Abrasives for perfect surfaces

METAL

Abrasives for perfect surfaces
VSM – More than just three letters

VSM stands for competence, quality and customer orientation

Very few others understand grinding processes like we do. Not only do we grind every surface to precision, we also analyse the specific grinding applications of our customers so that we can always find the best, long-term solution. Process-related expertise is one of the distinguishing features of VSM.

We know abrasives

Because we understand them. VSM develops and produces all the main preliminary products such as backing fabrics, resinoid bonds and abrasive grains at its Hanover site. By doing so, we fulfil our high, self-imposed requirements in industry, the commercial and trade sector. The continuous development of further grain compositions, their refinement and processing ensures that VSM remains one of the most experienced manufacturers of ceramic grain worldwide.

Application-based expertise

We see the entire grinding processes of our customers as a challenge. A global network of VSM specialists provides expert advice wherever it is needed irrespective of whether your company is large or small. Thanks to our close collaboration with machine manufacturers, cutting fluid experts and research institutes, we ensure that our customers can benefit from technological trends as soon as possible.

We make our expertise available for you

The VSM Technical Center (TC) in Hanover provides an opportunity for product training, seminars and extensive application tests. Customer applications can be adjusted and results reviewed. This service from VSM reduces downtimes and productivity losses for our customers.

Certified and recognized worldwide

VSM has been certified to ISO standard 9001:2008 as its basis for quality assurance for many years. In addition, it is a member of FEPA, oSa and the German Abrasives Association (VDS).
Company founded in 1864 in Hanover-Hainholz

More than 150 years’ experience in the production of coated abrasives.

More than 800 employees are working on behalf of our customers worldwide each day.

VSM worldwide

VSM is operating in more than 70 countries with international subsidiaries and numerous partners.

Certified and recognized worldwide

Extremely high level of safety

All VSM abrasives have been certified by internationally recognized testing bodies for many years and therefore conform to the highest safety standards.

Internal research and development

High vertical integration

VSM has its own internal grain and cloth production and develops almost all of its preliminary products itself. This enables us to achieve a consistently high quality of abrasives.

Made in Germany

Headquarters in Hanover

VSM stands for competence, quality and customer orientation.

Our global sales network with numerous subsidiaries and expert sales partners ensures proximity to our customers. Further addresses and details can be found on our website at www.vsmabrasives.com
Our products

For almost every application
From welding seams to sheet metal working, vehicle bodywork and cast materials: VSM produces more than 200 different product ranges that can be worked into rolls, discs, belts and sheets on a range of different backing materials and in various shapes. Furthermore, we supply high-quality preliminary products to specialist customizers. This means that virtually any requirement can be met by VSM abrasives.

You can always rely on the high level of advisory expertise of our applications engineers and VSM consultants and the extensive product range for a wide variety of technical challenges.

You can rely on the following:
> High-performance products made in Germany
> On-site application-based advice
> Reliable delivery performance
> Analyses of problems and preliminary tests in the VSM Technical Center
> Expertise based on co-operating with more than 60 machine manufacturers worldwide
> A global distribution network with subsidiaries and partners in more than 70 countries
Benefit from efficient VSM abrasives
Whether you want a high stock removal rate or the perfect surface, VSM can offer the appropriate abrasive for every requirement in metalworking. Be it flat surface grinding, cylindrical grinding, off-hand grinding or hand-held machines, our products will always meet the highest standards for service life, stock removal capacity and surface quality.

A high stock removal rate requires aggressive grinding with low physical strain for the user. The aim is a high stock removal rate per time unit.

Consistent and reproducible surface results and specific surface finishes, surface roughnesses and gloss levels are crucial for a perfect finish.

VSM offers a complete product range
For all grinding tasks – in particular for metal working – we will provide you with the appropriate grinding tools on a cloth, paper or vulcanised fibre backing. From VSM DIAMOND to VSM CERAMICS, VSM COMPACTGRAIN and VSM NON-WOVEN, in a wide range of different shapes and dimensions, our product range has everything.
The right grain for every application

Efficient grinding

VSM produces abrasives for a wide range of applications. From a high stock removal rate to a reproducible surface, our range of abrasives, with more than 25,000 items, will have the appropriate solution for your grinding process.

Due to their exceptional properties, VSM DIAMOND and VSM CBN abrasives produce outstanding results when machining hard and brittle materials and wear-resistant HVOF coatings (thermal spray coatings).

VSM ACTIROX stands for maximum stock removal and increased productivity due to its geometrically shaped ceramic grain. Our specialist products with a self-sharpening effect, VSM CERAMICS Plus and VSM CERAMICS, achieve an extremely high stock removal rate and an extraordinarily long service life.

The newest long-term abrasive VSM ILUMERON achieves the highest gloss levels and perfect surface finishes. It also allows grinding and polishing to take place in a single processing step. VSM COMPACTGRAIN Plus and VSM COMPACTGRAIN are characterised by their extremely long service life and an even surface. These product series are made of granulate that contains numerous abrasive grains. This technology continuously exposes unused, sharp grain tips.

VSM ZIRCONIA ALUMINIA, VSM ALUMINUM OXIDE and VSM SILICON CARBIDE are general all-rounders for a large number of applications. They can be used for processing metals, wood, plastics, glass, ceramics and stone. VSM NON-WOVEN products ensure a flawless surface finish, irrespective of whether they are used for decorative satin finishes, cleaning or light deburring work.
VSM grain technologies in the spotlight

Top grain technologies for high stock removal rates

VSM ACTIROX

> Geometrically formed ceramic grain
> Maximum stock removal and a faster cut for superalloys and stainless steels
> Cool grinding extends the service life thanks to VSM TOP SIZE

VSM CERAMICS Plus - (CER Plus)

> Optimised self-sharpening effect when processing high-alloyed steels ensures very high stock removal rates
> Reduced temperature in the contact area
> Significantly extended service life

VSM CERAMICS - (CER)

> Top product with self-sharpening effect for processing non-alloyed steels and stainless steels
> High removal rate
> Cool grinding allows longer contact times

Top grain technologies for perfect surface finishes

VSM ILUMERON

> Full faced coated long-term abrasive with special bonding
> For fine and consistent surfaces with high gloss levels
> Developed primarily for processing stainless steels, superalloys and non-alloyed steels

VSM COMPACTGRAIN Plus - (COM Plus)

> Long-term abrasive that wears uniformly down to the backing material and achieves a consistent surface finish
> Optimised reserve grain capacity
> Improved bonding properties
> Continuous self-sharpening thanks to the granulate structure

VSM COMPACTGRAIN - (COM)

> Long-term abrasive achieves reproducible surface finishes and consistent roughness
> Uniform stock removal
> Continuous self-sharpening thanks to the granulate structure

VSM grinding-active additional layers

VSM TOP SIZE is recommended for dry machining heat-resistant stainless steels and non-ferrous metals. The grinding-active additional layer improves the cutting performance whilst reducing the temperature in the contact zone. This significantly extends the service life of the abrasive.

VSM STEARATE Plus and VSM STEARATE significantly reduce chip adhesion when processing non-ferrous metals and thus also reduce clogging of the abrasive. The service life is assured and extended so dramatically that excellent stock removal is achieved even after longer periods of use.
VSM abrasives are suitable for a wide range of metal applications.

<table>
<thead>
<tr>
<th>Application</th>
<th>Images</th>
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<tbody>
<tr>
<td>Tank and plant construction</td>
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<tr>
<td>Cast and forged parts</td>
<td><img src="image6.jpg" alt="Cast and forged parts" /></td>
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<tr>
<td>Special parts</td>
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<td>Implants and medical instruments</td>
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<td>Rolls</td>
<td><img src="image13.jpg" alt="Rolls" /></td>
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### Product Overview

- **Stainless steel**
- **Unalloyed steel**
- **Non-ferrous metals**

### Backing Options
- **Wide belt grinding**
- **Flat grinding**
- **Centerless grinding**
- **Robotic grinding**
- **Slack of belt**
- **Angle grinding**
- **Disc sanding**
- **Dynafile sanding**
- **Hand sanding**

#### Grain Type
- **Hand sanding**
- **Disc sanding**
- **Dynafile sanding**
- **Hand sanding**

#### Feature
- **Coated with point-shaped abrasives**
- **Velour-backed, coated with point-shaped abrasives**
- **Fully coated**
- **Point-shaped coated**
- **Extremely flexible**
- **Very flexible**
- **Flexible**
- **Sturdy**
- **Very sturdy**
- **Extremely sturdy**

### Legend
- **CER = CERAMICS**
- **ZA = ZIRCONIA ALUMINA**
- **AO = ALUMINIUM OXIDE**
- **SIC = SILICON CARBIDE**

### Flexibility of the backing material

<table>
<thead>
<tr>
<th>Backing</th>
<th>Grain type</th>
<th>Feature</th>
<th>3.15 µm</th>
<th>2.15 µm</th>
<th>1.5 µm</th>
<th>1.0 µm</th>
<th>0.6 µm</th>
<th>0.4 µm</th>
<th>0.3 µm</th>
<th>0.2 µm</th>
<th>0.15 µm</th>
<th>0.1 µm</th>
<th>0.05 µm</th>
<th>VSM Series</th>
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</table>

### Stock Removal

- **Surface**
- **CER = CERAMICS**
- **ZA = ZIRCONIA ALUMINA**
- **AO = ALUMINIUM OXIDE**
- **SIC = SILICON CARBIDE**

### Merkmalen
- **TOP SIZE**
- **STEARATE**
- **ANTISTATIC**
- **Klettier**

### Note
- Grinding-active additional layer reduces the temperature in the grinding zone.
- The combination of VSM CERAMICS and STEARATE significantly reduces chip adhesion.
- The combination of VSM ALUMINUM OXIDE and STEARATE ensures significantly reduced chip adhesion.
- Prevents adhesion of grinding dust.

### Contact Pressure
- **for low to medium contact pressure**
- **for medium contact pressure**
- **for medium to high contact pressure**
- **also suitable for net applications**
- **Antistatic**
- **Klettier**

### Flexibility of the Backing Material

- **Extremely flexible**
- **Very flexible**
- **Flexible**
- **Sturdy**
- **Very sturdy**
- **Extremely sturdy**

### Series

- **VSM DIAMOND**
- **VSM ACTIROX**
- **VSM CERAMICS**
- **VSM CERAMICS Plus**
- **VSM ACTIROX**
- **VSM DIAMOND/CBN**
- **VSM CERAMICS / VSM CERAMICS Plus**

### Contact Pressure

- **0.15 mm**
- **0.2 mm**
- **0.3 mm**
- **0.4 mm**
- **0.6 mm**
- **1.0 mm**
- **1.5 mm**
- **2.15 mm**
- **3.15 mm**
# Product overview

Last revised: 10/2018

<table>
<thead>
<tr>
<th>Stock removal</th>
<th>Surface</th>
<th>Legend:</th>
<th>Merkmale:</th>
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<tbody>
<tr>
<td>Cloth VSM IMUMERON</td>
<td>VSM COMPACTGRAIN</td>
<td>CER = CERAMICS</td>
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<td>Cloth VSM COMPACTGRAIN (AO)</td>
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<td>SIC = SILICON CARBIDE</td>
<td>antistatic</td>
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## Legend:
- NEW

## Merkmale:
- \$ for low to medium contact pressure
- for medium contact pressure
- for medium to high contact pressure
- also suitable for wet applications
- TOP SIZE
- STEARATE
- \$ STEARATE
- antistatic
- klettiert

## Flexibility of the backing material (last letter of the series name):
- E extremely flexible
- F very flexible
- T semi-sturdy
- Y very sturdy
- X extremely sturdy

## Stock removal

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<td>VSM NON-WOVEN (AO / SIC)</td>
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</tbody>
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## Flexibility of the backing material (last letter of the series name):
- **C** = CERAMICS
- **Z** = ZIRCONIA ALUMINA
- **A** = ALUMINIUM OXIDE
- **S** = SILICON CARBIDE

- **E** = extremely flexible
- **F** = very flexible
- **J** = flexible
- **T** = semi-sturdy
- **X** = sturdy
- **Y** = very sturdy
- **Z** = extremely sturdy

## Merkmal:
- **TOP SIZE**
- **STEARATE**
- **antistatic**
- **klettiert**

- **TOP SIZE**: Grinding-active additional layer reduces the temperature in the grinding zone
- **STEARATE**: The combination of VSM CERAMICS and STEARATE significantly reduces chip adhesion
- **antistatic**: prevents adhesion of grinding dust
- **klettiert**: products with a velour backing

## Backstand
- **Backstand**
- **Wide belt grinding**
- **Flat grinding**
- **Centerless grinding**
- **Slack of belt**
- **Angle grinding**
- **Disc sanding**
- **Dynaflex sanding**
- **Hand sanding**

## Backing Grain type
- **Feature**

## Stock removal

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- **T** = semi-sturdy
- **X** = sturdy
- **Y** = very sturdy
- **Z** = extremely sturdy
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