

ComboPump Instruction Manual



CRYSTAL

Contents

Overview	1
Introduction	1
Specifications	1
Operating Instructions	2
CPF Connection Diagram	3
Recommended Hose and Fittings	3
Support	4
Contact Us	4
Calibration & Repair	4
Warranty	4

Overview

INTRODUCTION

Thank you for purchasing a ComboPump from Crystal Engineering. ComboPumps are precision pressure and vacuum sources. Operate the ComboPump with just one hand and use the pressure-balanced variable volume to precisely set pressure with just your fingertips. The extra-sensitive check valve allows for partial strokes to easily reach your target pressure.

There are two pressure ports on top of the pump. Mount a Crystal Gauge or 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. If necessary, a rebuild kit is available (P/N 2802), so that you can service the pump yourself.

SPECIFICATIONS

Pressure Range 500 PSI / 35 bar / 3500 kPa

Vacuum Range -12.3 PSI / -0.85 bar / -85 kPa / -25 inHg

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

Weight 605 g (1 lb., 5.3 oz.)

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

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 read through 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 Connections: Your pump has two connections: two 1/8" NPT female pipe thread pressure ports (Figure 1). Always use PTFE (polytetrafluoroethylene) tape on the threads of any pressure fittings installed into the ComboPump.

! CAUTION: Do not use liquid pipe sealing compounds (such as "pipe dope"). Be careful not to over-tighten fittings.

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

2 Setup: Connect the ComboPump to your test set-up. Move the Shuttle Valve up or down to select whether you want "Pressure Mode" (up position) or "Vacuum Mode" (down position). Make certain the Shuttle Valve is fully up or fully down (Figure 2).

3 Vent: To close the Vent Knob turn it completely clockwise. Don't overtighten—fingertight is enough (Figure 3).

4 Calibrate: 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.

5 Adjustments: To make pressure (or vacuum) adjustments, turn the Variable Volume Adjustment Knob. Set the precise pressure (or vacuum) desired. It is located on the bottom of the pump next to the squeeze handle (Figure 4).

6 Finish: 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.



Figure 1. Connections



Figure 2. Setup



Figure 3. Vent



Figure 4. Adjustments

CPF Connection Diagram

RECOMMENDED HOSE AND FITTINGS



NPT MALE



MPF-1/8QTM	1/8" Quick Test NPT Male
MPF-1/8MPT	1/8" NPT Male
MPF-1/4QTM	1/4" Quick Test NPT Male
MPF-1/4MPT*	1/4" NPT Male

Additional NPT sizes available in non-CPF MP adapters

NPT FEMALE



MPF-1/8QTF	1/8" Quick Test NPT Female
MPF-1/4QTF	1/4" Quick Test NPT Female
MPF-1/4FPT	1/4" NPT Female
MPF-1/2QTF	1/2" Quick Test NPT Female

Additional NPT sizes available in non-CPF MP adapters

BSP



MPF-1/8BSPF	G 1/8" Female
MPF-1/4BSPF	G 1/4" Female
MPF-3/8BSPF	G 3/8" Female
MPF-1/2BSPF	G 1/2" Female

TRANSMITTER



MPF-5/16TRM	for Foxboro, Rosemount, & Yokogawa
MPF-1/4TRM	for Honeywell

TUBE



MPF-1/4TBM	1/4" Tube Male
MPF-3/8TBM	3/8" Tube Male
MPF-1/2TBM	1/2" Tube Male

CPF



MPF-MPF	Female to Female
MPF-MPFTU	T-Union (Female)
MPF-MPFBULK	Bulkhead (Female to Female)
MPF-CAP	Cap

ADDITIONAL



MPF-M20QTF	M20 x 1.5 Quick Test Female
MPF-M20X1.5F	M20 x 1.5 Female
MPF-QCN	Quick-Connect Nut
MPF-AN4M	AN4 Male

Support

CONTACT US

Phone(805) 595-5477

Toll-Free(800) 444-1850

Fax(805) 595-5466

Emailservice@crystalengineering.net

Webcrystalengineering.net

Send your comments to: sales@crystalengineering.net

CALIBRATION & REPAIR

Please complete the [Return Material Authorization \(RMA\) form](#). It will generate an authorization number and provide return instructions.

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.

CRYSTAL © 2012 Crystal Engineering Corporation
708 Fiero Lane, Suite 9, San Luis Obispo, California 93401-8701