

# HILTI

**Dust**  
Solutions that increase  
working comfort,  
safety and productivity



**DARS**

**Keep it clean.**

**Hilti. Outperform. Outlast.**





**Dust can influence comfort, safety and productivity.**  
Keep dust under control – with Hilti.

## **Dust can't be ignored.**

Dust is generated by many of the processes carried out in the construction industry such as cutting, grinding, slitting or breaking. Depending on the materials and the exposure, this can result in issues ranging from an uncomfortable work environment to potentially serious health risks. While these issues are well known, controlling airborne dust has historically been a challenge.

Another important aspect is that dust can have a negative impact on the lifetime of power tools and tools or consumables or on the working processes on the job site (non-working time or additional labour time for cleaning), which can result in reduced productivity and higher costs.

### **Keep dust to a minimum – with Hilti.**

Hilti is committed to helping you reduce the risks your workforce is exposed to, and to increase your productivity on site – with product and service solutions that greatly reduce exposure to dust in many everyday jobs on the construction site. It's time to take advantage of all the benefits of Hilti dust removal systems – because dust is a hazard and a costly issue that simply can't be ignored.

## **Keep dust under control!**

### **Less dust on the job site means**

- higher comfort and better protection for the workers
- a more precise and efficient working procedure
- less valuable working time spent cleaning up afterwards

### **Efficient dust removal helps**

- to increase the lifetime of power tools and tools
- to reduce tool downtime
- to cut the cost of repairs and maintenance

### **A high-performance, easy-to-use dust removal system allows**

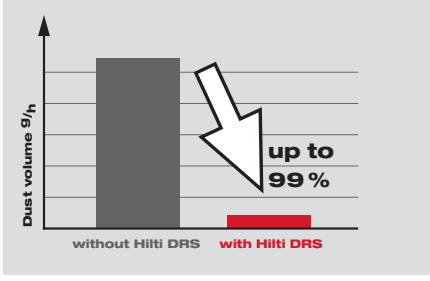
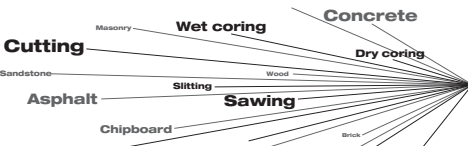
- efficient and productive use (reduction of labor time)
- less time and money spent on training and instruction
- fewer sources of error / incorrect handling

**For increased working comfort,  
safety and productivity!**





**Comprehensive solutions that reduce dust exposure.**  
 For increased working comfort, safety and productivity.



**Wide range of solutions**

Hilti offers comprehensive solutions that keep dust to a minimum in virtually every conceivable job on the construction site.

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**Intelligent systems**

Systems consisting of up to four matched components say “yes” to productivity and “no” to dust – Hilti DRS dust removal systems.

**page 7**

**Service and training**

Hilti has many years of experience in the development of DRS technologies plus a sales force and teams of field engineers that make their know-how available to you by offering advice/consulting, on-site training and much more.

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**The choice is yours**

Hilti offers alternative, virtually dustless working methods for many applications, e.g. powder-actuated fastening or flushing with water. No drilling means no drilling dust. Sounds easy? Yes, it is.

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**Increased productivity and worker safety**

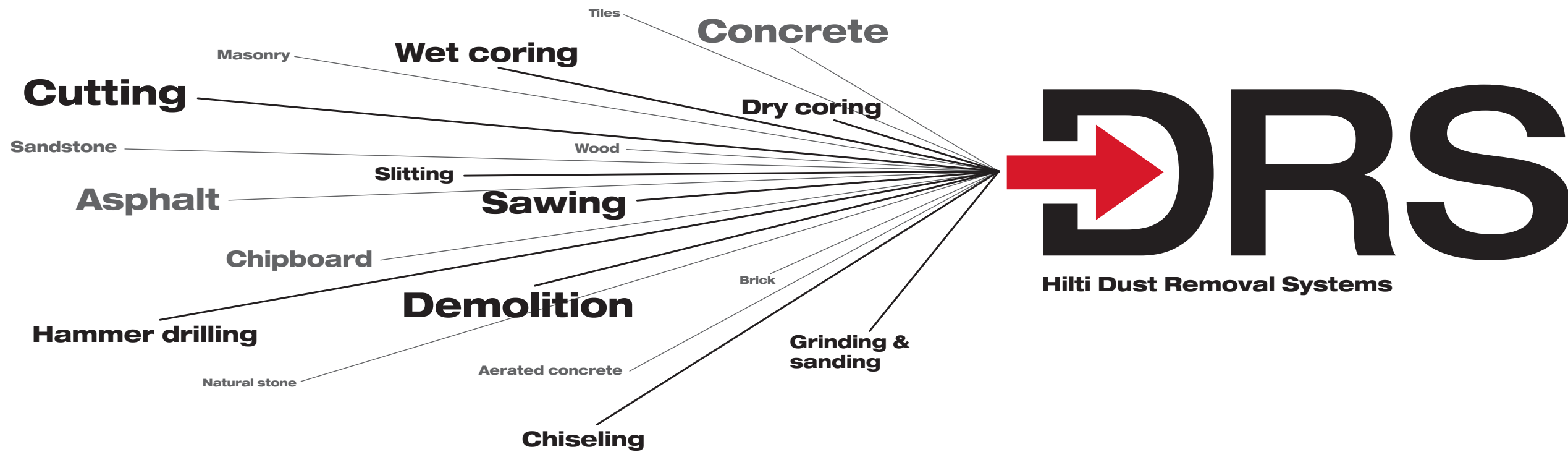
Less dust means higher productivity. With Hilti DRS you reduce dust exposure, achieve a higher tool lifetime and reduce your total costs and investment.

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**Dust – a safety risk**

Learn more about dust, the risks it presents and how to better protect yourself.

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## Wide range of solutions.

Hilti offers comprehensive solutions that keep dust to a minimum in virtually every conceivable job on the construction site such as grinding, slitting, cutting or breaking, to name only a few.



## When we say systems, we mean systems!

Four components – one winner. Hilti DRS dust removal systems make countless jobs virtually dustless. All system components, including power tools, drill bits, discs, blades or other accessories as well as fully integrated systems, are perfectly matched to maximize the amount of dust removed at its source and collected efficiently by the vacuum removal system.

These are the four components of the Hilti system – the system that wins hands down. Dust simply doesn't stand a chance!



1. The tool



2. The power tool



3. The accessories



4. Hilti AirBoost

### The result

Hilti 4 : 0 Dust

Turn over for more information >>>





## Optimum dust reduction begins with the tool.

Hilti tools are not just cleverly designed – they're revolutionary, highly efficient and deliver top performance. The DG-CW 125 diamond cup wheel is a perfect example. The special design of these cup wheels provide effective dust removal, optimum cooling of the segments and top working comfort. Materials such as tile adhesive can be removed and the underlying surface prepared in a single operation. Hilti cup wheels combine maximum performance with minimum dust emissions to form a proven system that saves time and costs again and again.

### The low-dust generation

Air turbulence and air flow are defined exactly by the special boomerang shape of the diamond segments – for best-possible dust removal performance.



## It's the details that count.

### Four-way helical flutes

Hilti TE-C3X hammer drill bits feature four carbide cutting edges and innovative X-geometry. Each cutting edge leads into its own helical flute, ensuring extremely efficient removal of dust and fragments, thus contributing to Hilti's legendary drilling performance.



### Built-in air channels

The new Hilti DD-B core bit generation is simply in a class of its own. In addition to this obvious, measurable drilling performance advantage, these core bits feature built-in DRS air channels that extract the dust right at its source, from inside the core bit, for efficient collection by the dust removal system.



### Cleverly positioned holes

Hilti sanding sheets feature an extremely tough, hard grit for top sanding performance and extra-long life. Their special coating greatly reduces clogging with paint dust and cleverly positioned holes in the sheet result in immediate and effective dust removal.







**DRS**

**Hilti power tools remove dust at its source.**

**Bad news and good news**

First the bad news: Slitting work, also known as chasing, generates a huge amount of dust. Now the good news: With the Hilti DCH 180-SL slitting tool, dust is removed right at its source. Quickly, cleanly and reliably. This is yet another example of how Hilti tools – in conjunction with Hilti vacuum cleaners – are capable of maintaining a virtually dustless working environment.



**Clean cut**

Sawing always produces sawdust. While cutting at depths of up to 70 mm with the Hilti WSC 70-A36 cordless circular saw however, you may begin to doubt this. When connected to a Hilti vacuum cleaner, no matter whether carrying out rough or fine work, this saw's built-in dust removal system let's you make a clean cut every time.



**High-tech inside**

The Hilti DG 150 offers unmatched grinding performance. The main reason for this is its advanced engineering and the resulting optimization of the air-flow inside the tool's built-in dust removal hood – for extraction of dust through the openings in the cup wheel.

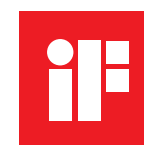
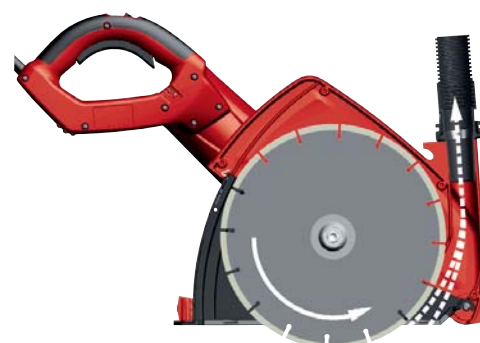


## Spectacular power tool design helps put an end to the dust problem.

The Hilti DCH 300 diamond cutter is an example of dust-reducing power tool design in perfection. With its ability to cut to depths of up to 12 cm and advanced ergonomic design, it completely redefines this tool category. The way in which the specially shaped hood works together with the disc to capture the dust the moment it is generated, ready for immediate removal, is amazing. It thus greatly reduces the health risks associated with this type of work. But that's not all. This exceptional dust removal efficiency also extends the life of the cutting disc, improves its cutting performance and therefore raises productivity.

**Aerodynamic hood design**

Thanks to the new disc rotation direction and aerodynamic dust hood design, dust doesn't stand a chance.



**product  
design  
award**

**2008** ■





→ DRS

## Fine dust can be particularly hazardous. Hilti accessories get rid of most of it.

To describe the first professional-grade dust removal system for breakers as an “accessory” is probably something of an understatement. One thing we certainly won’t understate, however, is the effectiveness of the extremely robust and durable Hilti TE DRS-B. Made from special pliable materials and featuring a unique, keyless quick-release mounting system, this dust removal attachment keeps dust during demolition work to a minimum.

### Dual-chamber dynamic air-flow system

Our engineers describe it as a “unique, dual-chamber dynamic air-flow system”. Our customers simply call it “virtually dustless chiseling”.



## Small extras, big effect.

### Highly effective

Simply push it on and off you go! No tools are required to attach this DRS dust removal module to Hilti jig saws. It collects wood chips and hazardous saw dust in a container attached directly to the power tool.



### Self-contained

The professional-grade TE DRS-M dust removal attachments for Hilti rotary hammers are compact and very convenient. These attachments are powered by the rotary hammer’s own motor, so no separate vacuum cleaner is required.



### Indispensable

Power under the hood for grinders and slitters: The new DC EX and DG EX dust removal hoods from Hilti are a pleasure to use – and keep dust to a minimum.





**DRS**

## Hilti AirBoost filters give dust the push every 15 seconds.

It's like a dream come true: Compact, mobile and robust vacuum cleaners with continuous high suction performance. Their new state-of-the-art filter technology briefly reverses the flow of air inside the system and thus blasts the filter clean every 15 seconds – automatically. Powerful, ruggedly built and highly efficient, these vacuum cleaners take hard, everyday jobsite use in their stride, feature a practical design and provide compatibility with virtually all Hilti power tools.

### Hilti AirBoost filter technology

Hilti AirBoost filter technology lays the foundation for a clean, virtually dustless workplace. A modified container concept also keeps dust to a minimum when emptying.



## Dust wizards.

### VC 20-U/M - the compact marvels

The new VC 20-U/M wet/dry vacuum cleaners remove dirt and dust of all kinds in drilling, slitting, grinding, sanding, cutting or coring jobs. Their modified container concept allows full use of the capacity available and makes emptying a virtually dustless operation.



### VC 40-U/M - the powerful all-rounders

The versatile VC 40-U/M vacuum cleaners are the ideal solution for hard, everyday jobsite use and provide a container volume of 25 liters and effective dust capacity of 40 kg. Their large wheels are only one of the many features that indicate their construction industry pedigree.



### VC 60-U - big performance for big jobs

Offering an impressive container volume of over 65 liters, the VC 60-U wet/dry vacuum cleaner is not only first choice for collecting wet materials such as drilling slurry or dirty water, it's also ideal for jobs where various quantities of dust have to be picked up.







## Go for the system. Different standards and classifications.

Different standards and classifications for vacuum cleaners exist today:

### 1. European and international standard IEC/EN 60335-2-69

This standard defines "Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use", and refers to dust classes and additional functions or features<sup>1</sup>

Dust Class	Suitability for hazardous dust with limit values for occupational exposure mg x m <sup>-3</sup>	Degree of penetration %	Product Features
<b>L</b> (light hazard)	> 1	< 1	<ul style="list-style-type: none"> <li>• Indicator (air velocity &lt; 20 m/s)</li> <li>• Safe change filter</li> <li>• Fitted with disposable collection means</li> </ul>
<b>M</b> (medium hazard)	≥ 0.1	< 0.1	
<b>H</b> (high hazard)	< 0.1 Including carcinogenic dusts and dusts contaminated with carcinogens and/or pathogens	< 0.005	See M Dust Class plus: <ul style="list-style-type: none"> <li>• Non-reusable essential filter</li> <li>• Tightly sealed containers to withstand stresses of transportation</li> <li>• Essential filter only removable by the use of a tool</li> </ul>

### 2. European standard EN 1822-1

This standard defines different filtration grades with references to HEPA or ULPA filters.<sup>2</sup>

EN 1822-1	H 10	H 11	H 12	H 13	H 14	U 15	U 16	U 17
Filtration grade	≥ 85 %	≥ 95 %	≥ 99.5 %	≥ 99.95 %	≥ 99.995 %	≥ 99.9995 %	≥ 99.99995 %	≥ 99.999995 %

### 3. US standard UL 586

The UL 586 is a US HEPA standard, without different levels of classification. A HEPA classed filter according to this UL standard should have a filtration grade of 99.97 %

Note that the different standards are not fully comparable since the particle sizes and type of dust differ in the tests for the different standards.

### Dust removal systems and filter classifications in practice

The following recommendations are deduced from an independent research project executed by the German statutory accident insurance for construction industry (BG Bau):<sup>3</sup>

1. Based on experience and tests it seems far more important to use a **harmonized system which is designed and developed together** rather than a vacuum cleaner with an extreme filter cleaning grade as stand-alone solution.
2. A **high continuous suction power** seems also more important than an extreme filter class only. A correlation between a higher filtration grade and a lower suction power, especially over time, exists.
3. A very **effective filter cleaning system** is also crucial to maintain suction power over time. **Easy to transport, mobile on the construction site, robustly designed and easy to use** are key requirements for a vacuum cleaner in order to be used on a daily basis.

### Use of harmonized systems to be preferred

"The requirements presently demanded by regulatory directives and standards are very difficult to implement in practice. [...] Rigid adherence to regulations in this case makes use of some kind of mobile H-class vacuum cleaner mandatory for all activities that produce mineral dust containing fine quartz dust. It is more important, however, to **ensure that systems of matched components are used**. Tests carried out with mobile M-class vacuum cleaners have shown that the effect achieved by matching the system components is far greater than the effect achieved through use of some kind of unmatched mobile vacuum cleaner of a higher dust class."<sup>4</sup>

Hilti offers vacuum cleaners with filtering systems which meet the requirements of M-Class (99.9% filtration grade).<sup>5</sup>

<sup>1</sup> Dust categories according to IEC 60335-2-69 "Household and similar electrical appliances – Safety – Part 2 – 69: Particular requirements for wet and dry vacuum cleaners, including power brush, for industrial and commercial use"

<sup>2</sup> Classification of HEPA- and ULPA-filter according to EN 1822-1 "Highly efficiency particulate air filters (HEPA and ULPA) – Part 1: Classification, performance testing, marking."

Classification of HEPA-filter according to UL-586 "High efficiency, particulate, air filter units" is separation rate ≥ 99.97 % of 0.3 micron diameter particles.

Hilti HEPA filter element for use in the VC 20-UM and VC 40-UM has a separation degree of 99.97% for 0.3 mm DOP within air flow of 130 m<sup>3</sup>/h.

<sup>3</sup> Research project "Assessment of the dust emission characteristics of hand-held power tools and machines for working on mineral materials", by the Fachverband Elektrowerkzeuge (electric tools trade association) in cooperation with the Berufsgenossenschaft Bau, Deutschland

<sup>4</sup> <http://www.gisbau.de/service/sonstiges/staub/Abschlussbericht.pdf>, page 109

<sup>5</sup> The possible need for mobile vacuum cleaners with filters of a higher class must be assessed with regard to the application to be carried out and according to higher separation requirements (e.g. asbestos, spreading of germs). When selecting the right vacuum cleaner according to the corresponding application, the currently applicable national regulations must be taken into account.





## Services you can rely on. Your daily needs are our business.

### Let's talk about it.

How to achieve higher productivity and greater safety on the jobsite.

Tougher competition, tighter schedules, inexperienced personnel, new methods of working or a careless "it won't happen to me" attitude – the main reasons for incidents, accidents, injury or serious health risks are manifold. The difficulties are added to by often indecipherable or confusing statutory regulations which can sometimes be challenging to interpret or observe.

Hilti, as your partner, can help to clarify the situation and provide practical training for your employees. Just contact us – we would be pleased to discuss this with you.



### Hilti Fleet Management

The clever alternative to buying tools.

We look after your entire fleet of tools so you can concentrate on your own daily business. Together with you we analyze your existing fleet of tools and ensure that your new fleet includes only the tools you really need. With Hilti Fleet Management, a fixed monthly charge covers all tool, service and repair costs. That greatly simplifies your financial planning and takes a load of administrative work off your shoulders. It also ensures that you always work with the most advanced Hilti tools with respect to health and safety. Sounds attractive? Yes, it is – just ask your Hilti representative for more information.

**HILTI**

**FLEET MANAGEMENT**

### Hilti Lifetime Service.

Anything but business as usual.

Hilti Lifetime Service applies to all Hilti power tools. We provide this outstanding service for the entire life of the product – completely free of charge for up to two years from date of purchase – covering repair or replacement of defective parts (even parts subject to wear and tear!) and including free pick-up and return transport and of course various safety checks to ensure fulfilment of various health and safety standards. After that, Hilti continues to prove the quality of its products by setting a repair cost limit – for the entire life of the product. That's not just reassuring to know, it's unique in this field. Some limitations apply. Contact Hilti for details.

<b>HILTI</b>	<b>2 Years</b>
<b>LIFETIME SERVICE</b>	<b>NO COSTS</b>
<b>Lifetime</b>	<b>Lifetime</b>
<b>REPAIR COST LIMIT</b>	<b>MANUFACTURER'S WARRANTY</b>



## Hilti offers alternative, virtually dustless working methods.



### Flushing with water.

Fast, efficient drilling and sawing in concrete – virtually dustless thanks to the Hilti slurry removal system which provides exceptional operating comfort. The core bit or blade is cooled by the water and, as a consequence, the drilling or sawing process is more accurate and faster, the core bit or blade lasts longer and the operator's exposure to dust is reduced to a minimum.

In addition Hilti offers a water recycling unit (Hilti DD-REC 1). Its built-in drilling slurry extraction system allows unrestricted use – with complete independence from external water supplies for maximum mobility. Use is possible even in sensitive surroundings where special precautions would otherwise have to be taken. Costly, time-consuming cleaning up after completing the job becomes a thing of the past.



### The direct alternative.

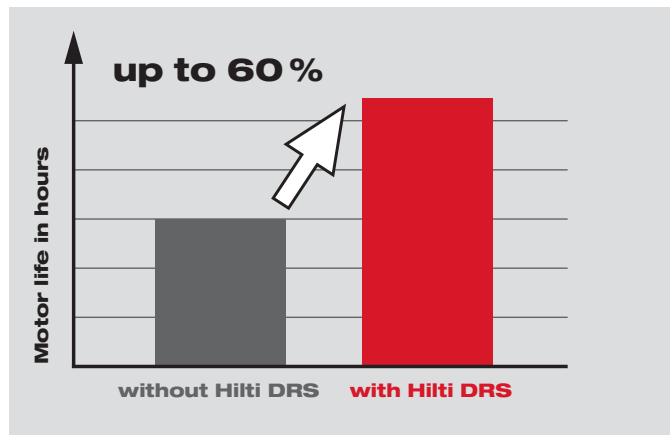
The Hilti DX and GX direct fastening systems are based on a range of powder- or gas-actuated fastening tools that use a self-contained energy source to drive fasteners into concrete or steel in a quick, easy, virtually dustless operation.

Thanks to the Hilti piston principle, perfected over decades, these tools provide a high level of safety. The energy released by the propellant charge is transferred to the fastener, under full control, by a captive piston. The driving action ends when the piston reaches the end of its travel. 90% of the kinetic energy generated is thus dissipated within the tool.

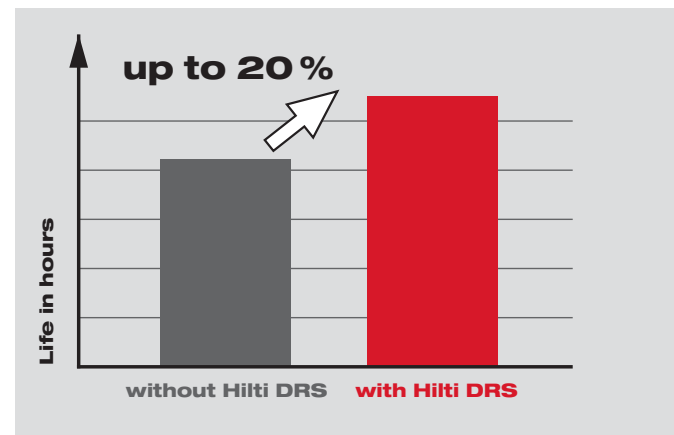




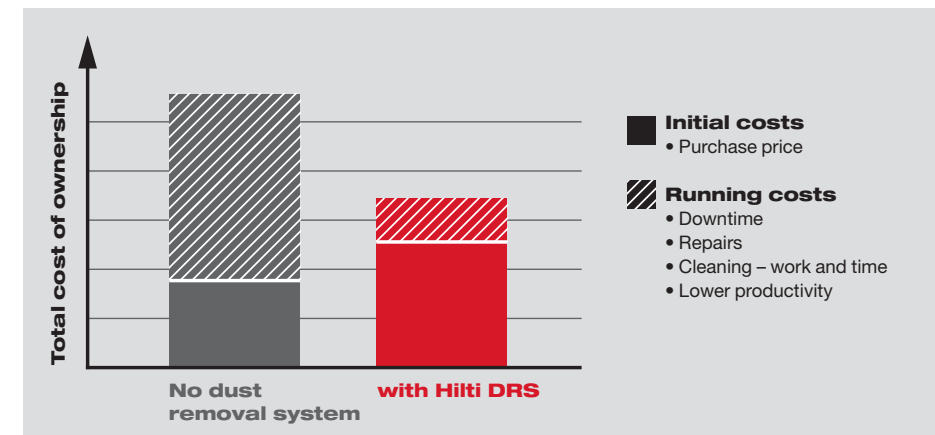
**Longer power tool lifetime.**  
Hilti DRS keeps your power tools fit – for longer.<sup>1</sup>



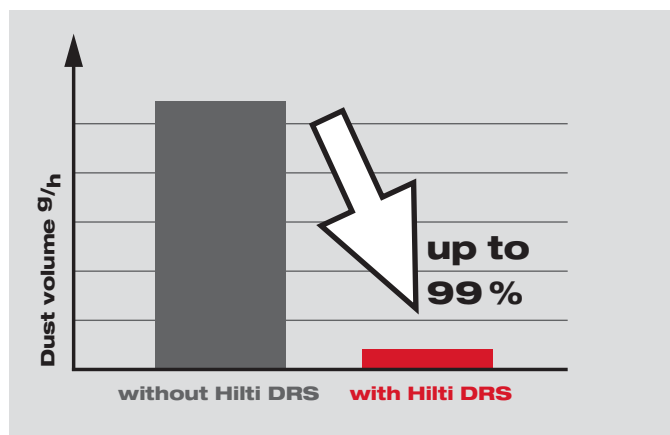
**Longer tool lifetime.**  
Hilti DRS keeps your tools fit – for longer.<sup>2</sup>



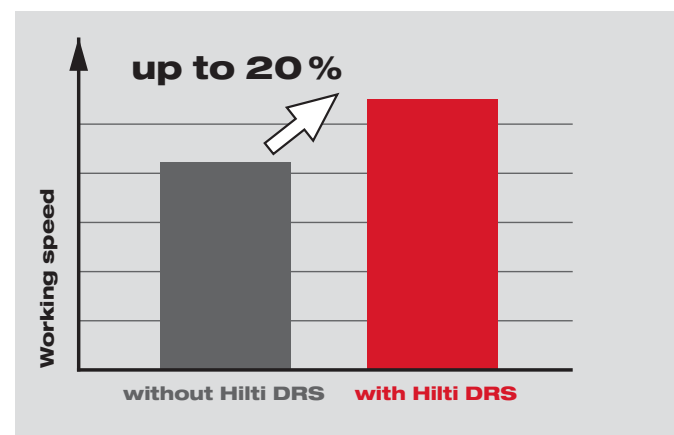
**Invest in Hilti DRS.**  
It simply pays off.<sup>5</sup>



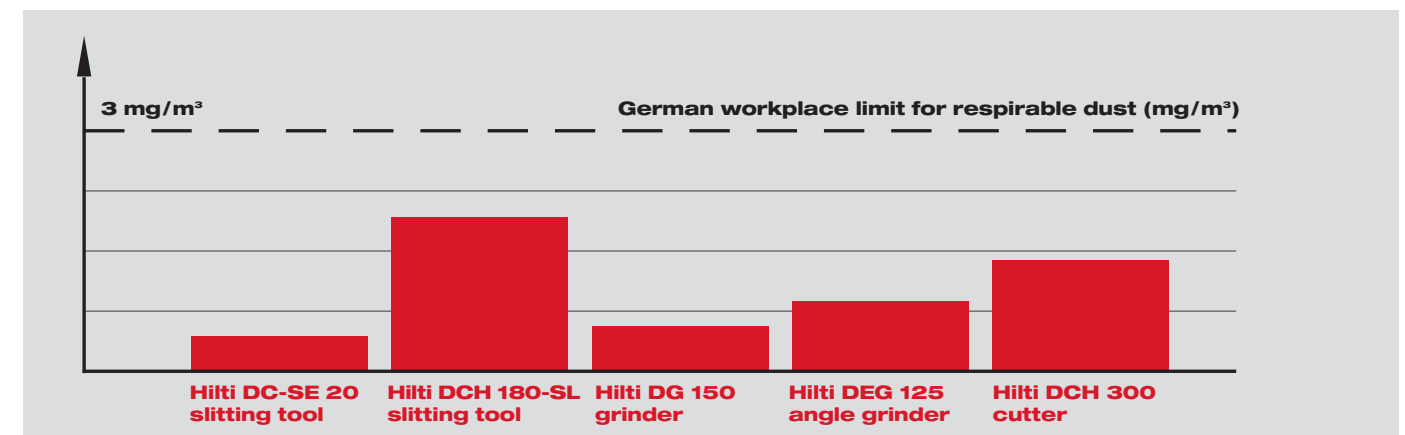
**Up to 99% less dust.**  
In your immediate working surroundings.<sup>3</sup>



**Higher working speed.**  
Get the job done faster – with Hilti DRS.<sup>4</sup>



**Stay below the legal workplace limits.**  
Hilti DRS can help meet legal exposure limits.<sup>3</sup>



<sup>1</sup> Life-expectancy test with a Hilti DCH 230 cutter: The dust resistance of the carbon brushes was tested in a dust chamber. Without Hilti DRS, the carbon brushes had to be changed for the first time after approx. 85 hours. In comparison, in dustless conditions, the same power tool ran for approx. 140 hours in the same test chamber before the brushes needed changing for the first time. Please note: Tests conducted on a test rig are not always directly comparable with real-life conditions. Results may differ based on operator technique, specific application and tool combination.

<sup>2</sup> Life-expectancy test of disc with a Hilti DCH 230 cutter: Hyosung M1 111007 Light Duty, without and with dust extraction. 230 mm cutting disc performance, KSV Augsburg, system test (5600 rpm, 7 cm cutting depth). Please note: Tests conducted on a test rig are not always directly comparable with real-life conditions. Results may differ based on operator technique, specific application and tool combination.

<sup>3</sup> Research project "Assessment of the dust emission characteristics of hand-held power tools and machines for working on mineral materials", by the Fachverband Elektrowerkzeuge (electric tools trade association) in cooperation with the Berufsgenossenschaft Bau, Deutschland (German statutory accident insurance for construction industry) (2006). Limit represents the permissible exposure limit for respirable dust per German regulation TRGS 900 (technical regulation for hazardous substances). Limits vary depending on local regulations and type of dust. Results may differ based on operator technique, specific application, and tool/accessory condition. The need for additional safeguards must be evaluated by the responsible health and safety personnel on site.  
Documentation: [www.gisbau.de/service/sonstiges/staub/Abschlussbericht.pdf](http://www.gisbau.de/service/sonstiges/staub/Abschlussbericht.pdf)

<sup>4</sup> Relative comparison with and without dust removal system, DCH 230, system test (5,600 rpm, 7 cm cutting depth, concrete KSV Augsburg)  
Please note: Tests conducted on a test rig are not always directly comparable with real-life conditions. Results may differ based on operator technique, specific application and tool combination

<sup>5</sup> The data is based on a general assessment made under average conditions and may vary from case to case.





**Dust and the risks it presents.**  
Its effects and consequences.

**Dust's influence on people and the environment.**

Although exposure to dust may result in potentially serious health risks, it is important to understand that the risk may be driven by different factors which are not necessarily related to the use of Hilti power tools only (such as application, quality of base material, duration per day and over time, intensity, ventilation of area or the use of respiratory protection, to name only the most important). However, according to our Corporate Purpose and our core values, it is important for Hilti to inform and provide tangible and practicable information on this topic.

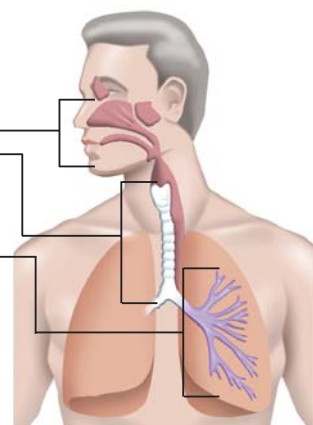
**Risks of dust**

The risks presented by dust can be expressed broadly in terms of environmental risks and risks to health and safety.

- Environmental risks include the risks to people who live close to the dust source or experience frequent exposure to it for other reasons, as well as the risks to wild plants, agriculture and crops.
- Dust can have a considerable effect on a person's health and may lead to serious medical disorders.

**Type of dust**

- **Inhalable dust:** Finds its way into the mouth and nose
- **Thoracic dust:** Reaches the upper respiratory area
- **Respirable dust:** Also reaches the finest parts of the lungs (alveola)



**The most hazardous dust is the invisible kind.**

While some types of dust are potentially hazardous in any form, the risk is generally higher for the tiny particulates that are invisible to the naked eye. Those listed below are the most common types of dust known to pose a health hazard.

- **Cement dust**  
Generated by handling dry cement
- **Silica dust**  
Stone, mortar, bricks, concrete blocks, kerbstones, slabs, granite, tiles, shale, sand and gravel
- **Wood dust**  
Certain types of softwood and hardwood, fiber board, plywood, chipboard and MDF
- **Welding fumes**  
Fumes from welding metal
- **Chemicals**  
Certain types of adhesives and epoxy resin, paint spraying and use of products containing isocyanates e.g. two-component paints
- **Asbestos fibers**  
Insulating board, roofing, asbestos, cement, cladding, fiber gaskets, ducts, flues, floor tiles and guttering
- **Mould spores**  
Organic and animal remains at demolition, renovation, maintenance and clearance sites

**The effect dust has depends on several factors**

- Type of dust
- Duration and level of exposure
- Part of the respiratory system in which dust is deposited
- Particle size





**Avoid creating dust.**  
Right from the start.

**Dust control tips.**  
For the workplace, power tools and your organization.

## How to better protect yourself.

Almost all of those who work in construction, demolition or other similar industrial fields may be affected by dust at some time or another. Research has shown that one in five workers continues to be exposed to the hazard of breathing in dust.<sup>1</sup> We can help you reduce his exposure.



**Avoid**  
First of all, check if the task can be carried out in a way that doesn't generate dust – use the best alternative method.



**Prevent**  
If you can't avoid creating dust, adequate dust control measures must be implemented, e.g. using tools equipped with dust extraction equipment that helps to remove dust at its source.



**Minimize**  
If you can't prevent exposure to dust, evaluate whether additional steps are required to protect against any remaining risks.

**1 Use only the tools and accessories recommended by the manufacturer.**  
Other combinations may lead to poor extraction and collection of the dust.

**2 Observe the manufacturer's instructions.**  
Read the instructions applicable to operation, cleaning and maintenance of the system before use.

**3 Use the vacuum cleaner correctly.**  
Empty the dust container as soon as it is full. Avoid kinks in the dust extraction hose. Do not tamper with the hose and clean it out right away in the event of blockage. Clean filters at regular intervals and replace them when necessary. Don't operate the equipment without a filter in place.

**4 Use tools or accessories that are matched to the material you are working on.**  
Manufacturers offer various tools and accessories (cutting discs, carbide-tipped cutters, etc.) for various materials and applications.

**5 Replace or sharpen the cutting tool (disc, blade, drill bit or chisel, etc.) in good time.**  
If performance drops, check whether the cutting tool or accessory is worn or in need of sharpening.

**6 Ensure adequate ventilation at the workplace.**  
Use air extraction equipment with filters where dust exposure is high.

**7 Wear personal protective equipment.**  
Wear ear protection, eye protection, respiratory protection and, if necessary, protective gloves. Please refer to local requirements for respiratory protection through dust particle filtration masks.

**8 Clean the workplace at regular intervals.**  
Use a vacuum cleaner or motorized sweeping machine with vacuum extraction. Do not dry sweep by hand or blow off with compressed air.

**9 Avoid kicking up dust.**  
Remove dust deposits or waste material immediately.

<sup>1</sup> Fourth European Working Conditions Study 2007, page 29. European Foundation for the improvement of living and working conditions.



**Hilti. Outperform. Outlast.**

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