

### RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED.
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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### TEST RESULTS

This instrument has been tested using a calibrated dead weight system:

Model: ..... Serial No: .....

This instrument has been tested in: .....

Tested by: .....

INPUT	READING

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# HHP-90 MANOMETER

	OPERATING RANGE	OVER RANGE
mbar	0.00 - 19.99 mbar 0.0 - 130.0 mbar	1 bar
Pa	0.00 - 13.00 kPa	100 kPa
in H <sub>2</sub> O	0.00 - 52.28"	402" H <sub>2</sub> O
m H <sub>2</sub> O	0.0 - 199.9 mm 0 - 1320 mm	10.2 m Hg
in Hg	0.00 - 3.83"	29.53" Hg
m Hg	0.00 - 19.99 mm 0.0 - 97.5 mm	0.75 m Hg
psi	0.00 - 1.88 psi	14.5 psi

**Particular care should be taken not to over pressure the device as this may rupture the sensor membrane. This is not covered by the manufacturers warranty.**

NOTE: The differential/gauge instruments will only measure positive pressures i.e. positive pressure applied to the positive port, or negative pressure applied to the negative port.

#### INSTRUMENT APPLICATION


The HHP-90 is suitable for gauge and differential measurements over a wide range of pressures. They are not suitable for use with corrosive substances or cyclic hydrocarbons, e.g. motor oil, transmission fluid and freon.

To use the HHP-90 with these components, isolation must be provided in the form of a buffer, such as a mineral oil or dry air.

#### INSTRUMENT OPERATION

##### BATTERIES


Two AA or equivalent cells (not supplied). Follow instructions on reverse of instrument for fitting/replacement.

When  symbol appears on display, replace batteries.

##### IP65/IP67 RATING

The waterproof rating for this product will not be maintained unless the screws holding the battery compartment are firmly tightened when inserting or replacing batteries.

##### ON - OFF

Press **ON** key for on and **OFF** key for off. Automatic switch-off after 12 minutes, unless any key is activated. If  key is held when unit is switched on, automatic switch-off function will be disabled until the unit is switched off.

##### BACKLIGHT

Press and hold **ON** key.




#### OUT OF RANGE

If pressure exceeds the scale range **Out** will appear on the display.

#### ZEROING

In order to achieve maximum accuracy it is recommended to zero the instrument in the orientation it will be used before taking any measurements.

#### DISPLAY HOLD

Pressing  key freezes the display. The  symbol will appear on the display. Press  key again to return to normal display.

#### HAND PUMP OPERATION (if applicable)

Use the **T** piece to connect the hand pump to the instrument's + port and to the equipment being tested. Exhaust the system by turning the release valve on the hand pump anti-clockwise and set the fine adjustment threaded piston to mid range.


Close the release valve and apply pump action to the hand pump piston to generate the required approximate pressure. Fine adjustment of the desired pressure can then be made by rotating the threaded piston. The release valve may be used to vent the system.

Note: The hand pump is capable of generating 7bar max. It is, therefore, essential that extra care is taken not to over-pressure the instrument.

#### SMOOTHING MODE

Press **=** key and the instrument continuously averages the last four measurements to give a more stable reading on the display. Press **=** key again to return to normal measurement.

#### UNITS OF PRESSURE

Press  key to select required units of pressure. Chosen units will be saved when the instrument is switched off. Please refer to the table.

#### INSTRUMENT ACCURACIES

Over temperature range -10°C to +50°C is 0.2% of reading +0.2% of full scale + 1 digit.

*The overall performance of the instrument is obtained by combining the stated accuracy and any uncertainty due to the measurement process.*

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It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct, but OMEGA Engineering, Inc. accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

**WARNING:** These products are not designed for use in, and should not be used for, human applications.

**WARRANTY/DISCLAIMER**

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components which wear are not warranted, including but not limited to contact points, fuses, and triacs.

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