HTC Superprep™

EN

HTC Superprep™

Surface levelling & floor preparation

www.htc-floorsystems.com


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What makes grinding the best method for surface levelling & floor preparation?

Thanks to grinding, you can remove old floor coverings, level out the underlying concrete surface and create the perfect surface for further treatment of your floor…
...all in one action!

That's what HTC Superprep™ is.

Grinding floors is nothing new; people have been doing it for thousands of years. Nevertheless, few people know that the trend in grinding machines and diamond tools over the last 20 years means that now you can save time and money by using grinding machines for surface levelling and floor restoration.

HTC Superprep™ uses grinding to remove floor coverings such as epoxy, paint, carpets, carpet adhesive and self-levelling compound while the contractor gets a perfectly smooth surface to lay the flooring on. Wherever possible, it is better to keep the floor surface instead of destroying both the floor and the floor covering.
You avoid the need to use self-levelling compound and unnecessary material costs in the form of extra coverings to fill out irregularities, which are both expensive and time-consuming.

HTC Superprep™ also makes it easy to roughen up an old covering, such as paint, to improve the adhesiveness for the next coat of paint. Regardless of the intended final result of the floor, there are huge benefits from using grinding as part of the process.

With over 20 years in the industry, HTC is currently the global leader and is driving development towards faster and more effective methods of improving and finishing floors. Leading development in an industry that is more than a thousand years old is something we are proud of.

HTC | the innovators not the imitators™

HTC Superprep™
What are the benefits?

Save time
– Ready for further treatment

HTC's Superprep™ method means you can remove one or more old floor coverings, and the floor is flat and clean. Immediately after grinding, you can start a new floor covering or perhaps simply continue grinding and polishing the concrete into an 'HTC Superfloor™. More traditional methods such as scarifying or blasting work vertically against the floor and are also very effective at removing coverings. The disadvantage is that as the covering is removed, the underlying floor is damaged so that self-levelling compound or a great deal of extra floor covering is required. Using self-levelling compound is time-consuming and a lot of subsequent grinding is often required.

On pages 10-11 "Revolutionising the construction process", you can read more about how you can shorten the construction process for freshly-cast concrete slabs thanks to grinding.

- **Quicker and smoother end results**
- **Grinds close to edges and corners**
- **Reduces need for self-levelling compound**
- **Shorter drying times**

Save money
– Less material consumption

Grinding is gentle on the floor, unlike other methods, where both the floor and the old floor covering are scraped away. Following scarifying or shot blasting, the floor is always uneven and requires a lot of extra covering in order to fill in the irregularities in the floor (see page 12-14). In addition, an uneven surface needs to be filled up to the highest point of the floor. With grinding, you can save up to 40% of floor material costs, such as self-levelling compound and extra floor covering.
As around 17 kg of dry self-levelling compound is required per m^2 to achieve 10 mm, unnecessary transport and set-up time is avoided.

- **40% less material consumption**
- **Lower transport costs**
- **Fewer man hours**

Consider the environment

– Save energy

You can benefit financially from using less covering, the environment benefits, and at the same time less material is consumed and transport is reduced. In addition, huge amounts of energy are saved, as 50 kWh/m² is required to manufacture 3 mm, or 1 kg, of self-levelling epoxy. Epoxy is a thermosetting plastic which then goes to landfill or is incinerated.

- **Less material consumption, less environmental impact**
- **Fewer transports, lighter carbon footprint**
- **50 kWh to lay 1 m² of epoxy**
- **Profit for you, benefit for the environment, win-win**

Improve your working environment

– Smarter working method

If you use HTC Superprep™ as a method, other activities can continue in the area without any problems. This provides huge benefits for a business owner or an industry that can continue with its activities. The sound level from grinding is only 90 dB next to the machine, which means that it is significantly lower than shot blasting or scarifying, for instance. And with the right vacuum cleaner and pre-separator, the work is virtually dust-free. The design of the grinding machines (page 8) means that the operator can work with the machines straight forward without any lateral forces. As the machines work along the floor and not downwards from above, most of the vibrations are avoided.
The vibrations are therefore well below the specified maximum. The average is 0.6 m/s² for an HTC 650.

- **HTC Superprep™ can be used while activities continue in the area**
- **Virtually dust-free**
- **Few vibrations, only 0.6 m/s²**
- **Using HTC's grinding machines, you reach no more than 90 dB**

HTC Superprep™
More benefits

20 years' experience
– Customised training

HTC has more than 20 years experience of floor grinding. As someone grinding or hiring out HTC grinding machines, you can benefit from that knowledge. Since 2005, HTC has trained around 1500 people in floor grinding around the world. Today, all HTC subsidiaries and several of HTC's retailers carry out these activities. We have also adapted our training for various target groups, as we know that you, as a flooring contractor, building company or machine hire company, have different knowledge needs.

- **Customised training carried out by floor professionals and educators**
- **The same training in every country**
- **Practical and theoretical training**
- **Training carried out by the global leader**

Simplicity
– The floor solution in a box

Using HTC Superprep™ as a method is simple. You can use the same machine, regardless of what you are grinding. It is the tools under the machine that are the key (page 9). The HTC Superprep™ tool range consists of five main tools together in one box. There you will also find the instructions for the tools you might need and how the machine is operated. The box is also suitable for hire companies to simplify their tool management and measurement of tool wear. As long as you know what needs to be ground, the solution is in the box.

- **HTC Superprep™ tools in a box**
- **Manages all floor prep jobs**
- **Works with all HTC grinding machines**
- **Simplifies matters for rental/hire companies**

Grinding
The best method by a long shot

For nearly 50 years, scarifying and shot blasting machines have looked and functioned the same. For those who still believe that these methods are the smartest way of machining a floor, it's time to think again.

The development of HTC's machines and tools means that there is no longer any reason at all for continuing to use old-fashioned methods and equipment.

Users of HTC's equipment around the world who have kept up with developments save both time and money when they start to use modern equipment – and HTC is leading the trend.

Grinding

- **+ Functions on all surfaces**
- **+ Many areas of use**
- **+ A flat surface can always be achieved**
- **+ Close to edges**
- **+ Low noise level and little dust**

Scarifying / Shot blasting

- **- Impossible to get a flat surface. Grinding or self-levelling compound is required afterwards**
- **- Leaves lines that can often be seen under the covering**
- **- Extra covering material is required**
- **- Leaves 70-90 mm from the wall**
- **- Lots of dust, vibrations and noise**
- **- Few areas of use**

In order to get the best possible profitability for your floor jobs, HTC equipment is not just an option – it's a requirement!

HTC grinding machines
Development through experience

The technology behind it
– Innovative solutions

For over 20 years, HTC has been the market leader in floor grinding. HTC's machines have been developed for high performance, while remaining user-friendly and providing flexibility, so the machine can be used for many work areas.

No job too small, no job too large
HTC has machines in its product range that cover everything from edge grinding to grinding of large areas thousands of square metres in size.
A machine supplier for all your floor jobs!

The most extensive tool range in the world
HTC has developed the largest selection of diamond tools for floors on the market. At HTC, you'll definitely find the tools suitable for your flooring job today, as well as the various flooring jobs you'll get in the future.

The benefits of HTC's patented system
HTC's machine models are based on a patented drive system with one, three or four grinding discs. The drive system consists of one large grinding disc and three or four smaller grinding discs that counter-rotate at up to 1600 RPM.

The design makes the machine perfectly balanced and it does not tend to pull in any direction, which in turn makes the grinding more ergonomic, with a smoother floor as a result.

One machine, many work areas

– The tools underneath are the key

Concrete grinding

When grinding concrete floors, the concrete skin is removed and the stronger concrete exposed. At the same time, the surface is ground level, which reduces the need for self-levelling compound and reduces the quantity of floor covering, with major financial savings as a result. If you change tools, you can continue to polish the concrete into an easily-cleaned, sustainable, high-gloss concrete floor, an HTC Superfloor™.

Thick coverings

Thick coverings refers to epoxy, self-levelling compound, linoleum and plastic matting. In one sweep, 5 mm of epoxy or self-levelling compound can be removed. When grinding away matting, the adhesive is also ground away, and the floor is ready to be covered with a new carpet, covering, tiles, or ready for polishing.

Thin coverings

Thin coverings refers to adhesive, paint or lighter grinding to improve the adhesion of a new covering on top of an old one. The machines function superbly for lighter grinding of irregularities in the self-levelling compound.

Natural stone

With a simple tool change under the machine, you can transform your grinding machine, allowing you to grind any type of marble, granite or terrazzo floor.

Wood grinding

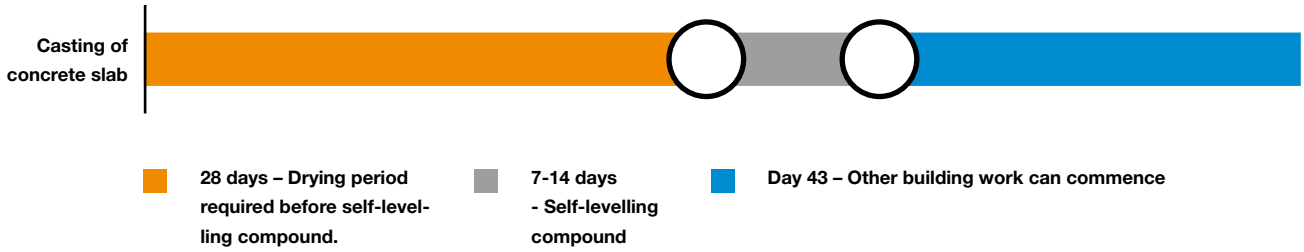
With HTC's grinding machine, anyone can grind a wooden floor. You can get close to the edges and do not need to follow the grain of the wood. If the machine is used with an external vacuum cleaner, the floor can be ground dust-free.

Revolutionise the construction process

Save up to 5 weeks in drying time for concrete slabs, with no self-levelling compound required. After as little as 2 days of hardening the concrete, it is possible to grind the slab and then move on with construction immediately.

Traditional construction process

– 35-42 days drying time



In order to get a full material guarantee from the self-levelling supplier, the concrete must harden for 28 days. Once the hardening is complete, the floor has to be primed and treated with self-levelling compound, but before this is done, a lot of preparation is required, as lift shafts, pipe conduits for electricity and waste pipes, etc. need to be sealed and protected. Once the floor has been primed, the compound has to be pumped, which requires a lot of equipment and transport. Depending on the weather conditions, the quantity and quality of the compound may need a further 7-14 days of drying time.

After around 35-42 days, work on raising the walls and the other construction work can continue.

Potential risks

- **Mould damage if the concrete has not dried**
- **Once the floor is primed, moisture remains in the concrete**
- **Material release, as the self-levelling compound has a poor C value**

Disadvantages

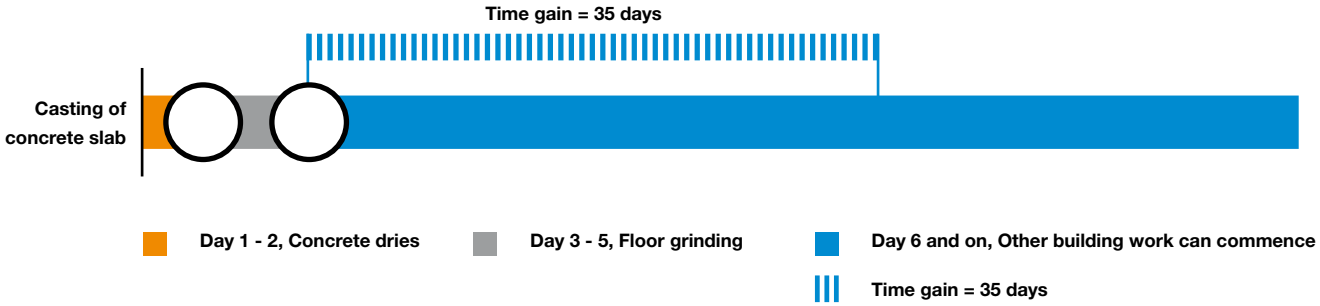
- **Long drying times (anticipated times)**
- **Extra work sealing pipe conduits**
- **A great deal of logistics**
- **Huge material costs***

*** Example**
In order to achieve 10 mm self-levelling compound per m², around 17 kg dry self-levelling compound + 15% water is required. Total weight: 19.5 kg per m².

Estimated cost of self-levelling compound, including material, pumps, preliminary work and transport, around EUR 0,5-0,6 per kg. Self-levelling compound costs between EUR 10 – 12 per m².

Shortened construction process

– 5 days drying time



Allow the concrete slab to harden for 2 days. Then grind the slab smooth, removing the concrete skin which "opens" the concrete and allows the slab to dry faster. Once the grinding is finished, construction work can continue. As the slab is smooth from the grinding, no self-levelling compound is required. However, it must be watered and covered with plastic to avoid shrinkage cracks.

Option

Allow the concrete slab to harden while watering it under plastic for 7 days. Then grinding can commence and no more watering is required.

Advantages

- **Significantly shorter construction time**
- **Lower costs**
- **Less edge work**
- **Fewer risks**
- **Environmentally-friendly construction process**

The importance of a good casting

The smoothness of the concrete slab from the casting and the size of the grinding machine determine how fast the concrete slab can be finished.

Example – grinding with an HTC 950 RX

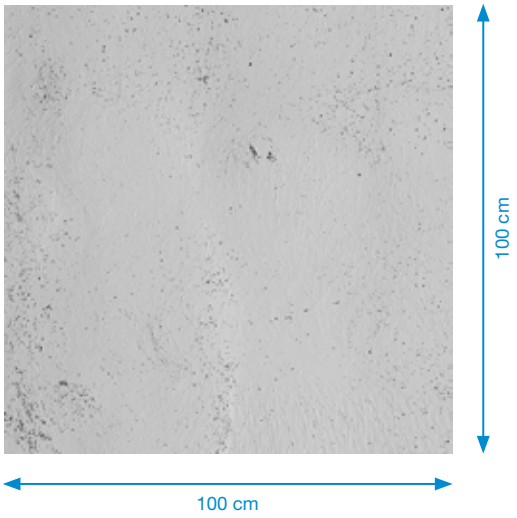
Class A cast concrete is +/- 3 mm on a 2 m straight-edge board = around 40m² an hour

Class B cast concrete is +/- 5 mm on a 2 m straight-edge board = around 20m² an hour

Test facts
Grinding versus other methods

Achieving a level surface reduces the costs for covering material. This is only possible with a grinding machine. Going over the same area several times with a grinding machine increases the smoothness, unlike shot blasting or scarifying machines. In the following measurement results comparing grinding, shot blasting and scarifying as floor prep methods, we can demonstrate the importance of achieving a smooth floor. We have used a 3D scanner where the distance between each measurement point is 0.15 mm and a precision of 0.03 mm per millimetre in order to be able to give as exact a picture of reality as possible.

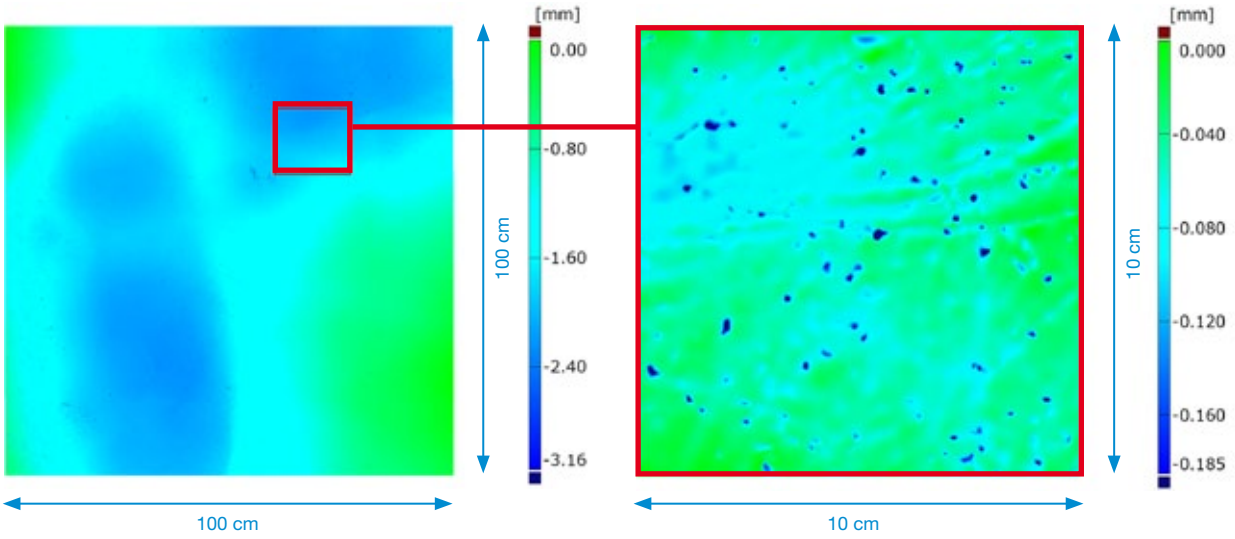
For more test results and other surfaces, visit **www.htc-floorsystems.com**



Grinding

1 m²
From the lowest point to the zero point: 1,481 cm³
Corresponds to covering: 1.5 L

1 dm²
From the lowest point to the zero point: 0.54 cm³
Corresponds to covering: 0.54 ml

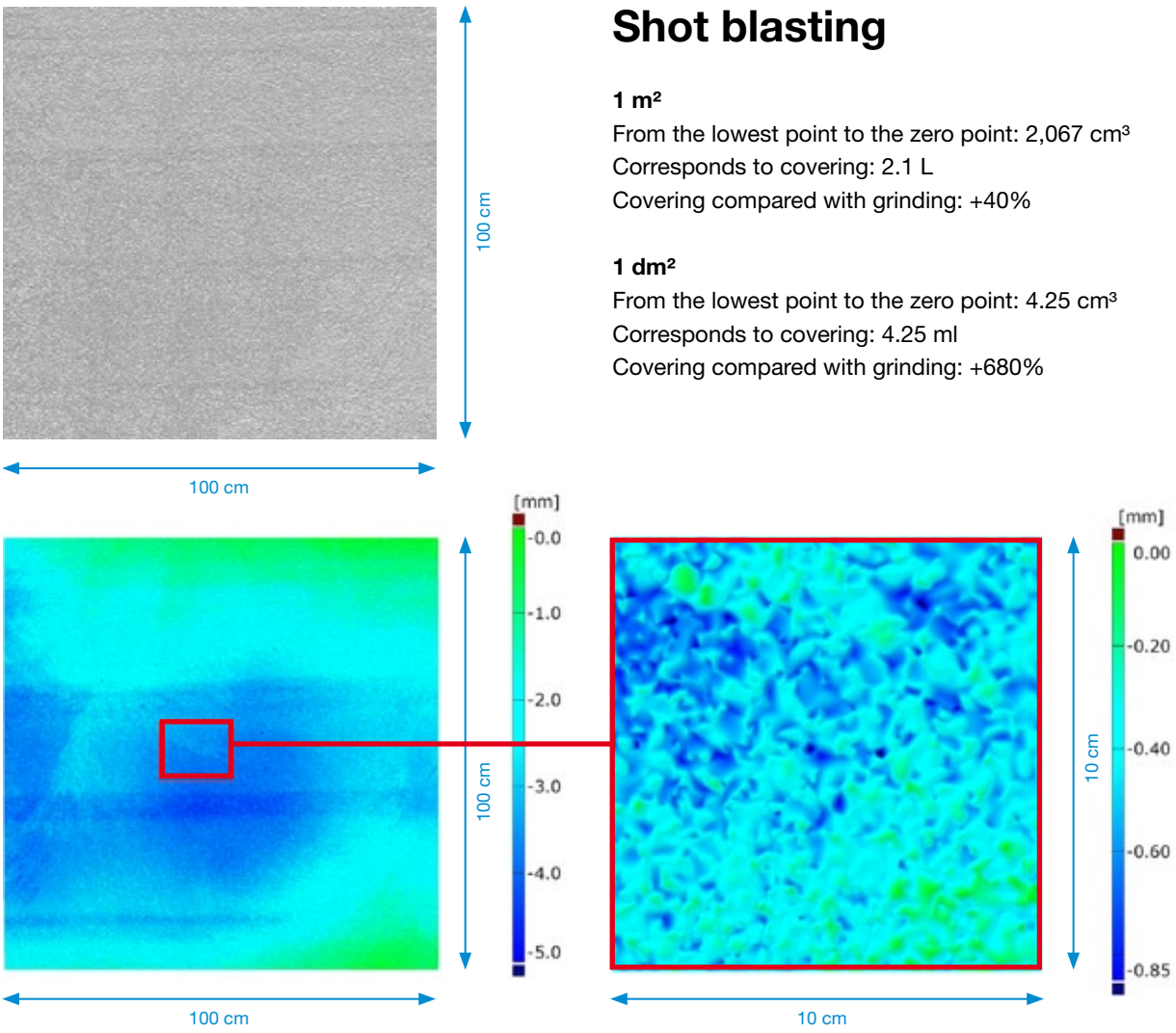


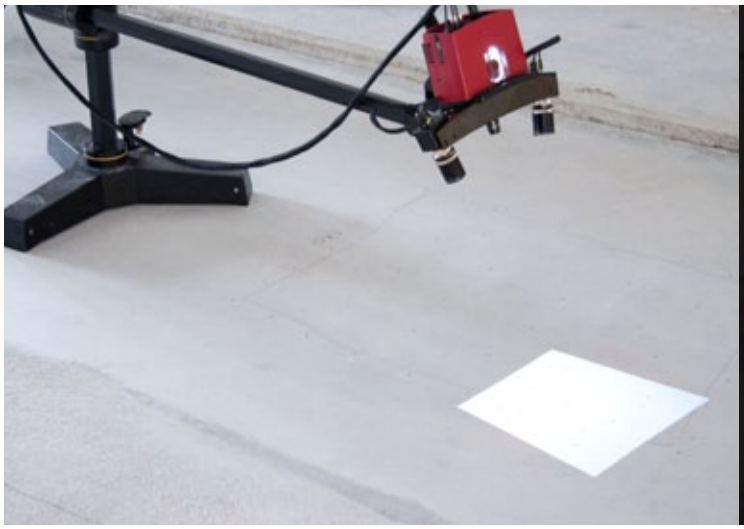
Ground surface **Shot blasted surface** **Scarifyed surface**

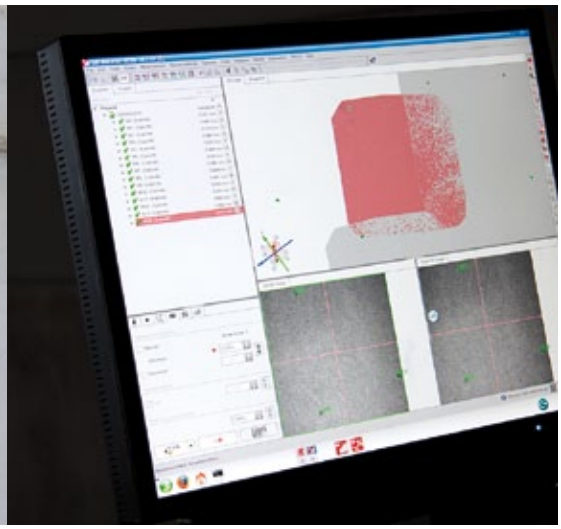
Shot blasting

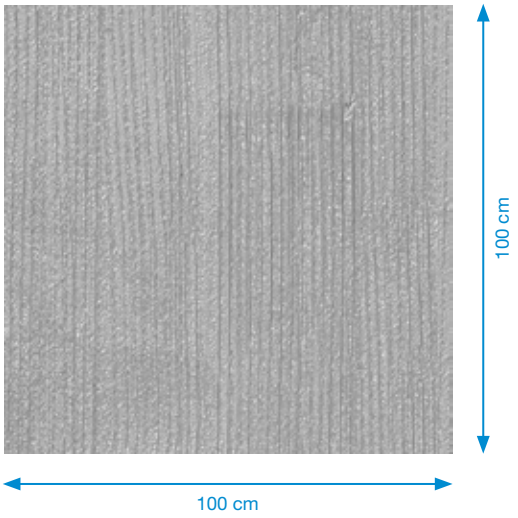
1 m²
From the lowest point to the zero point: 2,067 cm³
Corresponds to covering: 2.1 L
Covering compared with grinding: +40%

1 dm²
From the lowest point to the zero point: 4.25 cm³
Corresponds to covering: 4.25 ml
Covering compared with grinding: +680%





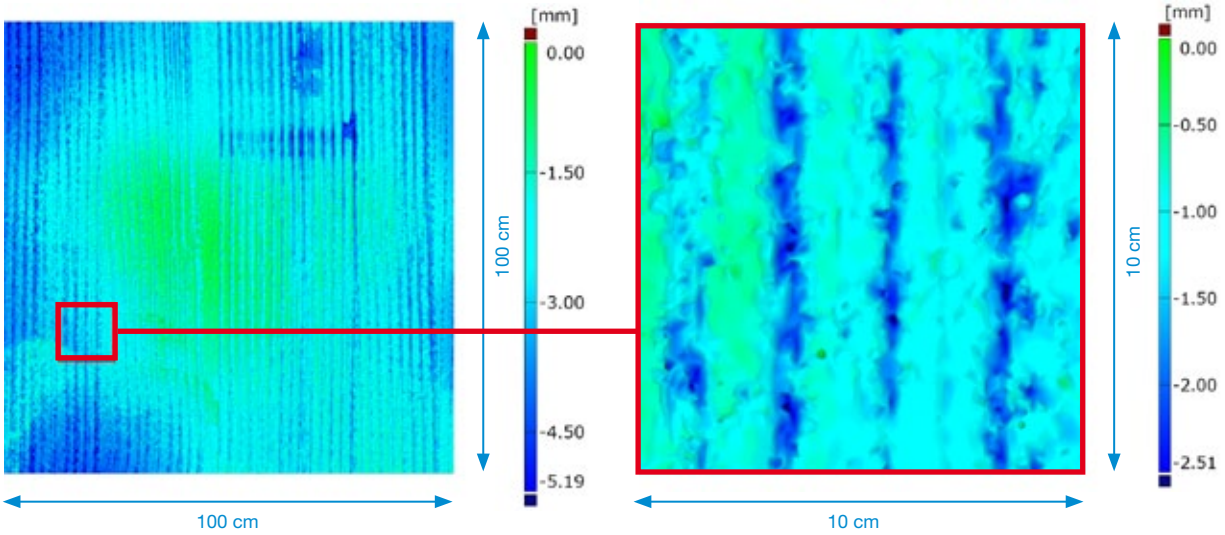




Scarifying

1 m²
From the lowest point to the zero point: 2,551 cm³
Corresponds to covering: 2.6 L
Covering compared with grinding: +72%

1 dm²
From the lowest point to the zero point: 11.6 cm³
Corresponds to covering: 11.6 ml
Covering compared with grinding: +2029%



Test facts
Adhesion to concrete floor

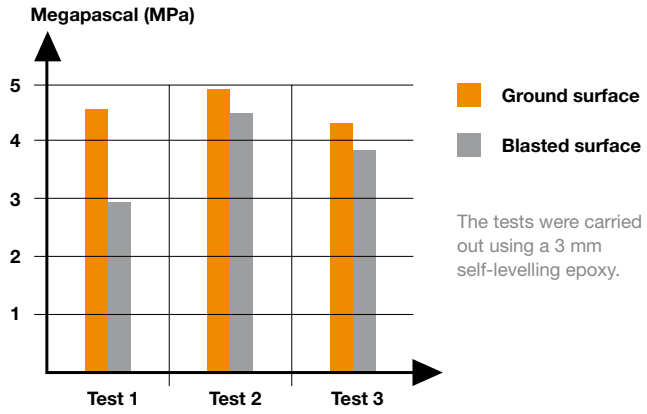
The advantages of grinding a floor instead of shot blasting it are numerous. Despite that, a number of floor contractors shot blast floors when they are unsure as to whether the required floor covering will adhere to a ground surface. In the following independent test, carried out by SP Technical Research Institute of Sweden and Betongintitutet (CBI, Swedish Cement and Concrete Research Institute), we can demonstrate that the adhesion of a floor covering on a ground concrete floor is better than on a blasted concrete floor.

Tensile strength

Test 1
Ground: 4.65 MPa
Blasted: 2.95 MPa

Test 2
Ground: 4.95 MPa
Blasted: 4.59 MPa

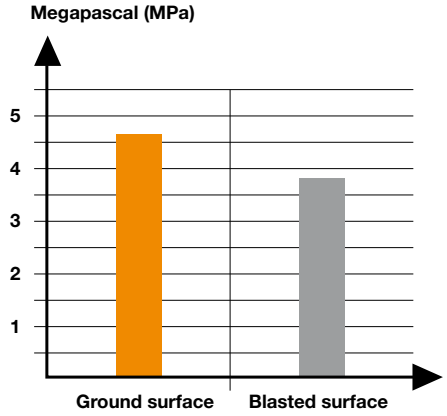
Test 3
Ground: 4.25 MPa
Blasted: 3.83 MPa



The tests were carried out using a 3 mm self-levelling epoxy.

Tensile strength average value

Ground surface: 4.62 MPa
Blasted surface: 3.79 MPa



All the test results clearly show that the break occurs in the concrete and not in the joint between the concrete and the floor covering. The results also show that the shot blasted surface causes greater variations between the highest and lowest result (1.64 MPa), compared with the ground surface (0.7 MPa). This suggests that a shot blasted surface contains peaks with a worse C value and that the shot blasted surface risks containing micro-cracks.

For more detailed test results and more images, visit **www.htc-floorsystems.com**

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