

**READ ALL ABOUT IT!**

# **WORLD FIRST:**



## **Fan-supplied positive pressure demand respirator with**

## **Workplace Protection Factor**

# **2000+**

EDINBURGH, 2001: Comprehensive independent testing has concluded that the new SE400AT positive pressure air purifying demand respirator is the only of its kind to achieve a 95th percentile Workplace Protection Factor greater than 2,000 in contractor's employees performing asbestos removal operations.

This means that the SE400 is the first fan-supplied air purifying demand respirator in the world to achieve

protection factors equal to SCBA (self-contained breathing apparatus).

The independent tests were conducted by the well-respected Robin Howie Associates respiratory protection specialists in Edinburgh, and the results are available in an extensive test report.

This is not the only positive report on the SE400. Several other claims have been made (see page 2).



# Other bold claims we dare to make about the SE400 respirator:

**SE400** is the only respirator whose function you can be sure of.

**SE400** is the only fan-supplied respirator that has the protection factor of an SCBA.

**Conventional** respirators can't keep up with normal breathing.

**SE400** ensures 100% wear time. Or you'll know about it.

**Loose-fitting** powered respirators are little more than head and face protection with air conditioning.

**No other** respirator checks its own operation.

**SE400** is far less costly than other powered respirators.

**In other** respirators, voice communication is one of the main causes for exposure to breathing hazards.

**Any** respiratory program that does not use SE400 relies on three unprofessional factors:  
*You guess, you assume, and hope.*



# SE400 is the *only* respirator whose function you can be sure of.

## Why?

**Because the SE400 TELLS you that it is functioning properly. It TELLS you when something is amiss. And it TELLS you if you need to leave the area, giving you back-up protection during your escape.**

## HOW CAN WE MAKE THIS CLAIM?

It is possible that your conventional respirator works most of the time. But how do you KNOW?

If you have a loose-fitting respirator, you will not notice if it fails. You will inhale contaminated air. You will also inhale lethal CO<sub>2</sub> from your own breathing air. You have about 1 minute before you pass out.

If you have an SCBA, you will not be able to breathe at all in case of breakdown. You simply have to take the mask off.

The SE400 warns you immediately if something goes wrong. In the extremely unlikely event that the motor would stop, the SE400 turns into a negative pressure filter respirator while you get out of the area.

## READ MORE

### DON'T JUST TAKE OUR WORD FOR IT:

There is more to read and plenty of other sources in the *Type-related features and limitations* section of the support material accompanying this document.

For comprehensive facts on the limitations of various types of respirators, see British Standard 4275 (see *References*).



# The SE400 is the only fan supplied respirator that maintains positive pressure and thereby has the protection level of an SCBA.

**That means that the SE400 has an attainable protection factor between 2,000 and 10,000 depending on which jurisdiction you are in.**

## HOW CAN WE MAKE THIS CLAIM?

The SE400 is tested according to CE, Aust/NZ and NIOSH standards as an SCBA for maintaining positive pressure, and as a PAPR for total inward leakage with both power on and power off.

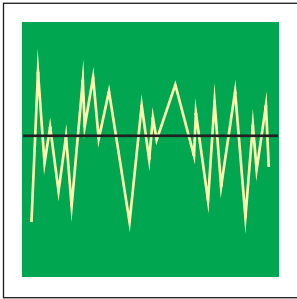
The only limitations are that the air must be filtrable, must not be IDLH, not oxygen deficient, and that the contaminant concentration does not exceed the upper limit of the gas absorbers.

## READ MORE

### DON'T JUST TAKE OUR WORD FOR IT:

There is more to read and plenty of other sources in the support material accompanying this document.

Specific information on testing and the Workplace Protection Factor of SE400 can be found in R. M. Howie's comprehensive document (see *References*)



# Conventional fan-assisted respirators can't keep up with normal breathing.

**Why are the best respirators tested at high air flow rates?**

**Because that's the way people breathe when they work.**

**The SE400 maintains positive pressure up to and exceeding 400 l/min.**

**Other fan-supplied respirators give up about half-way to normal human breathing requirements.**

## HOW CAN WE MAKE THIS CLAIM?

Because the SE400 provides as much air as you need, at all times.

Conventional PAPRs are tested at airflows of 115–160 l/min, depending on the type of respirator.

The SE400 constantly verifies positive pressure, normally at 400–500 l/min, depending on which filtering media are fitted.

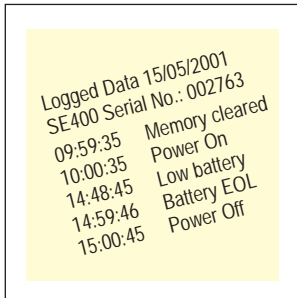
That is a much more realistic air flow level as normal human breathing goes.

## READ MORE

### DON'T JUST TAKE OUR WORD FOR IT:

There is more to read and plenty of other sources in the *Reference* section of the support material accompanying this document.

In particular, see J. C. Wallaart's paper on human breathing at various work (see *References*).



# The SE400 ensures 100% wear-time. Or you'll know about it.

**Are YOUR  
respirators worn all  
the time?**

**What will your  
answer be?**

**“Maybe”?**

**“I think so”?**

**“I don't know”?**

**...Unless you use  
SE400. Then you  
know for certain.**

## HOW CAN WE MAKE THIS CLAIM?

The SE400 keeps track of every second, minute, and hour it is being used.

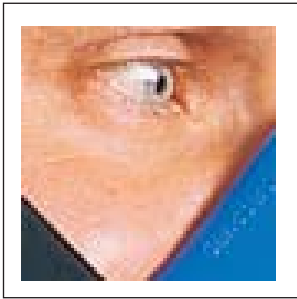
At the end of the shift, or at the end of any time period you like, you can see instantly when and for how long the respirator has been worn.

You couldn't have clearer evidence of proper use.

## READ MORE

**DON'T JUST TAKE OUR  
WORD FOR IT:**

There is more to read and plenty of other sources in the *Unique Features of the SE400* section, as well as the chapter entitled *Start-up and Continuous Checks* in the support material accompanying this document.



# Loose-fitting powered respirators are little more than head and face protection with air-conditioning.

## Think about it:

**What happens when the motor fails, or when your breathing exceeds the motor's capacity?**

**The air must come from somewhere. So, it comes from around the rim.**

**You breathe contaminated air.**

**That's why loose-fitting PAPRs have such low assigned protection factors.**

## HOW CAN WE MAKE THIS CLAIM?

No respirator is better than its weakest part. Lack of face seal is a very weak point indeed. The various standards around the world all agree on this point:

- At best, loose-fitting powered respirators are given protection factors ranging from 25 to 40.
- Corresponding tight-fitting powered full masks are given 40—250.
- The SE400 attains 2,000—10,000.

## READ MORE

### DON'T JUST TAKE OUR WORD FOR IT:

See the *Comparison chart – assigned protection factors* in the support material.

For exact standards test criteria and other data, see the various standards, especially British Standard, NIOSH, and the Australian/New Zealand Standard 1715.



# No other respirator checks its own operation before use and during work.

**Ideally, you should not be able to wear a respirator that is faulty, incomplete or likely to develop a problem.**

**The SE400 doesn't even let you start your work unless it is fully operational.**

**Every time.**

## HOW CAN WE MAKE THIS CLAIM?

You may have a system where your respirators are sent away for lab testing once every few months.

The SE400 can do the same thing in 20 seconds, as often as you like.

Every time you turn it on, the unit goes through a checklist, verifying essential functions.

This means that you cannot enter the work area with a filter missing or only a few minutes' battery life left.

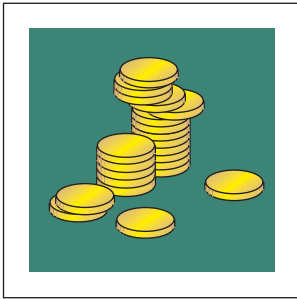
During work, the SE400 checks its own function once every second, and warns you immediately if your attention is needed.

And you can always perform a comprehensive self-test.

## READ MORE

**DON'T JUST TAKE OUR WORD FOR IT:**

There is more to read on this subject in the *Start-up and Continuous Checks* section of the support material.



# **SE400 is far less costly in the long run than conventional powered respirators.**

**SE400 is extremely  
cost-efficient.**

**What is the most  
important cost  
factor in a  
breathing safety  
program?**

**The filtering media.**

**The SE400 is  
unique: it only  
draws as much air  
through the  
absorbers as you  
need.**

**That means longer  
filter life and  
unequaled  
economy over time.**

**HOW CAN WE MAKE THIS  
CLAIM?**

We can show that the SE400 uses on average 50% less consumables than other fan-driven respirators.

In fact, the usage of filtering media is comparable to conventional negative pressure half- and full face respirators.

**READ MORE**

**DON'T JUST TAKE OUR  
WORD FOR IT:**

For more information on how the SE400 works, see the section on *The FPBR Type Respirator* in the support material.

To learn about filter life, see L. Bäckman's paper *Gas Filter Life Comparison*.



# In other respirators, voice communication – whether it works or not – is one of the greatest causes of exposure to breathing hazards.

## Why?

**There are two main reasons:**

**First, speech takes your peak flow breathing rate to speeds well above the capacity of any conventional PAPR. Result: you inhale contaminated air.**

**Second, if the respirator does not permit voice communication, it is taken off. Result: you inhale contaminated air.**

## HOW HAVE WE ADDRESSED THIS?

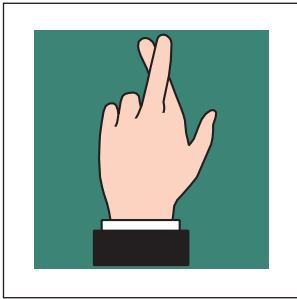
The SE400 solves the first problem by supplying air well above the peak flow requirements, even during speech.

The second is solved by SE400 permitting voice communication, loud and clear. This actually encourages 100% wear-time.

## READ MORE

**DON'T JUST TAKE OUR WORD FOR IT:**

J.C. Wallaart's paper *A Study of how Speech Affects Peak Inspiratory Airflow Values, at Various Levels of Work* gives plenty of information on voice communication and respirators.



# **Any respiratory program that does not use SE400 is reliant on three sadly unprofessional factors: *You Guess. You Assume. You Hope.***

**Do your respirators work?**

**Sure, they have been tested. In a lab. By a machine. And often, not even fitted on a person.**

**Are they used correctly in the workplace? Are they used at all? You simply don't know.**

**You don't even know whether the equipment works properly. You can only guess. You can only assume. You can only HOPE.**

**HOW HAVE WE ADDRESSED THIS?**

The SE400 tells you two things loud and clear:

That it's working properly, giving the required protection at every moment.

And that it's being used. Right there, in black on white on the usage report.

**READ MORE**

**DON'T JUST TAKE OUR WORD FOR IT:**

See the table entitled *Standards Testing: Why the SE400 is Different* for reinforcement of this point.

See also the subsection entitled *Standards Testing v. Real Life*.



# The SE400 takes the *maybe* out of breathing protection.



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