

# QUANTIFIT™

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**The Gold  
Standard In  
Respiratory  
Fit Testing**



OCCUPATIONAL HEALTH DYNAMICS

**OHD**

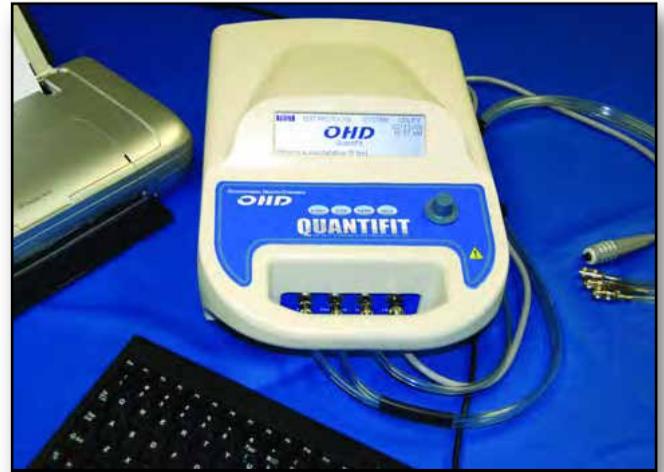
## Quantifit...the Gold Standard in Respirator Fit Testing

### Here's how the Quantifit works.

During a fit test, the respirator inlets are capped with test adapters, and the inhalation valves are removed from the mask. With the test subject holding his or her breath for no more than ten seconds, the Quantifit then establishes and maintains a slight vacuum, or controlled negative pressure, inside the mask. Since the respirator inlets are sealed, all sources of leakage into the mask are through the face-to-facepiece seal. The volume of air drawn out of the mask by the Quantifit during this short period of time is equal to the leak rate into the mask through the face-to-facepiece seal. It's that simple....

Quantitative respirator fit testing is a practice that has been around since the late 1960's. While there have been several ways in which to perform a respirator fit test, there were never any scientific studies to prove that these methods actually worked. These technologies have simply been "accepted" because they were the only way to do quantitative fit testing. The technology seemed to make sense, and at least it was better than nothing at all. Or was it?

Things changed in 1992 when the idea of Controlled Negative Pressure (CNP) was implemented in a whole new approach to fit testing. This revolutionary way to perform a respirator fit test could be subjected to scientific scrutiny. The results? Unlike all other methods of fit testing, Controlled Negative Pressure was proven to quickly and accurately measure respirator leakage, which is the key to measuring respirator fit.



CNP technology was accepted by OSHA in 1998, and has quickly been adopted by industry to be the quickest and most accurate way to perform respirator fit testing—the gold standard in respirator fit testing.

While old technologies are sometimes hard to give up because, "we've just always done it that way," the OHD Quantifit offers an impressive array of advantages that can dramatically improve your respirator program. Within the first ten seconds of testing, you will know whether the respirator user has a basic fit or not. And the OSHA-accepted CNP Redon protocol takes as little as two to three minutes. If other quantitative fit test instruments measured accuracies of less than 40%<sup>1</sup>, why put your employees at risk?

Controlled negative pressure has proven to be the fastest, most accurate, and most health protective fit test system available. The accepted Redon test protocol allows you to quickly assess respirator fit based on three mask donnings. Given the Quantifit's speed and accuracy in measuring actual respirator leakage, why would you subject your employees to something that is less than the best?



## Features & Benefits

**Proven Technology** The OHD Quantifit is a highly specialized instrument which utilizes the scientifically-proven and patented CNP (Controlled Negative Pressure) technology to directly measure respirator leakage. The OHD Quantifit is accepted by OSHA and appears in the Federal Regulations governing fit testing [29 CFR 1910.134]. The Quantifit is also included in the Canadian Standards [CSA Z94.4-02] and UK HSE Standards [EN132-149].

**Fastest Fit Testing Available** With the OSHA-approved CNP REDON respirator fit test protocol, a fit test can be performed in as little as 2-3 minutes and there is no waiting period for smokers as required with other fit test methods. The REDON protocol uses CNP technology's superior speed and accuracy to help achieve the best respirator fit possible. The multiple donnings required assures that the worker knows how to don the respirator correctly with each use.

**Most Health Protective** Peer-reviewed, scientific studies have shown that the OHD Quantifit produces much more accurate, more health protective, and more believable test results than other systems. In studies where a known calibrated respirator leak is present, the OHD Quantifit measured 98% of known calibrated leak. The aerosol-based system measured only 37% of known calibrated leak<sup>1</sup>.

**Easy to Use** The Quantifit takes the user through the test protocol step-by-step so that there is no guess-work, and no time needed to pre-instruct the employee being tested. There is no instrument warm-up period to worry about, and the one-minute daily calibration assures that the Quantifit is working within a strict tolerance. Ease of use means less mistakes, and quicker testing.

**Most Rigorous Test** The use of ambient air as a standard (non-varying), gaseous challenge agent provides a more rigorous test of mask fit than does an aerosol agent. If air leaks into a respirator, there is a chance that particles, vapors, or gas contaminants may leak in. When using aerosol-based systems, the test system can only see and measure some of the particles that might enter the respirator.

**Direct Measurement of Leak** The Quantifit directly measures facepiece leakage. There are no specific conditions or environmental concerns when testing with the OHD Quantifit. The unit precisely measures leak rate (in cc/min) by determining the amount of air that leaks into the respirator during the fit test.

**NIST Calibration** The ability to calibrate the Quantifit with generally available primary calibration systems assures a higher standard of test results (NIST traceable standard).

**On-board Software** Not only does the on-board software allow the Quantifit to be extremely flexible, but all updates can be achieved through a flash-upgrade. Users can download software from the internet and easily upgrade the Quantifit to assure the latest and most up-to-date version.

**On-board Storage** The Quantifit can hold more than 1,000 fit test records. These records can later be transferred to the included FitTrack software on your personal computer.

**Keyboard Interface** The Quantifit can use a keyboard to input data into the local memory. This allows the user to input an employee's name and ID number, as well as the respirator information. Keyboard input is easier and quicker than touch-screen or other input methods.

**USB Computer Interface** The Quantifit can be directly connected to a computer to operate through FitTrack Software. This gives the user more control and advanced record keeping opportunities. All test results may be transferred to the FitTrack software.

**USB Memory Stick Interface** While data can be transferred to a PC via the USB connection, one may also transfer data via a USB memory stick. This interface may also be used to update the software in the Quantifit.

**USB HP Printer** This printer connection allows for tests to be printed directly from the Quantifit, without the need for a personal computer.

**Optical Encoder Knob** The navigational knob on the Quantifit allows for fast and intuitive navigation through the menus on the instrument. This will more quickly bring you directly where you choose to go.

**Tilted Backlit Display** The display can be adjusted for any lighting situation, and is tilted for optimum viewing whether the operator is standing or sitting.

**Universal Power Cord** The power cord for the Quantifit will adjust to the proper voltage regardless of the country in which the testing is being performed. The end user will simply swap out the prong configuration to interface with the local settings.

**Flexible Data Management Software** While the OHD Quantifit can be used as a stand-alone unit, FitTrack software allows for easy testing and dependable record keeping through a personal computer. FitTrack can print individual reports or summary reports in many configurations. Data can be imported and exported to meet various needs.

<sup>1</sup>C Crutchfield, D Park, Effect of Leak Location on Measured Respirator Fit, Am. Ind. Hyg. Assoc. J. 58:413-417, 1997.

## Quantifit Specifications

### Selectable Test Model Parameters

Equivalent Fit Factors are calculated from actual measured respirator leak rates, based on the following "modeled" test parameters which are user selectable:

#### Inspiratory Work Rate

Measurement of energy expended by test subject in the normal working environment; indicated in thousands of calories per hour (K-Cal/hr). Selections include  
100 (light activity)  
200 (moderate activity)  
300 (heavy activity) and  
350 (extreme activity)

#### Mask Type

Selections for full-face or half mask respirator types.

#### Cartridge Type

Selections for low, medium, or high density cartridge types.

#### Subject Gender

Selections for male & female test subject. Selection choices affect modeled CNP challenge pressure levels. Selection choices affect modeled respiratory inspiration volume.

### Dynamic Range

#### Leak Test Measurement

2 – 5000 cc/min

#### Resolution

0.1 cc/min

#### Fit Factor Computation

6 – 53,000

#### Resolution

1

### Pressure Sensor Parameters

#### Pressure Range

0-20 inches H<sub>2</sub>O

#### Resolution

0.01 inch H<sub>2</sub>O

#### Accuracy

± 0.25% FS

#### Over-Pressure Limit

60 inches H<sub>2</sub>O

#### Temperature compensation

15 – 30 Celcius

### Instrument Accuracy

#### Challenge Pressure

± 5 %

#### Leak Rate Measurement

±3% or ±3 cc/min, whichever is greater

### Display

LCD Graphical 128 X 64 Pixels

### USB Interface

#### Dual Type A Ports

Supports Keyboard, HP Inkjet printer, or

memory stick

#### Single Type B Port

For connection to PC

### Setup Memory

EEPROM, All Parameters

### Data Retention

10 Years w/o Power

### RTC, Datalog Memory

Rechargeable Battery

### Data Retention

6 Months w/o Power

### Operating Range

15 to 30 Degrees C

### Storage Range

-40 to 60 Degrees C

### Construction

Enclosure – Polyethylene Plastic Chassis – 1/8"

Aluminum, Face – Lexan, Back Printed

### Size

5.5 x 10 x 15.5 inches

139.7 x 25.4 x 393.7 mm

(HxWxD)

### Weight

< 7.5 lbs. (3.4 kg)

### Connections

Pressure: Quick Connect,

Vent: Female Luer

Trigger Button : Phono Jack

### Power Source

100 –240 VAC, 50/60 Hz

### Power Supply Adapter

9 VDC, 5000 mA

### Power Consumption

Less than 1000 mA

### Certifications

UL, CE, CSA

### Warranty

#### Instrument Coverage

Two-Years Parts and Labor.

#### Technical Support

Free telephone technical support to original owner of instrument.

### Standard Accessories

Hard case with roller wheels and retractable handle

USB Keyboard

Power Cord

Trigger Button

Triple Tube Assembly

PC USB Cable

FitTrack Software

Operator's Manual

### Optional Accessories

Fit Test Respirator Adapter

USB Printer

Fit Test Card Laminator Kit

Extended Warranty

Prepaid Service Agreement

### Optional Respirator Fit Test Adapters

3M Company

Bacou/Dalloz

Draeger

Glendale

International Safety Inst.

Interspiro

Kemira

Mine Safety Appliances

Moldex

North Safety

Protech

Scott

Sperian (formerly Survivair)

US Safety

Call for information on additional respirator manufacturers & models.

### FitTrack Software

#### PC Requirements

Pentium 133 MHz or better

#### RAM

64 MB or greater

#### Operating System

Windows 2000, XP, or Vista

#### Digital Interface

USB 2.0 Port

#### Disc Space

25MB minimum

#### Printer

Any Windows-compatible printer



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