



# 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 750 employees are working on behalf of our customers worldwide each day.



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

### Certified and recognized worldwide SA FEPA COSTANDED TO NORD

### 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.



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.



Jumbos



Wide belts

Rolls





Narrow belts

Discs

### 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

## VSM – Your specialist for metalworking

### 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.

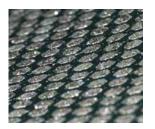
A **high stock removal** rate requires aggressive grinding with low physical strain for the user. The aim is a high stock removal rate per time unit.

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.

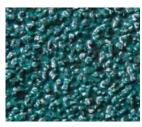
### The right grain for every application



VSM DIAMOND/CBN



**VSM CERAMICS** 



VSM ZIRCONIA ALUMINA



VSM SILICON CARBIDE



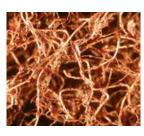
VSM CERAMICS Plus



VSM COMPACTGRAIN



**VSM ALUMINIUM OXIDE** 



VSM NON-WOVEN

### For perfect grinding

VSM produces abrasives for a wide range of applications. From a high stock removal rate to a reproducible surface, our product range with more than 200 series will have the appropriate solution for your grinding process.

Due to their hardness, **VSM DIAMOND** abrasives produce outstanding results when machining hard and brittle materials. After diamond, CBN is the hardest abrasive grain. It is particularly suited to machining hard steels and titanium alloys.

Our specialist products with a self-sharpening effect, VSM CERAMICS Plus, VSM CERAMICS and VSM ZIRCONIA ALUMINA, achieve an extremely high stock removal rate and extraordinary service lives.

**VSM COMPACTGRAIN**, VSM's own long-term abrasive produces much more uniform surface finishes compared with conventional abrasives and reduces set-up times.

**VSM ALUMINIUM OXIDE** is suitable as a universal grain for machining metals, wood and plastics. The extremely hard **VSM SILICON CARBIDE** is recommended for machining titanium, glass, minerals, ceramics, porcelain and stone.

**VSM NON-WOVEN** ensure a flawless surface finish, irrespective of whether they are used for decorative satin finishes, cleaning or light deburring work.

### The VSM self-sharpening concept

### **NEW** VSM CERAMICS Plus (CER Plus)

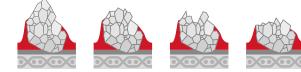




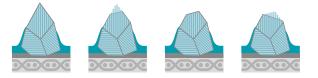




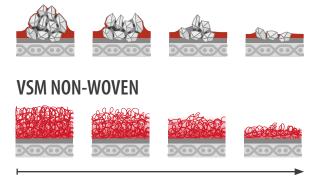
### **VSM CERAMICS (CER)**



### VSM ZIRCONIA ALUMINA (ZA)



### VSM COMPACTGRAIN (COM)



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Grinding time

### VSM additional grinding-active layers



### **VSM STEARATE**

### For high stock removal

VSM abrasives with ceramic and zirconia alumina grains are the products we recommend when high stock removal rates are required. Continuous self-sharpening of the grain guarantees long-lasting high performance.

VSM CERAMICS are distinguished by their cool cutting characteristics. This enhances the service life of the abrasive. The risk of surface discoloration is considerably reduced.

The new VSM CERAMICS Plus makes machining of extremely hard surfaces easier. The fracture behaviour of the abrasive has been considerably improved, which enhances the service life even more.

### For perfect surface finishes

VSM COMPACTGRAIN describes an abrasive granulate which is composed of numerous individual abrasive grains. A uniform stock removal rate and a consistent roughness across the entire life of the product and an extremely long service life are the most impressive characteristics of the VSM COMPACTGRAIN series. VSM NON-WOVEN perfectly follows the shape of a workpiece. This produces premium surface qualities which can easily be reproduced.

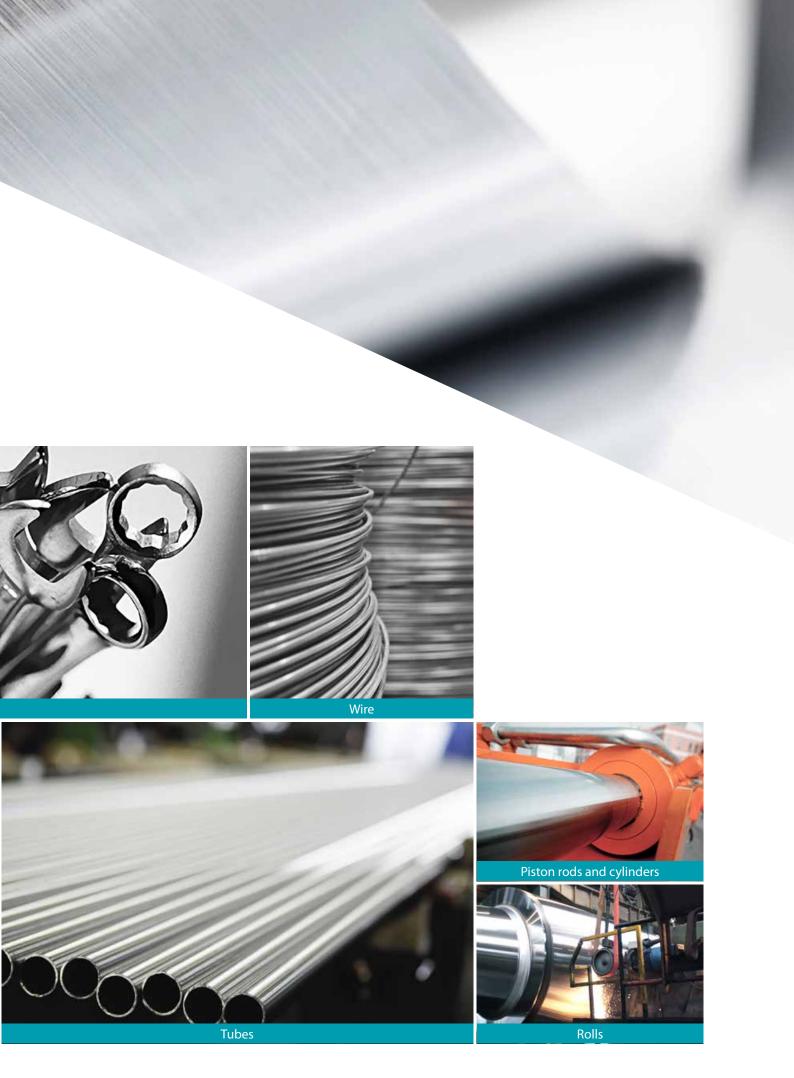
For applications involving the dry machining of stainless and high-temperature steels we recommend using VSM TOP SIZE products. Additional layers with grinding additives can further improve the cutting performance of VSM abrasives whilst reducing the workpiece temperature in the contact area considerably.

The use of VSM STEARATE leads to an increase in productivity when machining wrought alloys (NF metals). This effect is achieved by effectively preventing clogging of the abrasive.

## Your application

VSM abrasives are suitable for a wide range of metal applications.





### **Product overview**

Stainless steel	Unalloyed steel	Non-ferrous metals	Backstand	Wide belt grinding	Flat grinding	Centerless	Robotic grinding	Slack of belt	Angle ginding	Disc sanding	Dynafile sanding	Hand sanding	Backing
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			Backstand	Wide belt grinding	Flat grinding	Centerless	Robotic grinding	Slack of belt	Angle ginding	Disc sanding	Dynafile sanding	Hand sanding	Backing
			•	•	•	•	•						Cloth
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			•				•	٠			٠		Cloth
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			•	٠	٠	٠							Cloth
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			•	٠	٠	•	•						Cloth
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Last revised: 04/2017

### Legend:

- CER = CERAMICS

○ for low to medium contact pressure  $ZA = ZIRCONIA ALUMINA \odot$  for medium contact pressure

AO = ALUMINIUM OXIDE • for medium to high contact pressure **# antistatic** 

SIC = SILICON CARBIDE  $\diamond$  also suitable for wet applications

**TOP SIZE STEARATE** 

additional grinding-active layer separating layer, prevents clogging prevents adhesion of grinding dust velour-backed products with a velour backing

		Stock re	emoval							Surface	
Grain type	Feature			357 μm	251 μm	126 µm	91 µm	64 µm	46 µm 30 µm		VSM Series
VSM DIAMOND	coated with point-shaped abrasives										DA931X
VSM DIAMOND	coated with point-shaped abrasives										DA930X DA930K DA920Y WSA
VSM DIAMOND	velour-backed, coated with point-shaped abrasives										DA930K
VSM DIAMOND	fully coated										DA920Y
VSM DIAMOND	velour-backed, fully coated										DA920K
VSM CBN	point-shaped coated										BA970X
VSM CBN	velour-backed, coated with point-shaped abrasives										BA970X NO WSA
VSM CBN	fully coated										BA960Y S
Grain type	Feature	20 20 20	% %	5 4	<u> </u>	100	180 220	240 280 320	360 500 600	800 1000 1200	
VSM CERAMICS Plus	◀ TOP SIZE, ᠔										XK885Y
VSM CERAMICS Plus	▼ TOP SIZE, ბ										XK880Y
VSM CERAMICS Plus	▼ TOP SIZE										XK885T
VSM CERAMICS	▼ TOP SIZE, ბ										XK888Z
VSM CERAMICS	▼ TOP SIZE, ბ										XK877Z
VSM CERAMICS	▼ TOP SIZE, ბ										XK870Y
VSM CERAMICS	▼ TOP SIZE, ◊										XK875X
VSM CERAMICS	▼ TOP SIZE, ბ										XK870X
VSM CERAMICS	◀ TOP SIZE, velour-backed										XK870K SIIId S)IWS   XK850Y SUBUC   XK850X WB2000000000000000000000000000000000000
VSM CERAMICS	✓ TOP SIZE, ◊										XK850Y SI
VSM CERAMICS	▼ TOP SIZE, ◊										XK850X
VSM CERAMICS	✓ TOP SIZE										XK870T
VSM CERAMICS	◀ TOP SIZE, ᠔										XK870J
VSM CERAMICS	✓ TOP SIZE										XK870F
VSM CERAMICS	◀ TOP SIZE, velour-backed										XL870F
VSM CERAMICS	<b>▼ STEARATE,</b> ᠔										XK733X W
VSM CERAMICS	٥										XK760Y 😕
VSM CERAMICS	0										XK760X
VSM CERAMICS	velour-backed										XK760K
VSM CERAMICS Plus	▼ TOP SIZE										XF885
VSM CERAMICS	▼ TOP SIZE										XF870
VSM CERAMICS	▼ TOP SIZE										XF850
VSM CERAMICS											XF760
VSM CERAMICS Plus											XP780
VSM COMPACTGRAIN (CER)	٥										XK789X N
VSM COMPACTGRAIN (CER)	٥										XK789X NIV   XK786X KK786X   KK790Y KK719X   LK719X OWOUNDA
VSM COMPACTGRAIN Plus	٥										KK790Y OVAN
VSM COMPACTGRAIN (AO)	٥										LK719X
VSM COMPACTGRAIN (AO)	٥										KK718X WSA

### **Product overview**

Stainless steel	Unalloyed steel	Non-ferrous metals	Backstand	Wide belt grinding	Flat grinding	Centerless	Robotic grinding	Slack of belt	Angle ginding	Disc sanding	Dynafile sanding	Hand sanding	Backing
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SIC = SILICON CARBIDE  $\diamond$  also suitable for wet applications

Stock removal

**TOP SIZE STEARATE** <sup>4</sup> antistatic

additional grinding-active layer separating layer, prevents clogging prevents adhesion of grinding dust velour-backed products with a velour backing

Surface

Grain type	Feature	25 <sup>16</sup>	8 % <del>6</del>	0, 0, 0	2 <u>3</u>	120	7 7 77 2 40 2 80	320	400 600 600	800 1000 1200	VSM Series	
VSM COMPACTGRAIN (AO)	▼ TOP SIZE, ◊										КК834Х	
VSM COMPACTGRAIN (AO)	٥									1	KK712Y	
VSM COMPACTGRAIN (AO)	٥										KK712X	
VSM COMPACTGRAIN (AO)											KK712J	
VSM COMPACTGRAIN (AO)	velour-backed										KL712J	
VSM COMPACTGRAIN (AO)											KK731X	
VSM COMPACTGRAIN (AO)	velour-backed										КК731К	
VSM COMPACTGRAIN (AO)	٥										KK772X	
VSM COMPACTGRAIN (AO)	velour-backed										КК772К	
VSM COMPACTGRAIN (AO)	٥										KK772J	
VSM COMPACTGRAIN (AO)											KK712F	RAIN
VSM COMPACTGRAIN (AO)	٥										KK770J	ACTG
VSM COMPACTGRAIN (SIC)	٥										MK748X	VSM COMPACTGRAIN
VSM COMPACTGRAIN (SIC)	٥										CK748X	UC N
VSM COMPACTGRAIN (SIC)	٥										MK742X	N
VSM COMPACTGRAIN (SIC)	٥										CK918X	
VSM COMPACTGRAIN (SIC)	٥										CK772T	
VSM COMPACTGRAIN (SIC)											CK743J	
VSM COMPACTGRAIN (SIC)											CK742J	-
VSM COMPACTGRAIN (AO)											KF712	
VSM COMPACTGRAIN (AO)											KF736	-
VSM COMPACTGRAIN (AO)											KP712	-
VSM COMPACTGRAIN (AO)	velour-backed										KP712K	
VSM COMPACTGRAIN (SIC)											CP772	
VSM ZIRCONIA ALUMINA	◀ TOP SIZE, ᠔										KK815Y	
VSM ZIRCONIA ALUMINA	٥										KK717	
VSM ZIRCONIA ALUMINA	٥										KK716	-
VSM ZIRCONIA ALUMINA	٥										KK715X	-
VSM ZIRCONIA ALUMINA	٥										ZK745X	
VSM ZIRCONIA ALUMINA	▼ TOP SIZE, ◊										ZK744X	
VSM ZIRCONIA ALUMINA											ZK713X	NIA
VSM ZIRCONIA ALUMINA											ZK713T	ZIRCO
VSM ZIRCONIA ALUMINA	velour-backed										ZK713K	VSM ZIRCONIA
VSM ZIRCONIA ALUMINA	▼ TOP SIZE										ZF844	
VSM ZIRCONIA ALUMINA											ZF745	
VSM ZIRCONIA ALUMINA											ZF714	
VSM ZIRCONIA ALUMINA											ZF713	

### **Product overview**

Stainless steel	Unalloyed steel	Non-ferrous metals	Backstand	Wide belt grinding	Flat grinding	Centerless	Robotic grinding	Slack of belt	Angle ginding	Disc sanding	Dynafile sanding	Hand sanding	Backing
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			0	۲	0	0	0				0		Cloth
			۲								•		Cloth
			0	0	0	0							Cloth
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Stock removal

**TOP SIZE STEARATE** <sup>4</sup> antistatic

additional grinding-active layer separating layer, prevents clogging prevents adhesion of grinding dust velour-backed products with a velour backing

Surface

			Surface
Grain type	Feature	16 16 16 17 17 17 10 10 10 10 10 10 10 10 10 10 10 10 10	8 8 2 VSM Series
VSM ALUMINIUM OXIDE	✓ TOP SIZE		КК813Х
VSM ALUMINIUM OXIDE			KK812X
VSM ALUMINIUM OXIDE	<b>▼</b> STEARATE		KK732X
VSM ALUMINIUM OXIDE	٥		KK711Y
VSM ALUMINIUM OXIDE			KK711X
VSM ALUMINIUM OXIDE	velour-backed		KK711K
VSM ALUMINIUM OXIDE			KK711T
VSM ALUMINIUM OXIDE			KK511X
VSM ALUMINIUM OXIDE			KK511J
VSM ALUMINIUM OXIDE	✓ TOP SIZE		КК841F 🖁
VSM ALUMINIUM OXIDE	✓ TOP SIZE,		KK832F 🕇
VSM ALUMINIUM OXIDE	<b>▼</b> STEARATE		KK841F JIXO   KK832F KK532F   KK511F KK711E   KK711E KK114F
VSM ALUMINIUM OXIDE			KK511F
VSM ALUMINIUM OXIDE			КК711Е
VSM ALUMINIUM OXIDE			KK114F
VSM ALUMINIUM OXIDE			KK112F
VSM ALUMINIUM OXIDE			KK24
VSM ALUMINIUM OXIDE	✓ TOP SIZE		KF808
VSM ALUMINIUM OXIDE		• • • • • • • • • • • • • • • • • • • •	KF708
VSM ALUMINIUM OXIDE	✓ STEARATE		KP532E
VSM ALUMINIUM OXIDE			KP709
VSM ALUMINIUM OXIDE			KP508E
VSM ALUMINIUM OXIDE	velour-backed		KP508K
VSM ALUMINIUM OXIDE	STEARATE, velour-backed		KP131K
VSM SILICON CARBIDE	∮antistatic, ◊		СК727Ү 📊
VSM SILICON CARBIDE	∮ antistatic		CK722Y CK721X CK721X
VSM SILICON CARBIDE	٥		CK721X
VSM SILICON CARBIDE			CK721J 8
VSM SILICON CARBIDE			CK721J NOTIS SF08 CP501 KS
VSM SILICON CARBIDE			CP501
VSM SILICON CARBIDE	velour-backed		CP501K
VSM NON-WOVEN (AO)	٥		KV707Y
VSM NON-WOVEN (AO/SIC)	٥		KV707X
VSM NON-WOVEN (AO)	٥		KV707T
VSM NON-WOVEN (AO)	velour-backed, $\diamond$		KV707K
VSM NON-WOVEN (AO)			KV701X
VSM NON-WOVEN (AO)	velour-backed		KV701K
VSM NON-WOVEN (AO)	٥		KV701
VSM NON-WOVEN (AO)	٥		KV701X KV701K KV701 KV701 KV301
VSM NON-WOVEN (SIC)			CV701X >
VSM NON-WOVEN (SIC)	٥		CV701
VSM NON-WOVEN (SIC)	٥	<b>=</b>	CV301
VSM NON-WOVEN (AO)			KV707
VSM CORK (SIC)	٥		CK917C X800 WSN
			VSM

### A worldwide leader in abrasives.



### **Europe**

Germany (Headquarters)

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### Great Britain

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