



# CYLINDRICAL GRINDING

Grinding of tubes, pipes and other cylindrical parts

# VSM – Your specialist for flat surface grinding

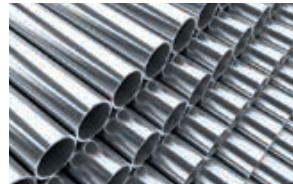
## Benefit from VSM's high-performing abrasives:

- > High stock removal per time unit
- > Extended service life and low set-up costs as a result
- > Consistent and reproducible surface finishes
- > Defined scratch patterns, roughness and gloss value
- > **VSM TOP SIZE** products achieve
  - Enhanced machining capacity
  - A reduced temperature in the grinding area and because of this structural changes are avoided

## With VSM you can rely on receiving:

- > High-performance products made in Germany
- > On-site application-based advice
- > Reliable delivery performance
- > Analyses of problems and preliminary tests in the VSM Competence 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

## Your application



*Tubes*



*Piston rods*



*Cylinders*



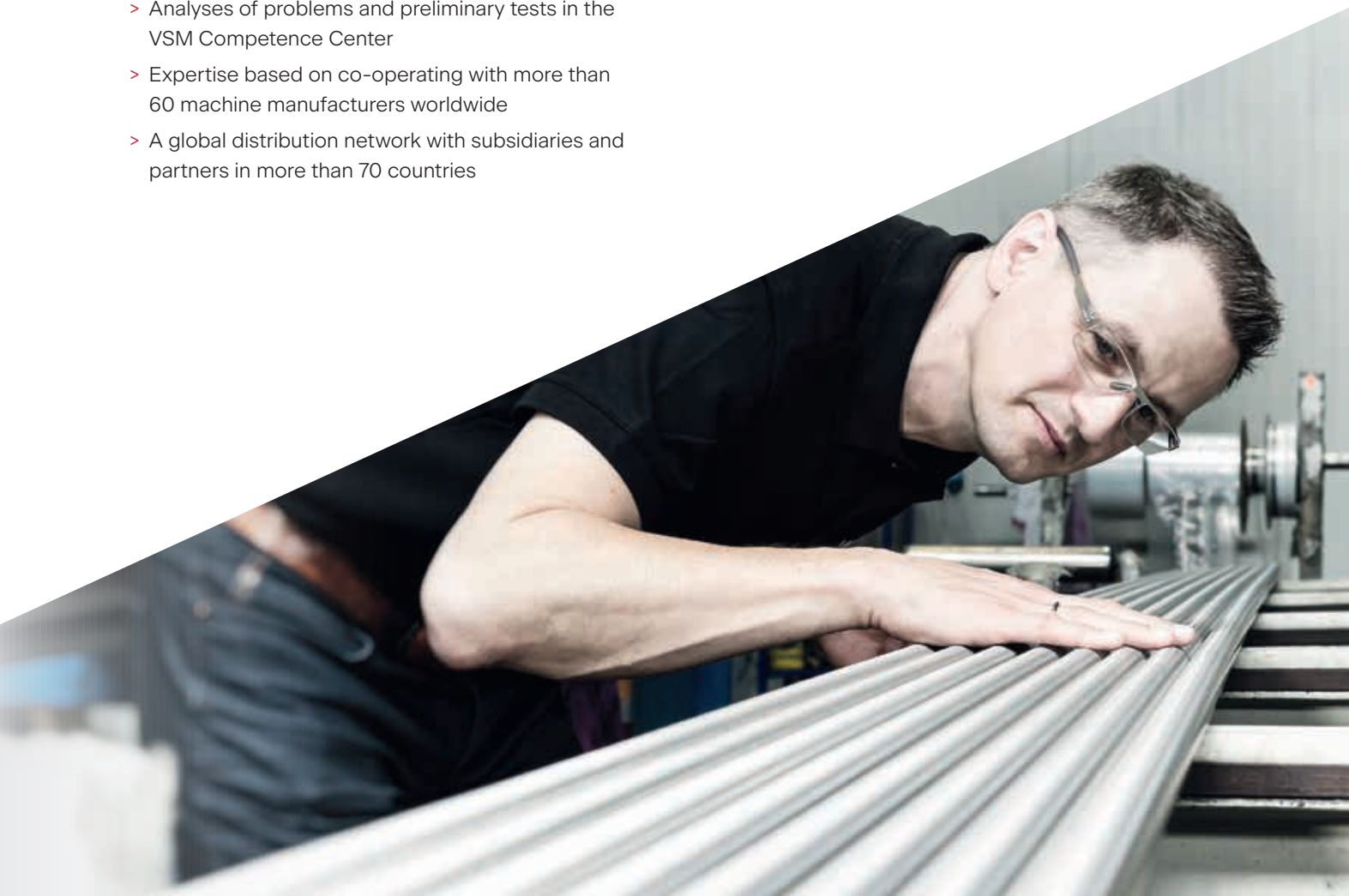
*Furniture*



*Architecture*



*Containers*



# VSM grain technologies in the spotlight

## For high stock removal rates



### VSM ACTIROX

- > **Geometrically shaped** 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

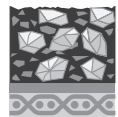
- > **Optimised self-sharpening effect** when processing high-alloyed steels ensures very high stock removal rates
- > Reduced temperature in the contact area
- > Significantly extended service life



### VSM CERAMICS

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

## 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

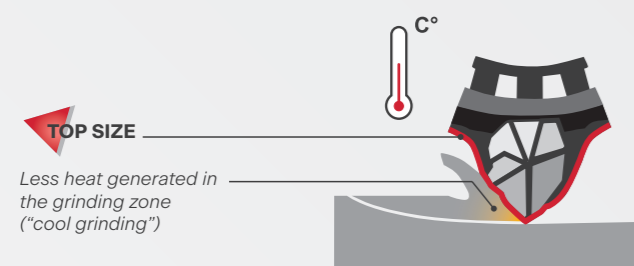
- > **Long-term abrasive** that wears down uniformly to the backing material, achieving a consistent surface finish
- > Optimised reserve grain capacity
- > Improved bonding properties
- > Continuous self-sharpening thanks to the granulate structure



### VSM COMPACTGRAIN

- > **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



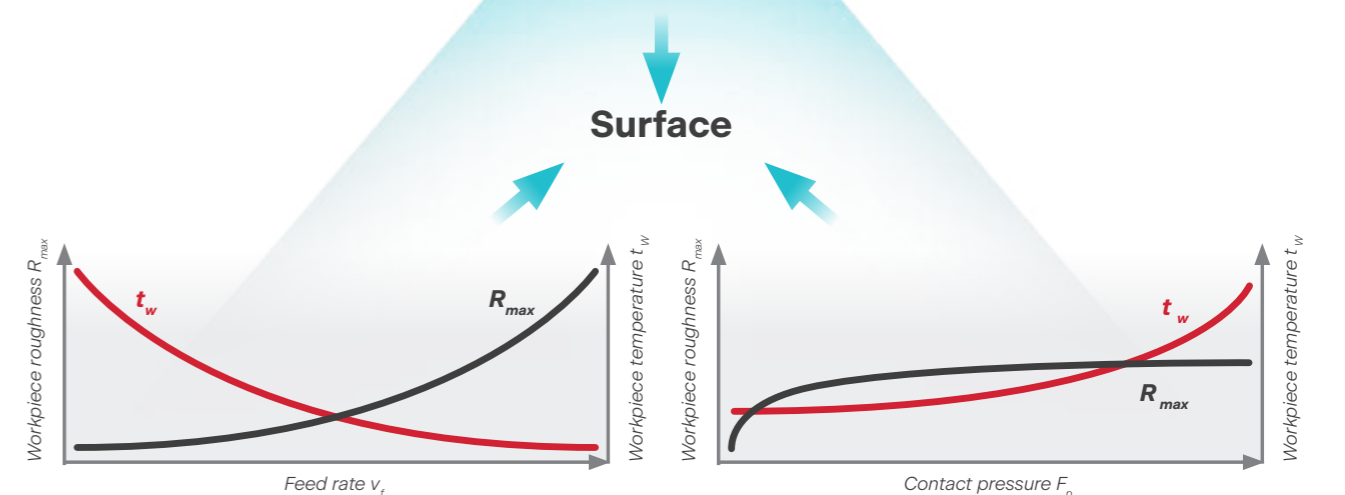
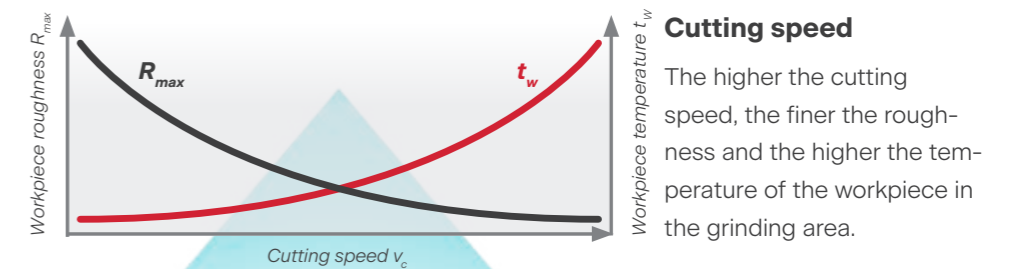
Less heat generated in the grinding zone ("cool grinding")

**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 ALU-X** significantly reduces chip adhesion when processing non-ferrous metals and thus also reduces 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.

# Grinding parameters

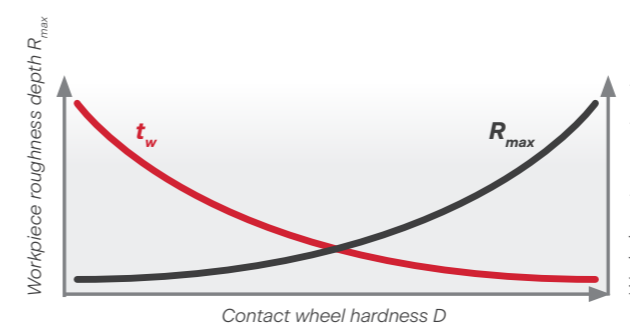


### Feed rate

The higher the feed rate, the coarser the roughness, and the lower the temperature of the workpiece in the grinding area.

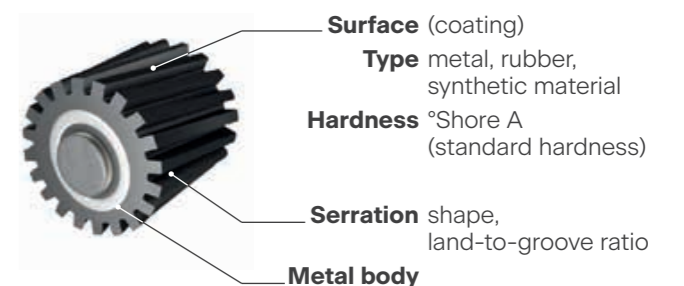
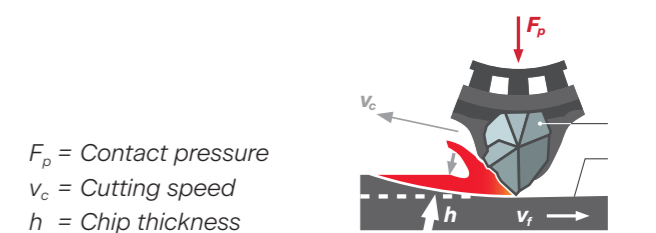
### Contact pressure

The higher the contact pressure, the higher the temperature of the workpiece, because the abrasive grains penetrate deeper into the workpiece. There is hardly any change in the roughness of the workpiece.



### Contact wheel hardness

The harder the contact wheel, the greater the workpiece roughness depth and the lower the workpiece temperature.



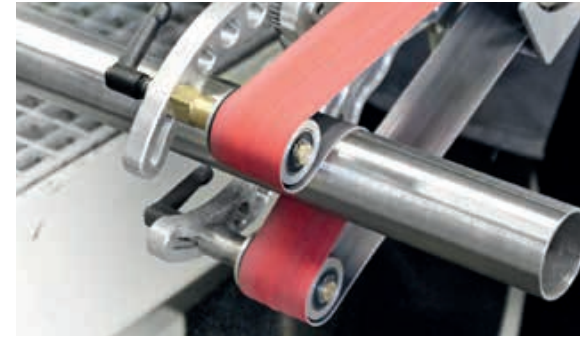
# Grinding of tubes and bars



Grinding of longitudinally welded tubes



Centerless grinding of tubes and bars



Cylindrical grinding of tubes and bars using hand-held machines



Recommended products

VSM series	Grain type	Grit size
<b>XK885Y</b>	CER Plus	20 – 120
<b>XK850X</b>	CER	36 – 80, 120
<b>KK815Y</b>	ZA	36 – 100
<b>ZK713X</b>	ZA/AO	24 – 320
<b>XK789X</b>	COM (CER)	40, 60, 80
<b>KK791Y</b>	COM Plus (AO)	60 – 800
<b>KK718X</b>	COM (AO)	60 – 600
<b>CK748X</b>	COM (SIC)	80 – 400
<b>CK772T</b>	COM (SIC)	120 – 1200



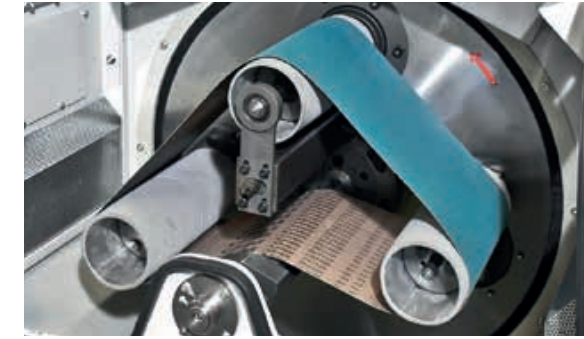
Recommended products

VSM series	Grain type	Grit size
<b>XK880Y</b>	CER Plus	20 – 120
<b>XK785Y</b>	CER Plus	36 – 120
<b>XK760X</b>	CER	24 – 120
<b>ZK713X</b>	ZA/AO	24 – 320
<b>XK786X</b>	COM (CER)	60, 80, 120
<b>KK791Y</b>	COM Plus (AO)	60 – 600
<b>KK718X</b>	COM (AO)	60 – 600
<b>KK712X</b>	COM (AO)	80 – 600
<b>CK748X</b>	COM (SIC)	80 – 400
<b>KK790Y</b>	COM Plus (AO)	60 – 600
<b>CK772T</b>	COM (SIC)	120 – 1200
<b>RK700X</b>	AO	80, 180 – 1200
<b>CK917C</b>	CORK (SIC)	320-800, 1200
<b>KV710X</b>	NV (AO/SIC)	coarse – ultra fine

**Legend**

DA = VSM DIAMOND	COM (CER) = VSM COMPACTGRAIN Ceramics	SIC = VSM SILICON CARBIDE
CER Plus = VSM CERAMICS Plus	COM (AO) = VSM COMPACTGRAIN Aluminium Oxide	NV (AO) = VSM NON-WOVEN Aluminium Oxide
CER = VSM CERAMICS	COM (SIC) = VSM COMPACTGRAIN Silicon Carbide	NV (SIC) = VSM NON-WOVEN Silicon Carbide
ZA = VSM ZIRCONIA ALUMINA	AO = VSM ALUMINIUM OXIDE	CORK (SIC) = VSM CORK Silicon Carbide

# Wire grinding



Wire descaling



Recommended products

VSM series	Grain type	Grit size
<b>XK885Y</b>	CER Plus	20–120
<b>XK785Y</b>	CER Plus	36–120
<b>XK870X</b>	CER	24–120
<b>XK850X</b>	CER	36 – 80, 120
<b>XK870F</b>	CER/AO	60 – 400
<b>ZK713X</b>	ZA	24 – 320
<b>KK815Y</b>	ZA	36–100
<b>ZK713X</b>	ZA/AO	24–320
<b>KK715X</b>	ZA	24–80
<b>KK790Y</b>	COM Plus (AO)	60–600
<b>KK791Y</b>	COM Plus (AO)	60–600
<b>KK718X</b>	COM (AO)	60–600
<b>KK834X</b>	COM (AO)	80–240
<b>CK748X</b>	COM (SIC)	80–400

Recommended products

VSM series	Grain type	Grit size
<b>XK885T</b>	CER Plus	36, 40, 60, 80, 120
<b>XK870X</b>	CER	24 – 120
<b>XK850X</b>	CER	36 – 80, 120
<b>XK870F</b>	CER/AO	60 – 400
<b>ZK713X</b>	ZA	24 – 320
<b>KK772J</b>	COM (AO)	80 – 1200
<b>CK772T</b>	COM (SIC)	120 – 1200
<b>KK711T</b>	AO	50 – 500
<b>CK721X</b>	SIC	24 – 600
<b>KV710X</b>	NV (AO/SIC)	coarse – ultra fine

**Flexibility of the backing material** (last letter of the series name):

<b>E</b> extremely flexible	<b>X</b> sturdy
<b>F</b> very flexible	<b>Y</b> very sturdy
<b>J</b> flexible	<b>Z</b> extremely sturdy
<b>T</b> semi-sturdy	

# Grinding of cylindrically-shaped workpieces



Cylindrical grinding of piston rods and cylinders and grinding between centres



Recommended products

VSM series	Grain type	Grit size
<b>DA930X</b>	DA	46, 64, 91, 126, 251,357 (µm)
<b>XK885Y</b>	CER Plus	20–120
<b>XK785Y</b>	CER Plus	36–120
<b>XK760X</b>	CER	24–120
<b>XK760X</b>	CER	24–120
<b>ZK713X</b>	ZA	24–320
<b>XK786X</b>	COM (CER)	60, 80, 120
<b>KK790Y</b>	COM Plus (AO)	60–600
<b>KK791Y</b>	COM Plus (AO)	60–600
<b>KK718X</b>	COM (AO)	60–600
<b>KK712X</b>	COM (AO)	80–600
<b>CK748X</b>	COM (SIC)	80–400
<b>CK772T</b>	COM (SIC)	120–1200
<b>RK700X</b>	AO	80, 180 – 1200
<b>KV710X</b>	NV (AO/SIC)	coarse – ultra fine



Cylindrical grinding of rollers during roller pass



Recommended products

VSM series	Grain type	Grit size
<b>DA930X</b>	DA	46, 64, 91, 126, 251,357 (µm)
<b>XK885Y</b>	CER Plus	20–120
<b>XK785Y</b>	CER Plus	36–120
<b>XK850X</b>	CER	36–80, 120
<b>XK760X</b>	CER	24–120
<b>ZK744X</b>	ZA	36–80
<b>XK789X</b>	COM-CER	40, 60, 80
<b>KK790Y</b>	COM Plus (AO)	60–600
<b>KK791Y</b>	COM Plus (AO)	60–600
<b>CK748X</b>	COM-SIC	80–400
<b>CK918X</b>	COM-SIC	240–1200
<b>RK700X</b>	AO	80, 180 – 1200
<b>KV710X</b>	NV (AO/SIC)	coarse – ultra fine

# Closer to you



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