal safety discs give protection in both directions without external oil spillage. Replaceable discs are available up to 480 bar. HV100 loading valve for use up to 150 lpm is supplied as a separate unit.

Accessories
DHCR testers can be used with a wide range of accessories e.g. Phototachometer, Loading valve, Pressure test points and hose, Low pressure gauge. Please refer to the Optional Equipment bulletin.

Operators Manual
Full operating instructions and test procedures are detailed in a manual supplied with the tester.

How to Order
Specify model from table above together with optional equipment and adaptor fitting kit as required e.g., DHCR 402R with TH IA and BA 10 is a 20 - 400 lpm tester with Bi-Directional loading valve tachometer and magnetic base.

Operators Manual
Full operating instructions and test procedures are detailed in a manual supplied with the tester.

How to Order
Specify model from table above together with optional equipment and adaptor fitting kit as required e.g., DHCR 402R with TH IA and BA 10 is a 20 - 400 lpm tester with Bi-Directional loading valve tachometer and magnetic base.
Digital Hydraulic Testers

Remote Input of Flow, Temperature and Speed

- Up to 125 lpm
- Up to 420 bar
- Bi-Directional

The DHC Series Digital Tester with remote input accurately measures flow, pressure, temperature and speed. The tester conveniently checks the performance of the Hydraulic System and helps to quickly locate faults. The tester comprises of a turbine flowblock and large easy to read digital display which shows both flow and temperature. Speed and remote flow are selected by a switch when required. The flow readout is scaled in lpm, gpm and US gpm, selected by a push button.

The remote flow input can be easily calibrated by the operator for any Webster flow block. The remote input feature allows main hydraulic circuits and drain leakage flows to be measured simply at the turn of a switch.

Webster testers are designed for continuous monitoring or intermittent use commissioning and servicing hydraulic systems up to 420 bar, 6000 psi pressure.

Optional accessories for the tester include a phototachometer kit and a pressure loading valve with internal by-pass safety disc.

Features

- ACCURATE measurement of flow, with automatic linearisation giving an accuracy of 1% of reading over a wide range.
- SAFE to use in both directions of flow. Internal oil by-pass protects system, tester and operator against over-pressure.
- BI-DIRECTIONAL for unrestricted connection and simplified testing.
- FAST checks on pumps, valves, motors, cylinders; hydrostatic transmissions.
- REMOTE INPUTS
  1 - Flow
  1 - Temperature
  1 - Speed
- ECONOMICAL low power consumption from standard battery with automatic “Power Off”.
- PORTABLE AND LIGHTWEIGHT with robust steel construction.
Specifications

<table>
<thead>
<tr>
<th>Model No</th>
<th>Part No.</th>
<th>Normal Flow Range</th>
<th>Max. Flow Range</th>
<th>Pressure Range</th>
<th>Temp Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LPM</td>
<td>GPM</td>
<td>US GPM</td>
<td>LPM</td>
</tr>
<tr>
<td>DHC 50</td>
<td>FT6602-6</td>
<td>10-60.0</td>
<td>2.2-12.0</td>
<td>2.6-15.0</td>
<td>2-60</td>
</tr>
<tr>
<td>DHC 125</td>
<td>FT6603-6</td>
<td>10-125.0</td>
<td>2.2-25.0</td>
<td>2.6-30.0</td>
<td>5-150</td>
</tr>
</tbody>
</table>

Connections

By flexible hoses (1 - 2 metres recommended length.)
Inlet and Outlet ports.
DHC 50 3/4" BSPF
DHC 125 3 1/4" BSPF

Adaptors

Adaptor Fitting Kit Part No. FT 6138 comprising 6 male-male adaptors and 2 bonded seals to provide 3/4" BSPF, 1/2" BSPF, 3/8" BSPF, Male connections.

Measurement and Indication

Flow

Measured by the electronic count of an axial turbine designed to minimise the effects of variation in temperature and viscosity. The large digital display reads in either lpm, gpm or US gpm, selected by push button and indicated by a cursor arrow on the display.
Accuracy ± 1% of reading over normal flow range.

Pressure

Glycerine filled dual scale pressure gauge 0 - 420 bar, 0 - 6000 psi connected by capillary tube to the flowblock.
Accuracy ± 1.6% of full scale.

Temperature

Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is permanently displayed in °C or °F for either internal or external flow block.
Accuracy ± 1 °C, 2°F.

Speed

Rotational speed of motors shafts etc., can be measured by optional phototachometer programmed for one or more reflective marks.
Range 300-6000 rpm
Accuracy ± 1/4% of full scale with one count per revolution.

Construction

Readout

DHC Testers are microprocessor based instruments providing flexibility and high accuracy with varying oil viscosity.

Data presentation is by 8 digit liquid crystal display with 8mm (0.32") high characters. Temperature is permanently displayed and internal / external flow or speed is selected by the rotary switch. Flow is scaled in LPM, GPM and US GPM. The readout is programmed to refresh the display each second.

“Fast” update 1/3 second, can be selected to show changing flow conditions when testing relief valves etc. Low power micro-circuitry minimises battery consumption while the tester is working and in case the operator forgets, an automatic switch turns the power off one hour from the last operation. The standard 9 volt battery is available worldwide and gives typically 6 months normal testing.

General

Loading Valve

Optional, the HV1 00 Loading Valve is directly connected to the Turbine Block to give progressive pressure loading in either flow direction. Replaceable safety discs relieve at 440 bar to internally by-pass the oil if the maximum pressure is exceeded.

Remote Inputs

An additional flow block can be connected into the panel. This input can easily be calibrated for any Webster flow block by switching to program mode and keying in the required calibration value supplied with each block.

Seals

Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

Operators Manual

Full instruction manual supplied with the tester.

Accessory Equipment

DHC Testers can be used with a wide range of accessories. tachometer, Loading Valve and Low Pressure Gauge. Please refer to the Optional Equipment Section.

Dimensions

191mm Wide, 225mm High, 84mm Deep, Mass 4kg.

How To Order

Specify model from table above together with optional equipment and adaptor fitting kit as required e.g. DHC125 with HV1 00, THi A, BAl 0, FT61 38 and FT5539 is a 10-125 lpm tester with loading valve, tachometer, magnetic base, adaptor kit and carrying case.
Digital Hydraulic Testers

Flow, Pressure and Temperature

• Up to 150 lpm
• Up to 420 bar
• Bi-Directional

Simplified Controls

The DHC Digital Testers accurately measure flow, pressure and temperature. Webster Testers are designed to conveniently check the performance of hydraulic pumps, motors, valves and hydrostatic transmissions.

This easy to use diagnostic tester has simplified controls and can pin point hydraulic system faults, reducing downtime and helping in preventive maintenance.

The tester comprises a turbine flow block and a large easy to read digital display which indicates both flow and temperature.

The optional HV100 loading valve is used to simulate the working pressure during normal machine operation. The built-in safety discs protect the machine and operator in event of excessive pressure, allowing oil to safely bypass the loading valve INTERNALLY with no spillage of oil from the hydraulic circuit, eliminating clean-up costs and environmental hazards.

This easy to use diagnostic tester can pin point hydraulic system faults, reducing downtime and helping in preventive maintenance.

Features

• ACCURATE: measurement of flow, pressure and temperature.
• SAFE: to use in both directions of flow. The loading valve has Internal oil by-pass to protect system, tester and operator against over-pressure.
• BI-DIRECTIONAL: for unrestricted connection and simplified testing.
• FAST: checks on pumps, motors, valves, cylinders and power steering systems.
• EASY to operate controls. Simply “Switch on” and connect into the hydraulic system.
• ECONOMICAL: low power consumption from standard battery with Automatic “Power Off” feature.
• PORTABLE AND LIGHTWEIGHT: with robust steel construction.
Specifications

<table>
<thead>
<tr>
<th>Model No</th>
<th>Flow Range lpm</th>
<th>Pressure Range bar</th>
<th>Temperature °C</th>
<th>Port Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHC 51</td>
<td>2 - 60</td>
<td>0 - 420</td>
<td>0 - 120</td>
<td>3/4&quot; BSPF</td>
</tr>
<tr>
<td>DHC 151</td>
<td>5 - 150</td>
<td>0 - 420</td>
<td>0 - 120</td>
<td>3/4&quot; BSPF</td>
</tr>
</tbody>
</table>

Connections
By flexible hoses (1 - 2 metre's recommended length).

Pressure
Glycerine filled dual scale pressure gauge 0 - 420 bar,
0 - 6000 psi connected by capillary tube to the flowblock.
Accuracy: ± 1.6 % of full scale.

Measurement and Indication

Flow
Measured by the electronic count of an axial turbine designed to minimise the effects of variation in temperature and viscosity. The large digital display reads lpm.
Accuracy: ± 1% of full flow

Temperature
Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is permanently displayed in °C.
Accuracy: ± 1°C.

Construction

Readout
DHC Testers are microprocessor based instruments providing flexibility and high accuracy with varying oil viscosity.

Flow and Temperature are permanently displayed. Data presentation is by 8 digit liquid crystal display with 8mm high characters.

The readout is programmed to refresh the display each second. Optional "FAST" update, 1/3 second is available to show changing flow conditions when testing relief valves etc. Low power micro-circuitry minimises battery consumption.

Adaptors
Adaptor fixing kit Part No. FT 6138 comprising 6 male-male adaptors and 2 bonded seals to provide 3/4" BSPF, 1/2" BSPF, 3/8" BSPF male connections.

Turbine Block
High tensile aluminium block houses a six blade turbine rotating on a stainless steel bearing and shaft. Built-in flow straighteners reduce flow turbulence and allows accurate flow measurement in both directions.

Operators Manual
Full instruction manual supplied with the tester.

How to Order
Specify model from table above together with optional equipment and adaptor fitting kit as required e.g. DHC51 with HV100, FT6138 and FT5539 is a 2-60 lpm tester with loading valve, adaptor kit and carrying case.

Seals
Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

Accessories

Dimensions
DHC 51, DHC151: 191mm Wide, 225mm High, 84mm Deep, Mass 4kg.

Connections

How to Order

Accessories
Quality Hydraulic Test Equipment from the Webster Range

Analogue Hydratest
Hydraulic Testers

Remote Input of Flow, Temperature and Speed

- Up to 125 lpm
- Up to 420 bar
- Bi-Directional

Features
- ACCURATE measurement of flow, pressure, temperature
- FAST checks on pumps, valves, motors, cylinders, hydrostatic transmissions
- SAFE to use in both directions of flow. Internal oil by-pass protects system, tester and operator against accidental over-pressure
- BI-DIRECTIONAL for unrestricted connection and simplified testing
- ECONOMICAL low power consumption from standard battery. Automatic switch off
- WIDE RANGE of operation
  - 2-125 lpm
  - 0.5-26 gpm
  - Maximum pressure 420 bar, 6000 psi
- PORTABLE and lightweight

Accurately measuring flow, pressure and temperature, testers in the HC Series are used to conveniently check hydraulic system performance or locate faults while operating directional control valves or adjusting valve settings.

The tester comprises a turbine flow block and large easy to read analogue meter which displays flow, speed or temperature.

Webster turbines are designed for continuous monitoring or intermittent use commissioning and servicing hydraulic systems up to 420 bar, 6000 psi pressure.

Optional accessories for the tester include a phototachometer kit for checking shaft or motor rpm and a pressure loading valve with internal by-pass safety discs. The loading valve allows progressive build up of pressure to check the flow throughout the range.

Model HC 125 tester with HV100 loading valve and low pressure gauge with automatic cut-out valve.
Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Flow Range</th>
<th>Scales High</th>
<th>Low</th>
<th>Pressure Range</th>
<th>Temp Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC 50</td>
<td>FT2547-18</td>
<td>2-50 lpm</td>
<td>0-50 lpm</td>
<td>0-10 lpm</td>
<td>0-420 bar</td>
<td>120 °C</td>
</tr>
<tr>
<td>HC125</td>
<td>FT2525-18</td>
<td>5-125 lpm</td>
<td>0-125 lpm</td>
<td>0-30 lpm</td>
<td>0-420 bar</td>
<td>120 °C</td>
</tr>
</tbody>
</table>

Connections
By flexible hoses (1 metre minimum length) Inlet and Outlet ports:  
HC 50  3/4” BSPF  
HC125  3/4” BSPF  

Adaptors
Adaptor Fitting Kit Part No. FT 6138 comprising 6 male-male adaptors and 2 bonded seals for HC 125 and HC 50 to provide:  
3/4” BSPF, 1/2” BSPF, 3/8” BSPF, male connections.

Measurement and Indication

Flow
Measured by electronic count of the axial turbine, designed to minimise the effects of variation in temperature and viscosity. The large analogue readout meter has High I Low scales selected by a switch.  
Accuracy ± 2% of full scale.

Pressure
Glycerine filled dual scale pressure gauge 0 - 420 bar, 0 - 6000 psi.  
Accuracy ± 1.6% of full scale.

Temperature
Sensed by thermistor in the turbine block for fast response and selected by switch on the analogue meter whenever required.  
Accuracy ± 2°C.

Speed
Rotational speed of motors, shafts etc., can be measured by an optional plug-in photo-tachometer. All necessary circuitry is built into the tester.  
Range 600 - 8000 rpm.  
Accuracy ± 2% of full scale.

Construction

Readout
HC Series Testers comprise a turbine flow block, pressure gauge and temperature sensor built into a steel case complete with read-out panel, selector switch and connections for optional equipment. For clear accurate readings the tester has both High and Low scales.  
Low power micro-circuitry minimises battery consumption. An automatic switch turns the power off one hour after the last operation.

The standard 9 Volt battery is available worldwide and gives typically 12 months normal testing.

Turbine Block
High tensile aluminium block houses a six blade turbine rotating on a stainless steel bearing and shaft. Straightener reduce flow turbulence and allow measurement in both directions. Optional loading valve available.

General

Loading Valve
Optional HV100 loading valve can be directly connected to the Turbine Block to give progressive pressure loading in either flow direction. Replaceable safety discs relieve at 440 bar to internally by-pass the oil if the maximum pressure is exceeded.

Seals
Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

Operators Manual
Full operating instructions and test procedures are detailed in a manual supplied with the tester.

Accessory Equipment
HC testers can be used with a wide range of accessories. eg. phototachometer, mechanical tachometer, loading valve, and low pressure gauge. A carrying case is also available. Please refer to the Optional Equipment Section.

How to Order
Specify model from above table together with optional equipment and adaptor fitting kit as required eg. HC 125 with HV 100, TH IA, BA 10, FT 5539, and FT 6138 is a 4 - 125 lpm tester with loading valve, tachometer, magnetic base, carrying case and adaptor kit.
Analogue Hydratest Hydraulic Tester

Flow, Pressure, Temperature and Speed

- 300 lpm
- Bi-Directional

Features

- ACCURATE measurement of flow, pressure, temperature
- FAST checks on pumps, valves, motors, cylinders, hydrostatic transmissions
- SAFE to use in both directions of flow. Internal oil by-pass protects system, tester and operator against accidental over-pressure
- BI-DIRECTIONAL for unrestricted connection and simplified testing
- ECONOMICAL low power consumption from standard battery. Automatic switch off
- WIDE RANGE of operation
  - 8-300 lpm
  - 2-60 gpm
  - Maximum pressure 420 bar, 6000 psi
- PORTABLE and lightweight

Accurately measuring flow, pressure and temperature, testers in the HC Series are used to conveniently check hydraulic system performance or locate faults while operating directional control valves or adjusting valve settings. The tester comprises a turbine flow block and large easy to read analogue meter which displays flow, speed or temperature.

Webster turbines are designed for continuous monitoring or intermittent use commissioning and servicing hydraulic systems up to 420 bar, 6000 psi pressure.

Optional accessories for the tester include a phototachometer kit for checking shaft or motor rpm and a pressure loading valve with internal by-pass safety discs. The loading valve allows progressive build up of pressure to check the flow throughout the range.
### Specifications

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Flow Range</th>
<th>Scales</th>
<th>Pressure Range</th>
<th>Temp Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC 300</td>
<td>FT5584-18</td>
<td>10-300 lpm</td>
<td>High 0-300 lpm, Low 0-60 lpm</td>
<td>0-420 bar</td>
<td>120°C</td>
</tr>
</tbody>
</table>

### Connections

By flexible hoses (1 metre minimum length) Inlet and Outlet ports: HC 300 1”BSPF

### Adaptors

Adaptor Fitting Kit Part No. FT 5781 comprising 10 male-male adaptors and 2 bonded seals for HC 300 to provide: 1. BSPF, 3/4” BSPF, 1/2” BSPF, 1 5/16” JIC Male and 9/16” UNF Female connections.

### Measurement and Indication

**Flow**

Measured by electronic count of the axial turbine, designed to minimise the effects of variation in temperature and viscosity. The large analogue readout meter has High / Low scales selected by a switch.

**Accuracy** ± 2% of full scale.

**Pressure**

Glycerine filled dual scale pressure gauge 0 - 420 bar. 0 - 6000 psi.

**Accuracy** 1.6% of full scale.

**Temperature**

Sensed by thermistor in the turbine block for fast response and selected by switch on the analogue meter whenever required.

**Accuracy** ± 2°C

**Speed**

Rotational speed of motors, shafts etc., can be measured by an optional plug-in phototachometer. All necessary circuitry is built into the tester. Range 600 - 8000 rpm.

**Accuracy** ± 2% of full scale.

### Construction

**Readout**

HC Series Testers comprise a turbine flow block, pressure gauge and temperature sensor built into a steel case complete with read-out panel, selector switch and connections for optional equipment. For clear accurate readings the tester has both High and Low scales.

Low power micro-circuitry minimises battery consumption. An automatic switch turns the power off one hour after the last operation.

The standard 9 Volt battery is available worldwide and gives typically 12 months normal testing.

**Turbine Block**

High tensile aluminium block houses a six blade turbine rotating on a stainless steel bearing and shaft. Straightener reduce flow turbulence and allow measurement in both directions. Optional loading valve available.

### General

**Loading Valve**

Optional HV400 loading valve can be directly connected to the Turbine Block to give progressive pressure loading in either flow direction. Replaceable safety discs relieve at 440 bar to internally by-pass the oil if the maximum pressure is exceeded.

**Seals**

Viton seals compatible with oil, water/oil emulsion are fitted as standard. EP seals for phosphate-ester are available to special order.

### Operators Manual

Full operating instructions and test procedures are detailed in a manual supplied with the tester.

**Accessory Equipment**

HC testers can be used with a wide range of accessories. eg. phototachometer, mechanical tachometer, loading valve, and low pressure gauge. A carrying case is also available. Please refer to the Optional Equipment Section.

**How to Order**

Specify model from above table together with optional equipment and adaptor fitting kit as required eg. HC 300 with HV 400, TH 1A, BA 10, and FT 5781 is a 8 - 300 lpm tester with loading valve, tachometer, magnetic base and adaptor kit.

**Dimensions**

191mm Wide, 225mm High, 84mm Deep, Mass 4kg.
Quality Hydraulic Test Equipment from the Webster Range

HPM 400 Series
Handheld
Digital Test System

- Flow
- Pressure
- Temperature
- Speed

The HPM 400 Handheld Digital Test System and its associated pressure, temperature and flow sensors provide an accurate, economic and user friendly solution for servicing and commissioning hydraulic systems.

The HPM 400 readout has two inputs which recognise which pressure, temperature or flow sensors are connected and automatically sets the correct calibration to each input for the sensors being used. The HPM 400 can be used in extreme service conditions. It has a heavy duty protective rubber cover and can be hand held or used as a desk top unit with built-in stand.

The readout is powered by a 9 Volt battery, an optional rechargeable battery and charger is available. This easy to use diagnostic test system can be used in preventative maintenance, checking the correct setting of valves, pin pointing the cause of low flow, measuring differential pressure and capturing pressure shocks. Accessories include a wide range of pressure transducers, flowmeters, temperature sensors and test points.

Features
- DIGITAL DISPLAY Pressure, Temperature, Flow, Differential Pressure.
- AUTOMATIC set-up for any Webster sensor
- ACCURACY Pressure within 0.5% of full scale Flow within 1% of full scale.
- PRESSURE up to 630 bar, peaks to 1000 bar.
- FLOW Bi-directional 0.3 to 600 lpm 420 bar.
- TEMPERATURE -25 +125°C.
- LOADING VALVE Turbines with built in loading valve or separate loading valve available.
- SAFE to use in both directions of FLOW. Internal oil by-pass through burst discs in loading valve protects the operator, the system, and the tester against over-pressure.
- BATTERY POWERED standard 9 Volt battery with optional rechargeable unit.
- SWITCHED min/max values.
- CARRY CASE included.
READOUT  HPM400B and HPM400C
Today’s hydraulic system requires a precise quick and easy solution to the measurement of system information. The HPM400 has a large easy to read 4 digit LCD display with a character height of 13mm.
The two inputs are set automatically when the required sensors are connected, pressure (bar), flow (lpm), temperature (°C), peak pressure and differential pressure can easily be read.
The ABS housing is protected to IP54 and has a rubber cover with built-in stand.
The readout has Auto ‘power off’ in 15 mins.
The HPM400C has an optical data output.

Power Supply:  
HPM 400B  9 V standard battery  
HPM 400C  Rechargeable battery

<table>
<thead>
<tr>
<th>Parameter</th>
<th>HPM400B</th>
<th>HPM400C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>&lt; 0.3% ± 2 Digit</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>0 to +50°C</td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20 to +60°C</td>
<td></td>
</tr>
<tr>
<td>Rel. Humidity</td>
<td>&lt;85%</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>l/w/h 145 x 70 x 40 mm</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 340g.</td>
<td></td>
</tr>
</tbody>
</table>

Pressure Transducer
Pressure Ranges:
PT63  0 - 63 bar  
PT630  0 - 630 bar

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>± 0.5% FS</td>
</tr>
<tr>
<td>Over Pressure</td>
<td>1.5 x rated pressure without damage</td>
</tr>
<tr>
<td>Response time</td>
<td>1 ms</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-20 to +85°C</td>
</tr>
<tr>
<td>Compensated temp. range</td>
<td>0 to +85°C</td>
</tr>
<tr>
<td>Media temp. range</td>
<td>-25 to +105°C</td>
</tr>
<tr>
<td>Temp. deviation</td>
<td>± 0.03% span/°C</td>
</tr>
<tr>
<td>Output</td>
<td>3 Volts.</td>
</tr>
<tr>
<td>Body material</td>
<td>Stainless steel 1.4301</td>
</tr>
<tr>
<td>Connecting cable</td>
<td>2 metre long included</td>
</tr>
</tbody>
</table>

Temperature Probe
The temperature probe houses a silicone chip which produces a voltage proportional to temperature. The probe can be connected directly into a high pressure line. Media Temperature Range -25°C to 125°C. Ambient temperature range -20 to +70°C.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>±1.5% FS</td>
</tr>
<tr>
<td>Maximum pressure</td>
<td>630 bar</td>
</tr>
<tr>
<td>Material</td>
<td>Steel zinc plated</td>
</tr>
<tr>
<td>Connecting Cable</td>
<td>2 metre long included</td>
</tr>
</tbody>
</table>

Note:
To measure differential pressure two (2) transducers of the same pressure range must be used.
Pressure Transducer to +15 bar available Consult Factory

Connection port M10 x 1  
Adaptor fitting 1/4 BSPF male and Tee fitting (16S) available for pipe mounting.
**Flow Turbine**
High tensile aluminium block houses flow straighteners and a turbine which rotates on a stainless steel bearing and shaft. The turbine assembly forms a one piece assembly which is easily removed for cleaning. Webster flow blocks are bi-directional for unrestricted connection and simplified testing and can operate at pressure up to 400 bar.

**Loading Valve**
Webster Bi-directional loading valves provides pressure loading in either flow direction. The valve incorporates the 'INTERPASS' advanced safety concept which protects the operator, system and environment from discharge of oil in the event of overpressure. The oil is contained within the hydraulic system, not vented externally, with the resulting expensive oil spillage and environmental damage.

**Converter**
A signal converter is supplied with each CT flow turbine which conditions the output signal so that it can be read directly by the HPM400 Series readouts. The converter is mounted in the cable for improved reliability

- **Input:** 10 - 2000 Hz.
- **Output:** 0 - 3 Volts
- **Size:** l/w 100 x 28
- **Weight:** 320g
- **Connecting Cable:** 2.7 metre long included

<table>
<thead>
<tr>
<th>Model</th>
<th>CT50</th>
<th>CT125</th>
<th>CT300</th>
<th>CT400</th>
<th>CT500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Range lpm</td>
<td>2 - 60</td>
<td>4 - 150</td>
<td>10 - 300</td>
<td>10 - 400</td>
<td>20 - 600</td>
</tr>
<tr>
<td>Max. Pressure bar</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>350</td>
</tr>
<tr>
<td>Port Connection</td>
<td>3/4 BSPF</td>
<td>3/4 BSPF</td>
<td>1 BSPF</td>
<td>1 BSPF</td>
<td>1 7/8&quot;UNF</td>
</tr>
<tr>
<td>Length mm</td>
<td>191</td>
<td>191</td>
<td>191</td>
<td>191</td>
<td>213</td>
</tr>
<tr>
<td>Width mm</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>64</td>
<td>102</td>
</tr>
<tr>
<td>Height mm</td>
<td>102</td>
<td>102</td>
<td>102</td>
<td>102</td>
<td>127</td>
</tr>
<tr>
<td>Weight kg</td>
<td>1.7</td>
<td>1.7</td>
<td>1.6</td>
<td>1.6</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Accuracy:** ±1% FSD
**Calibration Viscosity:** 21cSt
**Material:** High Tensile Aluminium
**Pressure Test Point:** M16 x 2
**Temperature Port:** M10 x 1 Optional
Consult Sales Office

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![Flow Turbine with Loading Valve CT300R Max. 300 lpm. Loading valves are available for all flow sizes.](image)

**Flow Testing**
This easy to use diagnostic unit can help pinpoint hydraulic system faults, reduce downtime and help in preventive maintenance. Flow Tests can be made to quickly locate defective pumps, valves, cylinders, motors; any of these components can cause slow operation and machine malfunction.

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![CT Flow Turbine and converter](image)

![Loading Valve HV100 for CT50/CT125 Outlet port 1/2" BSPF](image)

![Typical circuit](image)
ADVANCED SAFETY CONCEPT
Webster Bi-directional flowmeters with built-in loading valve incorporate the 'INTERPASS' advanced safety concept which protects the operator wherever the tester is connected into the hydraulic circuit.
Safety discs are mounted in the loading valve and in the event of over-pressure these discs relieve the oil internally by-passing the loading valve at low pressure.
The oil is contained within the system not vented to atmosphere avoiding the resulting cost of replacement oil and damage to the environment.

CARRYING CASE
HPM400 kits are supplied with a carry case providing storage for readout, pressure transducers, temperature sensors and cables etc.
Consult Sales Office for a carry case which also includes storage for flowmeter and loading valve.

Optional Printer for Model HPM400C
The printer allows recording of flow, pressure, temperature following a pre-set interval of 1-100 seconds.
All data measured by the HPM400C is deleted after printing.
Consult Sales Office for printer, connecting cables and power supply.

HOW TO ORDER
Specify readout and transducers as follows:
HPM400B-63/630T 300R is a 9 Volt standard battery readout with 63 and 630 bar pressure transducers, TP400 Temperature sensor, CT300R Flowmeter with loading valve, supplied complete with carrying case and connecting cable. (Consult sales office for kits with two flow turbines).

<table>
<thead>
<tr>
<th>Ordering Code</th>
<th>Typical Code</th>
<th>HPM 400B - 63/630 T 300 R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model (HPM400B HPM400C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure 1</td>
<td>bar</td>
<td></td>
</tr>
<tr>
<td>Pressure 2</td>
<td>bar</td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Flow Range</td>
<td>lpm</td>
<td></td>
</tr>
<tr>
<td>Loading Valve</td>
<td>R</td>
<td></td>
</tr>
</tbody>
</table>
Accessories and Optional Equipment

**Phototachometer TH2**
TH2 phototachometer head, power pack with 6 metre (20’) long connecting cable, Optional BA10 Magnetic Base with flexible arm holds the photo head in required position allowing ‘hands free’ operation.

*Use with HT and DHT testers*

**Loading Valve LT400R**
Combined with the 400 lpm turbine in a single block to give progressive pressure loading in either direction. Two internal safety discs relieve internally at 440 bar to allow oil to by-pass the loading valve if the maximum pressure is exceeded. Safety discs with different pressure ranges are available.

*Use with DHCR, DHC, DHT and HT testers.*

**Phototachometer**
TH1A phototachometer head, power pack with 6 metre (20’) long connecting cable, Optional BA10 Magnetic Base with flexible arm holds the photo head in required position allowing ‘hands free’ operation.

*Use with DHC,DHCR, HC and HCR testers*

**Loading Valve**
Webster loading valves are connected directly to the tester and give progressive pressure loading in either flow direction. Safety discs relieve at up to 480 bar to internally by-pass the oil if the maximum pressure is exceeded.

*Use with DHCR, DHC and HC testers.*

**LT10 Remote Flowmeter**
Provides measurement of control circuits, leakage flows, servo systems. Connects into external flow socket. Flow range 0.1 - 10 lpm (0.05 - 2.5 gpm).

*Use with DHCR, DHC, DHT and HC testers.*

*Excludeing DHC51/151 and DHT401/751 models*
Low Pressure Gauge Kit BP40
Comprising 40 bar (600 psi) gauge with automatic cut-out valve, pressure test point and 300mm long (12") micro-bore hose. Test point fits permanently into tester and the low pressure gauge can be hand-connected directly without stopping the machine.
*Use with DHT and HT testers*

Automatic Cutout and Low Pressure Gauge
63mm (2 1/2") diameter gauge 600psi (40 bar) with adjustable automatic gauge cutout and 1/4" BSP adaptor for permanently connecting the gauge into the HV100 loading valve. Other pressure ranges are available on request.
*Use with DHCR, DHC, HC testers*

Fitting kit of adaptors
Adaptors and Adaptor Kits for all our range of testers can be supplied for most machine applications.

Carrying Case for HC, DHC
Heavy duty plastic case FT5539 provides storage for readout, flow block, 50 or 125 lpm loading valve, connecting cables and phototachometer.
*Size: 532 x 420 x 204mm*

Carrying Case for HCR, DHCR
Heavy duty plastic case with preformed foam insert, provides storage for tester etc. FT6123 case for readout, 50 or 125 lpm flow block with loading valve, connecting cables and phototachometer.
*Size: 532 x 430 x 204mm
FT6124 as above but 300 or 400 lpm flow block
FT5956 case for readout, flow block without loading valve and connecting cable. Size 430 x 330 x 110mm
Manufacturers of Hydraulic Components and Test Equipment for the Mobile, Industrial and Agricultural Industries

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