



**WEBTEC**

**WEBTEC PRODUCTS LIMITED**

# **Portable Bi-directional Hydraulic Testers**

**Measures Flow, Temperature and Pressure**

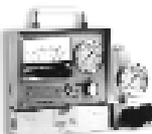


**Quality Hydraulic Test Equipment  
from the Webster Range**

**Portable Bi-directional Hydraulic Testers**



# CONTENTS

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

*Continued over page*

## CONTENTS

Continued from previous page

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

# 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 pin point 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.

Model No.	Max. Flow LPM	Digital	Analogue	Built-in Loading Valve	Remote Flow/Speed Input	Remote Readout
DHT 402	400	*	—	*	*	—
DHT 752	800	*	—	*	*	—
DHT 752HP	800	*	—	*	*	—
DHT 401	400	*	—	*	—	—
DHT 751	800	*	—	*	—	—
HT 252	300	—	*	*	*	—
HT 402	400	—	*	*	*	—
HT 502	600	—	*	*	*	—
HT 752	800	—	*	*	*	—
DHCR 5	5	*	—	†	*	*
DHCR 10	10	*	—	†	*	*
DHCR 16	16	*	—	†	*	*
DHCR 50	60	*	—	†	*	*
DHCR 125	150	*	—	†	*	*
DHCR 400	400	*	—	†	*	*
DHCR 750	800	*	—	†	*	*
DHCR 750HP	800	*	—	—	*	*
DHC 50	60	*	—	†	*	—
DHC 125	150	*	—	†	*	—
DHC 51	60	*	—	†	—	—
DHC 151	150	*	—	†	—	—
HC 50	50	—	*	†	—	—
HC 125	125	—	*	†	—	—
HC 300	300	—	*	†	—	—
HPM 400	600	*	—	†	*	*

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**

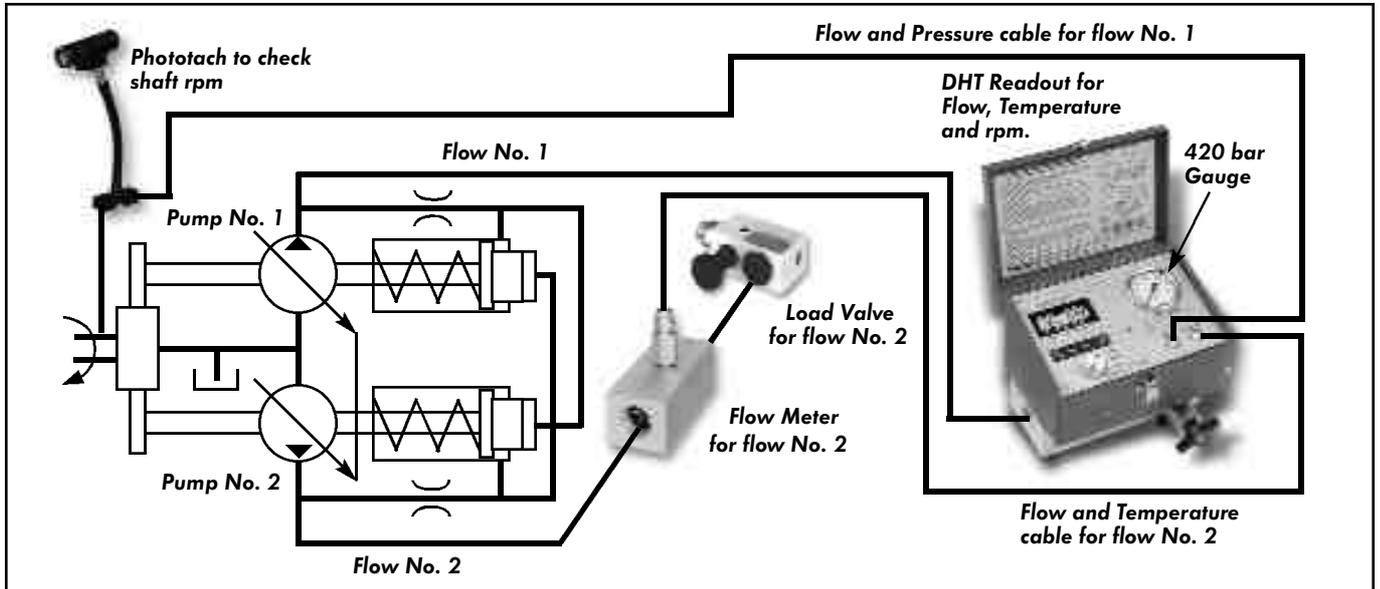
# Quality Hydraulic Test Equipment from the Webster Range

## 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.

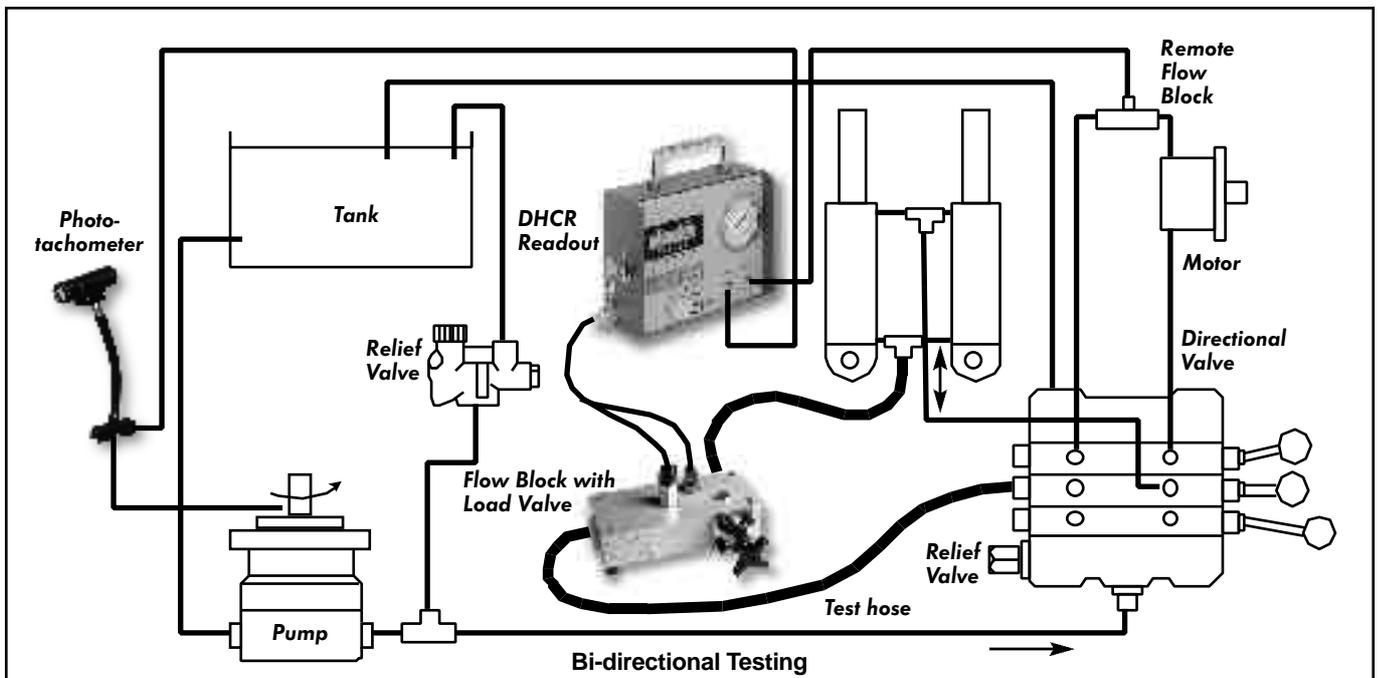
## PUMP TEST



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.



*Model DHT752HP 480 bar*

## 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

Model No.	Normal Flow Range			Max. Flow Range	Max. Pressure	Temp Range	Port Size (SAE & metric threads available)
	lpm	gpm	US gpm	lpm	bar		
DHT402	20 - 400	4.5 - 80	5.3 - 100	10 - 400	420	0 - 120°C	1" BSPF
DHT 752	25 - 800	5.5 - 180	6.6 - 200	20 - 800	350	0 - 120°C	1 1/2" Flange
DHT 752 HP	25 - 800	5.5 - 180	6.6 - 200	20 - 800	480	0 - 120°C	1 7/8" - 12 UN

## 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.

### Temperature

Sensed by a thermistor pick-up in the oil flow for fast response. Temperature is 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 using one or more reflective marks. Range 300 - 6000 rpm.

**Accuracy** ± 1/4% of full scale with one count per revolution.

## 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**



APPROVED

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.



*Model DHT 401*

## 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 LEIGHTWEIGHT** with angled case for easier viewing and cleaning.

## Specifications

Model	Part No.	Flow Range	Temperature Range	Pressure Range	Port Size (SAE & metric threads available)
		lpm	°C	bar	
DHT401	FT8283	10 - 400	0 - 120	420	1" BSPF
DHT751	FT8840-1	20 - 800	0 - 120	350	1 1/2" Flange

Consult Sales office for US gpm models.

## 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:**  $\pm 1\%$  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:**  $\pm 1.6\%$  of full scale.

### Temperature

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

**Accuracy:**  $\pm 1^\circ\text{C}$ .

## 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.

An automatic switch turns the power off one hour after the last operation. The standard 9 volt battery is available worldwide and gives typically 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 straighteners reduce flow turbulence and allows accurate flow measurement in both directions.

## 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.

### Accessories

A low pressure gauge kit BP40, which includes testpoint and micro bore hose is suggested as a useful accessory



### How to Order

Specify the DHT401 together with optional equipment and adaptor fitting kit as required e.g. DHT401 and BP40 is a 10 - 400 lpm tester with low pressure gauge kit.

# Analogue Hydraulic Testers

Remote Input of Flow, Temperature and Speed

- Up to 400 lpm
- Up to 420 bar
- Bi-Directional



APPROVED

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.



Model HT 402

### 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

Model No	Part No	Flow Range	Scales		Pressure Range	Temperature Range
			High	Low		
HT252	FT6359	10-300 lpm	0-300 lpm	0-60 lpm	0-420 bar	0-120°C
HT402	FT6368	10-400 lpm	0-400 lpm	0-80 lpm	0-420 bar	0-120°C

### 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**  $\pm 2\%$  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**  $\pm 1.6\%$  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**  $\pm 2^\circ\text{C}$ .

### 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**  $\pm 2\%$  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

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



APPROVED

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.



Model HT 502 & HT 752

### 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

## Specifications

Model No	Flow Range	Scales		Pressure Range	Temperature Range	Port Size (SAE & metric threads available)
		High	Low			
HT502	20-600 lpm	0-600 lpm	0-120 lpm	0-350 bar	0-120°C	1 1/2" Flange
HT752	20-800 lpm	0-800 lpm	0-160 lpm	0-350 bar	0-120°C	1 1/2" Flange
HT752HP	20-800 lpm	0-800 lpm	0-160 lpm	0-480 bar	0-120°C	1 7/8" - 12 UN

### 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**  $\pm 2\%$  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**  $\pm 1.6\%$  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**  $\pm 2^\circ\text{C}$ .

### 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**  $\pm 2\%$  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.

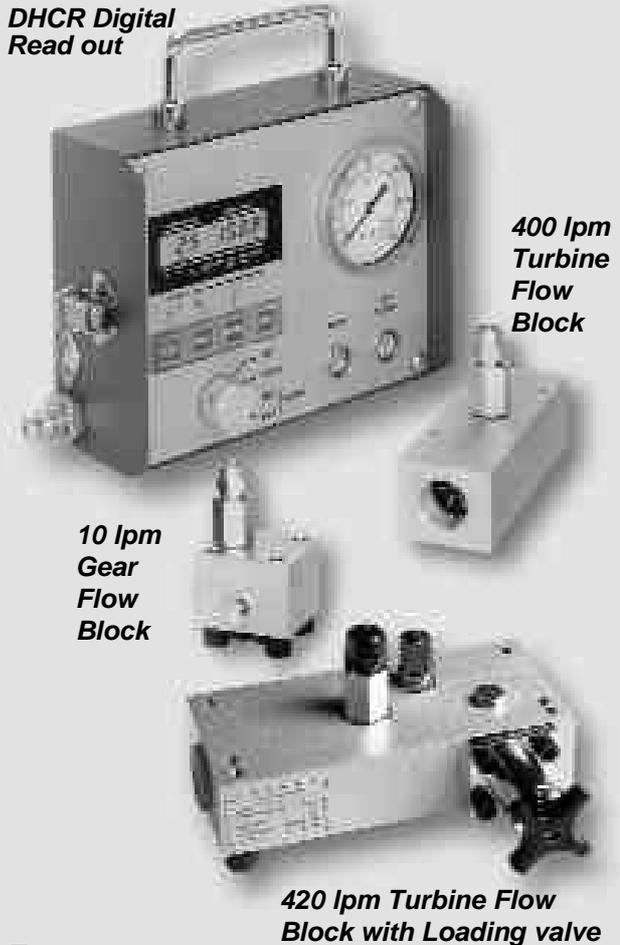
This easy to use diagnostic unit can pin point hydraulic system faults, reduce downtime and help in preventative maintenance. Main hydraulic circuits, drain leakage flows and dual pumps can be measured simply at the turn of a switch.

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.

*DHCR Digital Read out*



*400 lpm Turbine Flow Block*

*10 lpm Gear Flow Block*

*420 lpm Turbine Flow Block with Loading valve*

### 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

Model No.	Normal Flow Range ± 1% of indicated reading			Max. Flow Range	Max Pressure	Port Size (SAE and metric threads available)
	lpm	gpm	US gpm	lpm	bar	
DHCR 5	0.3 - 5*	0.07 - 1.1*	0.08 - 1.3*	0.1 - 5	420	1/4" BSPF
DHCR 10	0.4 - 10*	0.09 - 2.2*	0.10 - 2.6*	0.2 - 10	420	3/8" BSPF
DHCR 16	0.5 - 16*	0.11 - 3.5*	0.13 - 4.2*	0.3 - 16	210	3/8" BSPF
DHCR 50	10 - 50	2.2 - 10	2.6 - 13	2 - 60	420	3/4" BSPF
DHCR 125	10 - 120	2.2 - 25	2.6 - 32	5 - 150	420	3/4" BSPF
DHCR 400	20 - 300	4.4 - 66	5.0 - 80	10 - 400	420	1" BSPF
DHCR 750	25 - 750	5.5 - 165	6.6 - 200	20 - 800	350	1 1/2" Flange
DHCR 750HP	25 - 750	5.5 - 165	6.6 - 200	20 - 800	480	1 7/8" Flange

\* ± 1% of full scale for DHCR05, DHCR10 and DHCR16 Gear Flow Meters

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.

# Digital Hydraulic Testers

Remote Input of Flow, Temperature and Speed

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



APPROVED

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.



*Model DHC 50*

## 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

Model No	Part No.	Normal Flow Range			Max. Flow Range LPM	Pressure Range	Temp Range
		LPM	GPM	US GPM			
DHC 50	FT6602-6	10- 60.0	2.2-12.0	2.6-15.0	2-60	0-420 bar	0-120 °C
DHC 125	FT6603-6	10-125.0	2.2-25.0	2.6-30.0	5-150	0-420 bar	0-120 °C

## Connections

By flexible hoses (1 - 2 metres recommended length.)  
Inlet and Outlet ports.

DHC 50 3/4" BSPF  
DHC125 314" 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, BAI 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**



APPROVED

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.



Model DHC 151

### 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

Model No	Flow Range lpm	Pressure Range Range	Temperature Range	Port Size
DHC 51	2 - 60	0 - 420 bar	0 -120 °C	3/4" BSPF
DHC 151	5 - 150	0 - 420 bar	0 -120 °C	3/4" BSPF

Consult Sales office for US gpm models.

### Connections

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

Inlet and Outlet ports DHC 51 3/4" BSPF  
DHC 151 3/4" BSPF

### 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

## 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

### 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.

**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.

An automatic switch turns the power off one hour after the last operation. The standard 9 volt battery is available worldwide and gives typically 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 straighteners reduce flow turbulence and allows accurate flow measurement in both directions.

## General

### Loading Valve

The optional HV100 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. Safety discs with different pressure ranges are available.

### 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.

### Dimensions

**DHC 51, DHC151:** 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. DHC51 with HV100, FT6138 and FT5539 is a 2-60 lpm tester with loading valve, adaptor kit and carrying case.

### Accessories



Carrying Case



HV100 Loading Valve

# Analogue Hydratest Hydraulic Testers

Remote Input of Flow,  
Temperature and Speed

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



**APPROVED**

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.*

## 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

## Specifications

Model No.	Part No.	Flow Range	Scales		Pressure Range	Temp Range
			High	Low		
HC 50	FT2547-18	2-50 lpm	0-50 lpm	0-10 lpm	0-420 bar	120 °C
HC125	FT2525-18	5-125 lpm	0-125 lpm	0-30 lpm	0-420 bar	120 °C

### 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.

### Weight

**Tester** 4.0Kg.

**Loading Valve** 1.4Kg.

### 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



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 300*

## 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

## Specifications

Model No.	Part No.	Flow Range	Scales		Pressure Range	Temp Range
			High	Low		
HC 300	FT5584-18	10-300 lpm	0-300 lpm	0-60 lpm	0-420 bar	120°C

## 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**  $\pm 2\%$  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**  $\pm 2^\circ\text{C}$

### 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**  $\pm 2\%$  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.

### Dimensions

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

### 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.

# 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

**Accuracy:** < 0.3% ± 2 Digit  
**Ambient temperature:** 0 to +50°C  
**Storage temperature:** -20 to +60°C  
**Rel. Humidity:** <85%  
**Dimensions:** l/w/h 145 x 70 x 40 mm  
**Weight:** approx. 340g.

**Pressure Transducer**

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

**Accuracy:** ± 0.5% FS

**Over Pressure:** 1.5 x rated pressure without damage

**Response time:** 1 ms

**Ambient temperature:** -20 to +85°C

**Compensated temp. range:** 0 to +85°C

**Media temp. range:** - 25 to +105°C

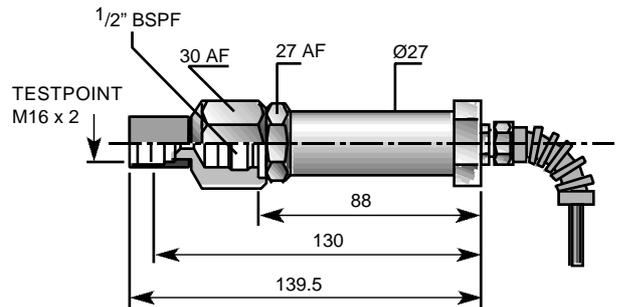
**Temp. deviation:** ± 0.03% span/°C

**Output:** 3 Volts.

**Body material:** Stainless steel 1.4301

**Connecting cable:** 2 metre long included

**Model PT63  
 Model PT630**



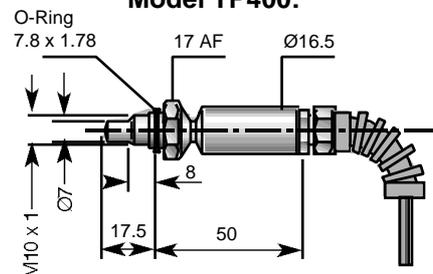
*Note:*  
 To measure differential pressure two (2) transducers of the same pressure range must be used.

**Pressure Transducer to +15 bar available  
 Consult Factory**

**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.

**Model TP400:**



Connection port M10 x 1  
 Adaptor fitting 1/4 BSPF male and Tee fitting (16S) available for pipe mounting.

**Accuracy:** ±1.5% FS

**Maximum pressure:** 630 bar

**Material:** Steel zinc plated

**Connecting Cable:** 2 metre long included

## 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

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

**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



Flow Turbine with Loading Valve CT300R Max. 300 lpm. Loading valves are available for all flow sizes.

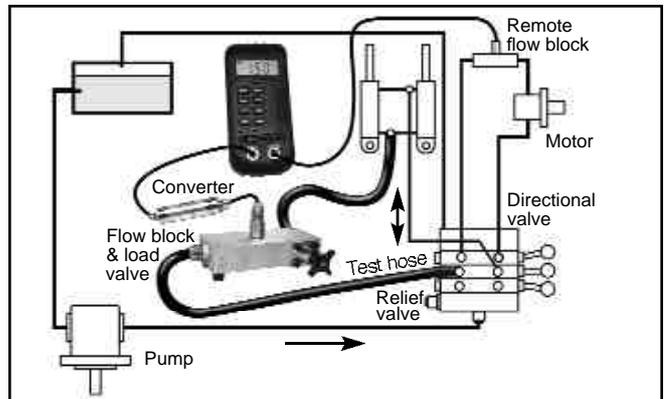


CT Flow Turbine and converter

## 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.



Typical circuit



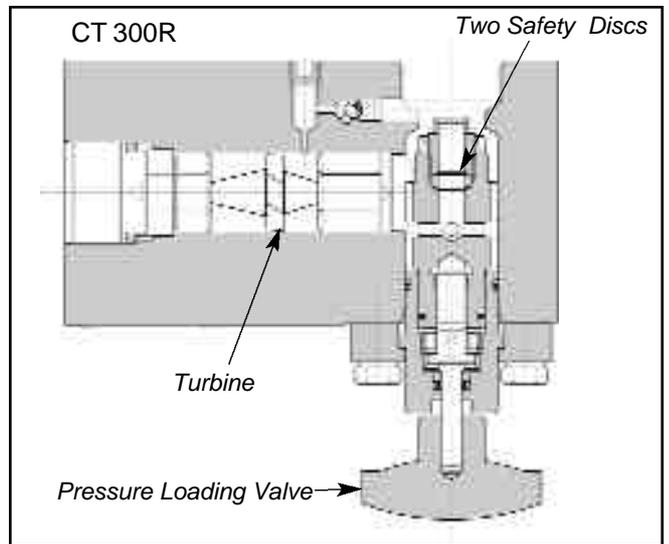
Loading Valve HV100 for CT50/CT125  
 Outlet port 1/2" BSPF

**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.

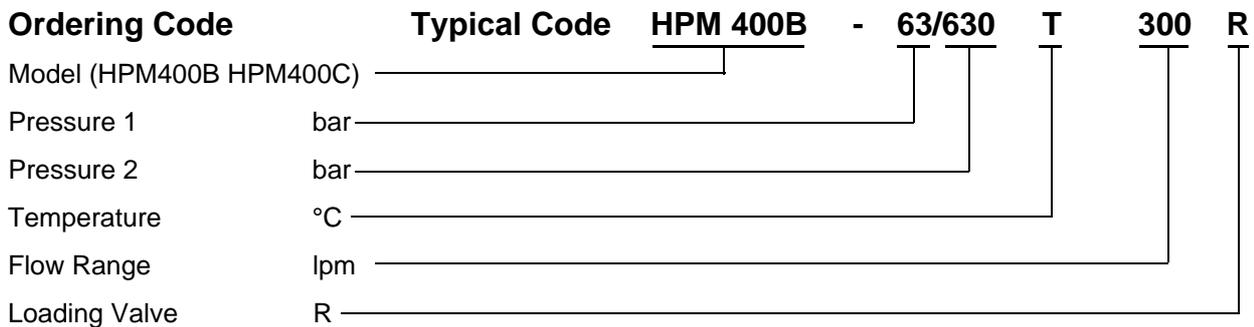
All data measured by the HPM400C is deleted after printing.

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).



# 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\**



## 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 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.\**



## 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, HT and HC testers.\**

*\*Excluding DHC51/151 and DHT401/751 models*

## Quality Hydraulic Test Equipment from the Webster Range



### 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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