

ComboPump PRECISION PRESSURE AND VACUUM HAND PUMP

Instruction Sheet

Introduction

Thank you for purchasing a ComboPump. ComboPumps are precision pressure *and* vacuum sources (depending on the setting of the shuttle valve), that can be operated with one hand. The built-in variable volume is pressure balanced, so it's easy to set the pressure precisely with just your fingertips, regardless of how high the pressure is.

There are two pressure ports on top of the pump. Mount an **XP2i Digital Test Gauge** or a **30 Series Pressure Calibrator** directly on top of the pump, connect the spare port directly to the device being tested, and you have a complete field pressure calibration system.

All moving parts of the pump mechanism are protected from damage and dirt. There are no exposed springs or piston rods. The body and handle are anodized aircraft grade aluminum and all moving parts are high strength, corrosion-proof plastics and metal. That's why we are confident *your* ComboPump will provide many years of no-maintenance service.

Specifications

PRESSURE RANGE

PN: 2907 2000 kPa 20 bar 300 PSI

PN: 2908 3500 kPa 35 bar 500 PSI

VACUUM RANGE (BOTH MODELS)

-85 kPa -0.85 bar -12.3 PSI -25" Hg

CONNECTIONS

Two 1/8" Female National Pipe Thread (NPT)

WEIGHT

605g (1 lb., 5.3 oz.)

DIMENSIONS

24cm (H) x 5cm (W) x 5cm (D) (9.5"H x 2"W x 2"D)



Operating Instructions

The ComboPump is only for use with pneumatic systems. Do not use the ComboPump with liquids of any kind. For safe and reliable operation please spend a few minutes to read the following instructions.

WARNING: To prevent damage to the pump and possible injury, never connect the ComboPump to a pressure source greater than 3500 kPa (500 PSIG, 35 bar). Turn off, or isolate, all pressure-generating equipment from the pressure tap prior to connecting the ComboPump.

NOTE: The operating pressure rating is printed on the pump body label, on the opposite side of the vent knob.

- 1 Your ComboPump has two $\frac{1}{8}$ " NPT male pipe thread pressure ports (figure 1). Always use PTFE (polytetrafluoroethylene) tape on the threads of any pressure fittings installed into the ComboPump. **DO NOT USE** liquid pipe sealing compounds (such as "pipe dope"). Be careful not to over-tighten fittings.

CAUTION: Your fittings must have a pneumatic pressure rating of at least 5000 kPa (750 PSIG, 50 bar).

- 2 Connect the ComboPump to your test set-up. Move the Shuttle Valve (figure 2) up or down to select whether you want PRESSURE MODE (up position) or VACUUM MODE (down position). Make certain the valve is fully UP or fully DOWN.
- 3 Close the Vent Knob (figure 3) by turning it fully clockwise. Don't overtighten - fingertight is enough.
- 4 You are now ready to perform your pressure or vacuum calibration. Squeeze the ComboPump handle until the gauge displays a value close to the desired calibration pressure or vacuum.

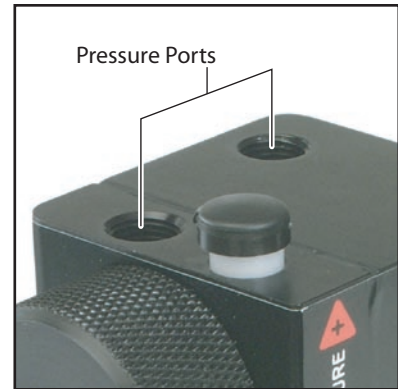


Figure 1

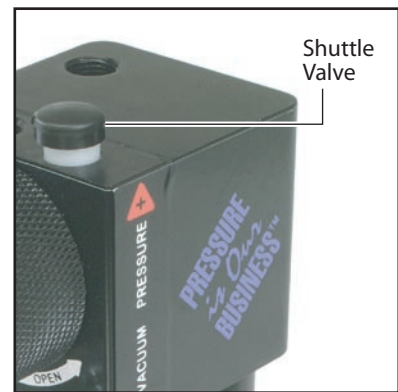


Figure 2

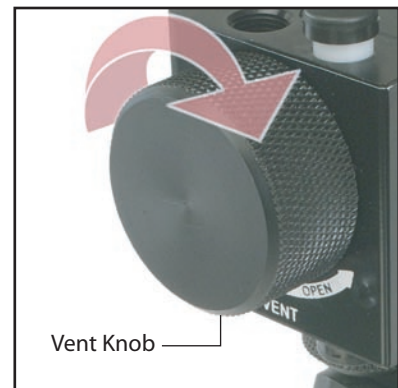


Figure 3



Figure 4

- 5 To make pressure or vacuum adjustments turn the Variable Volume Adjustment Knob—on the bottom of the pump next to the squeeze handle—to set the precise the pressure or vacuum desired (**figure 4**).
- 6 After the test is complete open the Vent Knob to completely release pressure or vacuum. The Vent Knob can also be used to slowly bleed the system by opening it only a slight amount and closing it once the pressure or vacuum is reached.

NOTE: Be sure to close the Vent Knob fully once the system is fully vented, to prevent the knob from vibrating loose when transporting the pump.

The ComboPump is covered by a 1 year warranty against pressures leaks and defects in materials or workmanship (see page 4). This warranty does not cover physical abuse or misuse.

Contact the factory for all repair needs, regardless if the ComboPump is covered by the warranty or not! Repair or replacement of any parts must be performed only by the factory, or a factory authorized representative. Do not attempt to substitute parts or the warranty will be voided and damage to the pump or personal injury may result. **Remember: Your safety comes first!** This is a high pressure pump. Do not attempt your own repairs.

How to Contact Us:

Phone (805) 595-5477

Toll-Free (800) 444-1850

Fax (805) 595-5466

Email service@crystalengineering.net

Web www.crystalengineering.net

If calling, have ready the model number, serial number, date of purchase and reason for return. You will receive instructions for returning the device to Crystal Engineering.

Send your comments to: feedback@crystalengineering.net

Warranty

Crystal Engineering Corporation warrants the **ComboPump** to be free from defects in material and workmanship under normal use and service for one (1) year from date of purchase to the original purchaser. It does not apply to batteries or when the product has been misused, altered or damaged by accident or abnormal conditions of operation.

Crystal Engineering will, at our option, repair or replace the defective device free of charge and the device will be returned, transportation prepaid. However, if we determine the failure was caused by misuse, alteration, accident or abnormal condition of operation, you will be billed for the repair.

CRYSTAL ENGINEERING CORPORATION MAKES NO WARRANTY OTHER THAN THE LIMITED WARRANTY STATED ABOVE. ALL WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE LIMITED TO A PERIOD OF ONE (1) YEAR FROM THE DATE OF PURCHASE. CRYSTAL ENGINEERING SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT, TORT OR OTHERWISE.

Note (USA only): Some states do not allow limitations of implied warranties or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state.