

**V-TUF<sup>®</sup>**

**COMBAT  
DUST**

**HANDBOOK**

**A USEFUL GUIDE TO THE  
ISSUE OF DUST IN WORKING ENVIRONMENTS  
AND SOLUTIONS OFFERED BY V-TUF**

**DUST**

**CAUSES LUNG DISEASE - LEGAL ACTIONS - FINES**

# CONTENTS AND INTRODUCTION

## CONTENTS

### THE DUST PROBLEM, UNDERSTAND IT!

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## ABOUT THE V-TUF® M-CLASS MINI, MINI PLUS AND M-CLASS REGULATIONS

The M-Class dust extractor rating has been introduced as the minimum requirement for construction use. Unrated vacuum cleaners can be incredibly dangerous because, whilst they appear to do a good job by cleaning the majority of dust and debris, they can exhaust most of the dangerous, respirable (10 micron or smaller) dust back into the breathing space of the operator.

These minute particles of dust not only damage the motor of the vacuum cleaner but they cause a multitude of lung and health problems for the vacuum operator and those in the vicinity.

V-TUF DUST EXTRACTORS are a product of collaboration with SHE managers, Occupation Hygiene Specialists, Tradesmen, Inspectors, Hire Specialists and many other people on the 'Front-Line' of construction.

V-TUF DUST EXTRACTORS have been tested by respected laboratories including UK HSL, Intertek, SGS and Eurofins. Further batch tests are performed in our 'in-house' laboratory to ensure compliance and performance at the right price.



**V-TUF®**

**COMBAT DUST**

**DUST IS PARTICLES OF A MATERIAL RANGING FROM 1 TO 1000 MICRONS\* IN SIZE**

**DUST IS CREATED BY WORKING WITH MATERIALS ON THE FOLLOWING TASKS:**



SANDING



DRILLING



DEMOLITION



CUTTING



SWEEPING

## DUST HAS TWO SIZE CLASSIFICATIONS

- 1 Total inhalable dust (up to 100 microns). This can be inhaled into the respiratory tract.
- 2 Respirable dust (up to 10 microns). This is normally invisible in standard light and can remain airborne for up to 8 hours. Because of its weight and size it can be inhaled right into the lungs where the oxygen is processed.

## THERE ARE THREE MAIN TYPES OF CONSTRUCTION DUST



- 1 Silica dust (Respirable Crystalline Silica or RCS) comes from materials containing silica such as sandstone, concrete and mortar.
- 2 Wood dust comes from wood and wood-based products like MDF and plywood. Wood based products can be more dangerous because they contain other elements like glue, etc...
- 3 Lower toxicity dusts come from materials containing very little or no silica such as dolomite, plasterboard and marble.

\*A MICRON OR MICROMETRE IS ONE MILLIONTH OF A METER, SYMBOLISED AS:  $\mu$ , MU.

## IN THE UK, EVERY YEAR:







-  - 110 fresh cases of dust-related skin disease.
-  - 177 fresh cases of occupational asthma.
-  - Around 700 people die from exposure to silica dust.
-  - 1300 die from occupational lung disease & cancer.
-  - 8000 die from dust-related illnesses.
-  - That's more than die from road accidents.
-  - £1.1 billion lost on workplace injury and poor health in the construction industry.

## THE CONSTRUCTION INDUSTRY:

-  - Contributes to 4% of total particulate emissions.
-  - Encounters dust throughout all trades.
-  - Is responsible for 40% of occupational cancer deaths and registrations.
-  - Loses 2.3 million working days due to fatalities and serious illness.



## DID YOU KNOW?

-  The most dangerous dust is referred to as 'respirable dust' (up to 10 microns).
-  This dust can't be seen and remains airborne for up to 8 hours. If you've ever cleaned up, and returned to a job the next day to find it covered in dust again, this is respirable dust.
-  Anything that gets stuck in your nose or throat is called 'inhalable dust' (up to 100 microns). This is not as dangerous because it doesn't reach your lungs. However this dust can be harmful if it contains toxic substances like lead.
-  1000s of vacuum cleaner motors are damaged from dust every year.
-  Silica is found in most construction products (see page 6).
-  Sweeping up exposes you to 4 times more dust than the original task.

## FREQUENT INHALATION OF AIRBORNE PARTICLES OF THE FOLLOWING SUBSTANCES WILL HARM YOU!

MATERIAL	APPROX. CRYSTALLINE SILICA CONTENT
SANDSTONE	70 - 90%
CONCRETE / MORTAR	25 - 75%
TILE	30 - 45%
GRANITE	20 - 45% (Typically 30%)
SLATE	20 - 40%
BRICK	30%
LIMESTONE	2%
MARBLE	2%



### DID YOU KNOW?

Some paints contain lead. Lead is poisonous when it is inhaled or ingested. Removing (sanding, scraping etc.) old paint can also be highly poisonous!



### BE AWARE!

Dangerous dust particles (respirable dust - up to 10 microns) are normally invisible in standard light and can remain airborne for up to 8 hours. Because of their weight and size, they can be inhaled right into the lungs where the oxygen is processed causing serious lung damage over time.



**RCS (RESPIRABLE CRYSTALLINE SILICA)  
IS THE SECOND BIGGEST KILLER OF  
CONSTRUCTION WORKERS AFTER ASBESTOS!**



## WHY M-CLASS?

**M-Class certified equipment has the following benefits:**

- ✓ Have sufficient air velocity to extract, transport and collect dust.
- ✓ Have sufficient filtration to ensure that you don't pump dangerous dust back into the air. Unrated vacuum cleaners can exhaust up to 85% of the dangerous/respirable dust back into your breathing space.
- ✓ Have a safe waste disposal method.

## SOME OF THE FUNDAMENTAL FEATURES OF M-CLASS

**M-Class certified equipment must:**

- ✓ Have a clear method of notifying the user when the air flow drops below 20 metres per second (this is normally an audible or visual signal). Without a method of notifying you about low air flow, you could have your extractor connected but not be extracting harmful dust because your bag is full or your filter is blocked.
- ✓ Have a minimum filter efficiency of 99.9% and a minimum of H12 HEPA (High-Efficiency Particulate Arrestance) Filtration. **To be safe the V-TUF®M uses HEPA H13 grade.**
- ✓ Have an airtight air-channel to ensure that contaminated air does not bypass the filter. This includes no holes in the filter and a total air-tight seal.
- ✓ Have a dust bag with a 'shut off' tap. This provides safe collection and easy disposal of bulk waste. This also protects the filter and reduces the time it takes to clog up.
- ✓ Have a safe method of cleaning the filter. For example: a filter shaker or a system where water/air can be used (bear in mind that the filter must only be cleaned in an isolated air space!)



## AVOID

**Avoid** making RCS dust by using silica free materials or buying the right size of materials to avoid cutting. If you can't avoid making RCS dust, you must do everything practically possible to...

## PREVENT

**Prevent** exposure by using water suppression equipment to convert the dust to slurry, sweeping up using the correct floor extraction tool or using "on tool dust extraction". This removes the dust as it is created. To achieve this you need to:

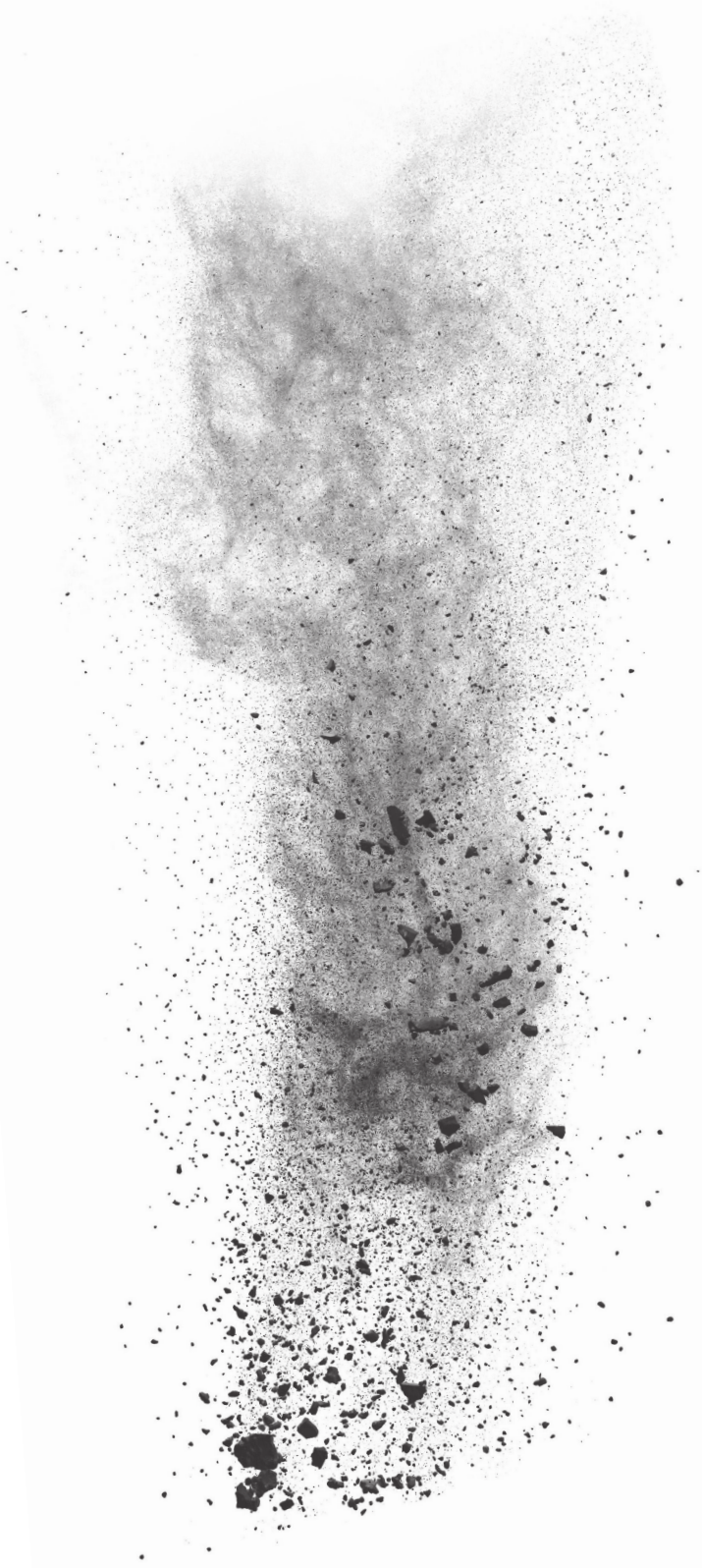
- 1 Choose tools that have a collection cover and extraction port.
- 2 Connect your tool to an M Class certified extraction unit.

If you cannot prevent RCS exposure, you must...

## MINIMISE

**Minimise** exposure to as low a level as is reasonably practical by:

- 1 Arresting dust with mist.  
(Note: Water particle size must be similar to the respirable dust particle size to be effective).
- 2 Using an air filter cube to rotate and clean the air.
- 3 Using less powerful tools.
- 4 Wearing the correct respiratory protection equipment (RPE) - This is by no means the most effective solution but can be used if you have no other way of eliminating dust as it only aids individuals wearing the equipment. You must ensure that you aren't harming anyone else.





## BE AWARE AND MAKE AWARE!

- 1 Exercise the **Avoid, Prevent, Minimise** control measures.
- 2 Use “on tool dust extraction” to remove dust as it is created.
- 3 Use “on tool water suppression” equipment to convert the dust to slurry.
- 4 Use an M-Class extractor with floor tool rather than sweeping, as sweeping releases dust into the air.
- 5 If you have to create dust, isolate the area with polythene sheeting and use respiratory protection equipment (RPE). Then either vacate the area for 8 hours, or clean the air with mist or an air filter cube. Be sure to use dust detection equipment as the most dangerous dust is invisible!
- 6 Take care of yourself and your colleagues.



## CONTROL MEASURES AREN'T ALWAYS PRACTICAL OR ATTRACTIVE. THE V-TUF® M-CLASS MINI IS HERE TO HELP YOU COMPLETE THE FOLLOWING TASKS SAFELY:

DUSTLESS SWEEPING	Use the V-TUF® M-CLASS MINI to quickly sweep all debris into the corner of the room for safe collection. Traditional sweeping creates huge amounts of respirable, airborne dust. With the V-TUF® M-CLASS MINI, this dangerous dust is contained within the vacuum bag. The V-TUF® M-CLASS MINI Hard Floor Sweeper Head guarantees a quicker clean with a better result and, most importantly, protects your lungs.
ON-TOOL EXTRACTION	V-TUF® M-CLASS MINI comes with a universal power tool adaptor to connect directly to your power tool and remove respirable dust at source. This tool enables you to work quicker, cleaner and safer.
CARPET CLEANING	V-TUF® M-CLASS MINI comes with a special carpet cleaning head, allowing you to clean your carpets thoroughly and bag all the horrible things that cause/trigger dust allergies.
CLEANING STAIRS	The V-TUF® M-CLASS MINI makes stair cleaning simple and safe. Traditional stair sweeping can be dangerous as this task is often carried out closer to your immediate breathing space.
SANDING	Connect V-TUF® M-CLASS MINI to your sanding equipment to extract dust at source! There are many devices available on the market, with extraction ports, the M-CLASS MINI has been specifically designed to work with these. Give us a call if you need help or advice.
DRILLING	There are some great dustless drilling solutions on the market: drill bits with extraction, dust collection hoods, etc. V-TUF® M-CLASS MINI has been designed to attach to these to take away harmful dust from the immediate source.
DRAIN CLEANING	V-TUF® M-CLASS MINI comes with a handy blow feature. This blows pure, filtered air can be used for a wide range of application, such as: unblocking drains (a great alternative to poking things down the pipe), blowing leaves or even pumping up your paddling pool!
SAFE COLLECT	Ask us to keep you up-to-date with our Shovac®! This scoop will connect to the V-TUF M-CLASS MINI and will help to remove any respirable dust that plumes during debris collection.

# M-CLASS MINI SPECIFICATIONS

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▲ COMES WITH COMPLETE ACCESSORY KIT

## WHY BUY M-CLASS?

**PROTECT YOUR HEALTH, PROTECT YOUR VACUUM, BE COMPLIANT AND DO YOUR JOB EFFECTIVELY WITH V-TUF® M-CLASS MINI**

The V-TUF® M-CLASS MINI helps you tackle dust at the source. Connect it directly to your power tools or sweep up and enjoy a dust free environment. The V-TUF® M-CLASS MINI is certified to M-Class, the new 'Minimum Legal Requirement' for construction sites. Unrated vacuum cleaners are extremely dangerous as respirable dust can pass through the motor and be pumped back into the air. This dust then remains airborne for up to 8 hours, where it can be inhaled directly into your lung chamber, where it will remain forever.

Approximately 700 people in the UK die every year due to illness relating to the inhalation of respirable dust. Needless to say, this dust also damages your vacuum motor. The V-TUF® M-CLASS MINI offers you affordable compliance and protection from common dust related health issues!



ON TOOL EXTRACTION



SWEEP EXTRACTION

## SELECTED FEATURES



### M CLASS RATED

The M-CLASS MINI has been third party tested and certified to M Class standards. The UK Health and Safety executive has recently introduced this rating as the minimum legal requirement for all construction sites.



### 99.9% FILTRATION EFFICIENCY

Unrated vacuum cleaners can exhaust up to 85% of harmful dust back into your breathing space. This dust can't be seen by the naked eye and remains airborne for up to 8 hours. The M-CLASS MINI filter protects your motor and your health!



### EXTRACTION VELOCITY MONITOR

To sufficiently extract dust at source, you need a minimum extraction velocity of 20 metres per second. M-CLASS MINI will notify you if the air flow drops below this level to keep you working efficiently.



### INTEGRATED FILTER SHAKER SYSTEM

M-CLASS MINI helps you to unclog the filter without exposing yourself to harmful dust by using an integrated Filter Shaker System. And if you ever need to give the filter a good, deep clean: simply remove the filter and place it in the dishwasher!



### UNIVERSAL POWER TOOL CONNECTOR

M-CLASS MINI comes with a universal power tool connector enabling you to extract dust from any power tool with a collection shroud and suction port!



### HANDY BLOW FEATURE

M-CLASS MINI comes with a handy blow feature. This blows pure, filtered air and can be used for a wide range of applications, such as: unblocking drains, blowing leaves or even pumping up your paddling pool!

**V-TUF®**

**COMBAT DUST**

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# M-CLASS MINI PLUS SPECIFICATIONS

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▲ COMES WITH COMPLETE ACCESSORY KIT

## WHY BUY M-CLASS?

**PROTECT YOUR HEALTH, PROTECT YOUR VACUUM, BE COMPLIANT AND DO YOUR JOB EFFECTIVELY WITH V-TUF® M-CLASS MINI PLUS**

The V-TUF® M-CLASS MINI PLUS helps you tackle dust at the source. Connect it directly to your power tools or sweep up and enjoy a dust free environment. The V-TUF® M-CLASS MINI PLUS is certified to M-Class, the new 'Minimum Legal Requirement' for construction sites. Unrated vacuum cleaners are extremely dangerous as respirable dust can pass through the motor and be pumped back into the air. This dust then remains airborne for up to 8 hours, where it can be inhaled directly into your lung chamber, where it will remain forever. Approximately 700 people in the UK die every year due to illness relating to the inhalation of respirable dust. Needless to say, this dust also damages your vacuum motor. The V-TUF® M-CLASS MINI offers you affordable compliance and protection from common dust related health issues!



ON TOOL EXTRACTION



SWEEP EXTRACTION

## SELECTED FEATURES



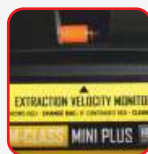
### M CLASS RATED

The M-CLASS MINI PLUS has been third party tested and certified to M Class standards. The UK Health and Safety executive has recently introduced this rating as the minimum legal requirement for all construction sites.



### 99.9% FILTRATION EFFICIENCY

Unrated vacuum cleaners can exhaust up to 85% of harmful dust back into your breathing space. This dust can't be seen by the naked eye and remains airborne for up to 8 hours. The M-CLASS MINI PLUS' filter protects both motor and health!



### EXTRACTION VELOCITY MONITOR

To sufficiently extract dust at source, you need a minimum extraction velocity of 20 metres per second. M-CLASS MINI PLUS will notify you if the air flow drops below this level to keep you working efficiently.



### INTEGRATED SELF CLEANING SYSTEM

Working to keep you safe, the MINI PLUS comes with an integrated filter cleaning system that enables you to refresh the filter without having to expose yourself to the harmful dust contained within the machine.



### UNIVERSAL POWER TOOL CONNECTOR

M-CLASS MINI PLUS comes with a universal power tool connector enabling you to extract dust from any power tool with a collection shroud and suction port!



### DRILL DUST COLLECTION ACCESSORY INCLUDED

With the V-TUF MINI PLUS comes a drill dust collector as standard that simply fits to the end of the hose and, with suction, secures to the wall creating a seal and extracting harmful dust while drilling.

**V-TUF®**

**COMBAT DUST**

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# COMBAT DUST



**WINNING THE FIGHT FOR CLEANER AIR!**

**VACUUMS &  
DUST EXTRACTORS**

**HEPA  
FILTRATION**

**110V & 240V  
MODELS**

