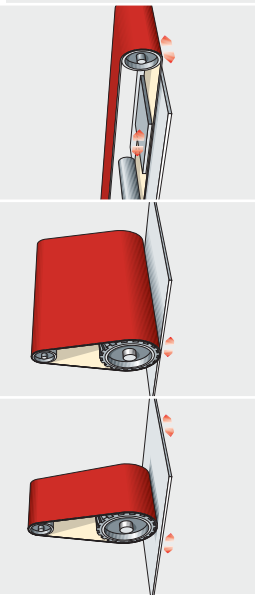


Flat grinding products

| Narrow belt grinding machine | Wide belt grinding machine | Long belt grinding machine | TOP SIZE | Grit size | Grain type | VSM series |
|------------------------------|----------------------------|----------------------------|----------|-------------------------------------|------------|------------|
| ○ | ● | | ▼ | 40 | CER | VSM XK870Y |
| ○ | ● | | ▼ | 24, 36-120 | CER | VSM XK870X |
| ● | ● | | | 24, 36-120 | CER | VSM XK760X |
| ● | ● | | ▼ | 36-100 | ZA | VSM KK815Y |
| ● | ● | | | 24, 36-80 | ZA | VSM KK715X |
| ○ | ● | | | 24, 36-80 | ZA | VSM ZK745X |
| ○ | ● | ● | | 24, 36-120 | ZA | VSM ZK713X |
| ○ | ● | ○ | ▼ | 80, 120, 180, 240 | COM-AO | VSM KK834X |
| ● | ● | | | 80, 120, 180, 240, 320, 400, 600 | COM-AO | VSM LK719X |
| ○ | ● | | | 50-80, 120, 180, 240, 320, 400, 600 | COM-AO | VSM KK718X |
| ○ | ● | ○ | | 80, 120, 180, 240, 320, 400, 600 | COM-AO | VSM KK712X |
| | ● | ○ | | 120, 180, 600 | COM-AO | VSM KK731X |
| ● | ● | | | 80,120, 180, 240, 320, 400 | COM-SIC | VSM MK748X |
| ● | ● | | | 80,120, 180, 240, 320, 400 | COM-SIC | VSM CK748X |
| ● | ● | | | 400, 600-1200 | COM-SIC | VSM CK918X |
| ○ | ● | ○ | | 800 | COM-SIC | VSM CK917X |
| ○ | ○ | ○ | ▼ | 40, 60-120 | AO | VSM KK813X |
| ○ | ○ | | | 36-320, 400, 500 | AO | VSM KK711Y |
| ○ | ○ | | | 20-320, 400 | AO | VSM KK711X |
| ○ | ○ | | | 24, 36-180 | SIC | VSM CK722Y |
| ○ | ○ | ○ | | 24, 36-240, 320, 400, 600 | SIC | VSM CK721X |
| ○ | ○ | | | 36, 40, 60, 80, 100, 120, 150, 180 | SIC | VSM CK727Y |
| | ○ | ○ | | 36, 40, 60-320 | AO | VSM KP709 |
| | ○ | ○ | | 24, 36-320, 400 | AO | VSM KP508E |
| | ○ | ○ | | 40, 60-500 | SIC | VSM CP501 |

Legend



- CER Ceramic grain
 - ZA Zirconia alumina
 - COM-AO Compact grain aluminium oxide
 - COM-SIC Compact grain silicon carbide
 - AO Aluminium oxide
 - SIC Silicon carbide
 - TOP SIZE Additional grinding layer for cooler grinding and higher cutting rate
- for low to medium contact pressure
 - ◉ for medium contact pressure
 - for medium to high contact pressure
 - cooling lubricant resistant

Our locations can be found at www.vsmag.de



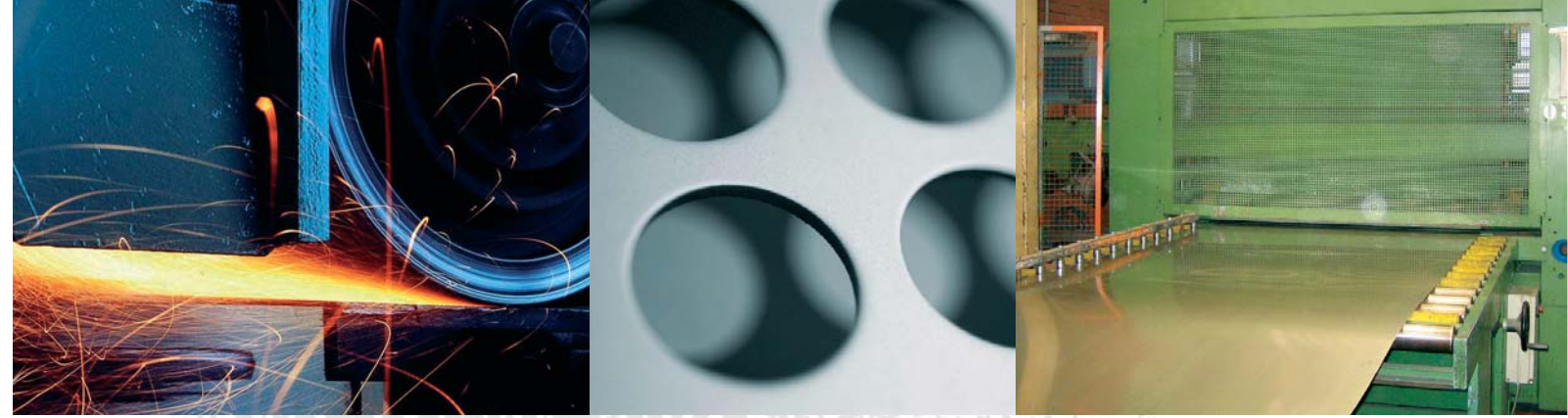
VSM · Vereinigte Schmirgel- und Maschinen-Fabriken AG
 Siegmundstraße 17 · D-30165 Hannover · Germany
 Tel.: +49 5 11 35 26-0 · Fax: +49 5 11 3 52 13 15
 E-mail: sales@vsmag.de · Internet: www.vsmag.de



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Flat grinding processes in metal applications

SPECIALS

PRODUCTS

APPLICATIONS

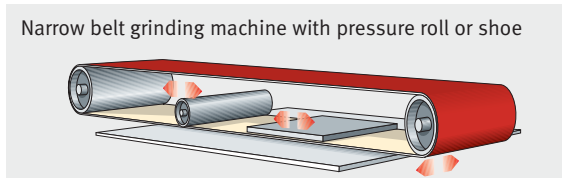
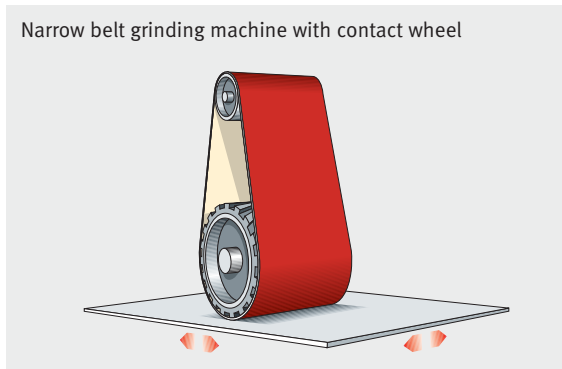
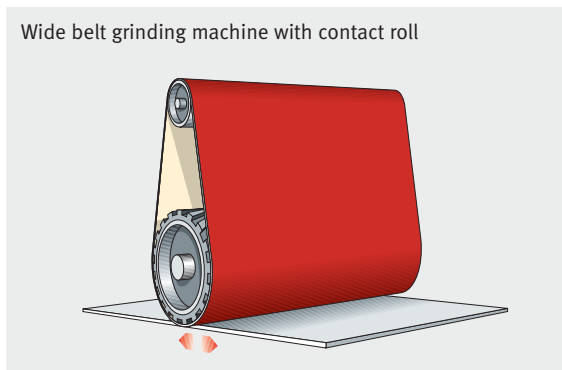
Ideal for demanding applications

There is continuous evolution in the world of metal working and surface refinement. Technical progress is accompanied by ever increasing end-user demand. In an intensely competitive environment, VSM is the partner offering you advances in performance. The quality and versatility of our abrasives is the key to a perfect surface finish, both technically and visually.



Solutions for your grinding processes...

- dry and wet grinding with emulsion, oil, grease, or water
- deburring and descaling
- edge bevelling and chamfering
- removing burrs



...workpieces

- sheet metal for equipment and containers used in the chemical industry
- sheet metal for equipment and containers used in the food and beverages industry
- sheet metal for high-strength components
- steel strips for razor blades
- steel strips for thermo bimetals
- press parts
- flame-cut parts

...finished products

- saw blades for band and circular saws
- canteen kitchen fittings
- dishwasher and washing machines
- kettles, pots and pans
- thermo bimetals
- architectural cladding
- metal furniture components
- press plates for multi-layer pressing
- equipment and containers for the chemical, food and beverages industries

The benefits:

Our **high-tech abrasives** like VSM®CERAMICS (CER), zirconia alumina (ZA) and compact grain (COM) are **self-sharpening** and therefore give you vital advantages:

Reduction of down time and grinding costs

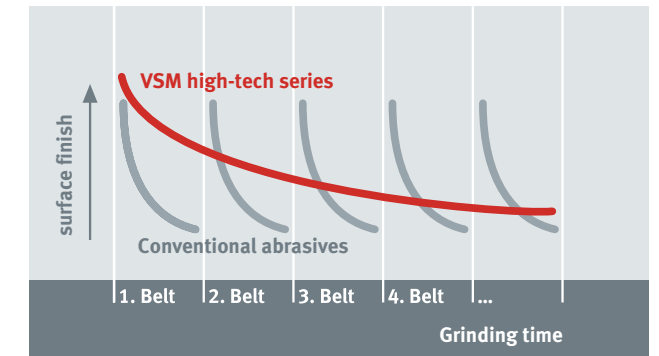
- extremely long life
- less change-over
- less adjustments to the grinding parameters (contact pressure, feed rate, cutting speed)

Consistent surface finish

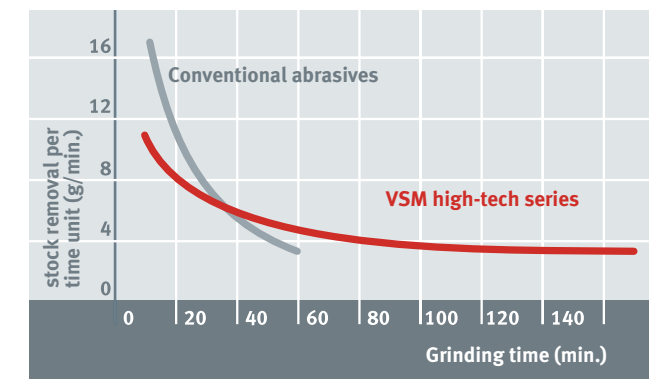
- high level of quality
- consistent quality of backing material due to in-house production of raw materials
- belt joints to suit the particular grinding operation
- smooth operating characteristics in the grinding process

Optimization of your grinding processes

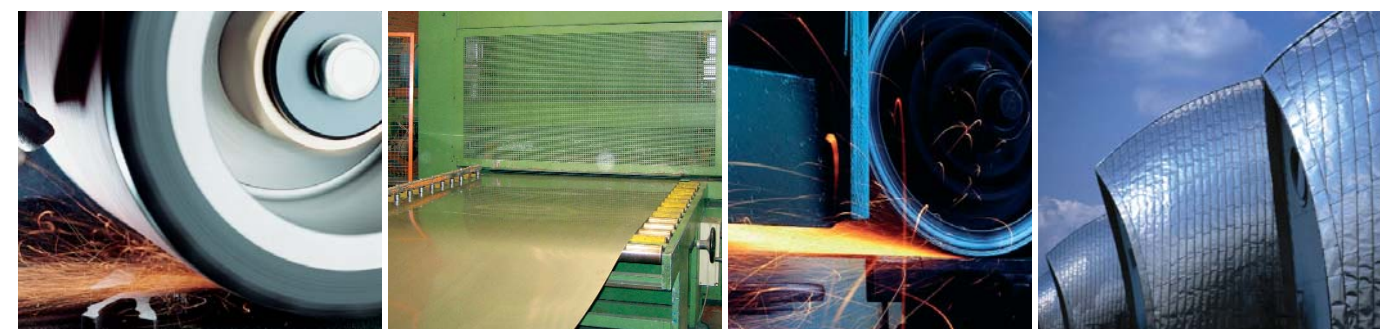
- analysis and advice by our trained and experienced application engineers
- assessment of the best solution for your application
- 140 years of experience in grinding operations



Both in wet and dry grinding applications, VSM abrasives have a long life and significantly reduce down time.



The abrasive stock removal rate remains consistent throughout the life.



Application example 1: Grinding of stainless steel plates

Workpiece: Stainless Steel Plates
Material: Stainless Steel (1.4301)
Features: – high toughness
 – low machinability
 – low heat conductivity

Grinding conditions

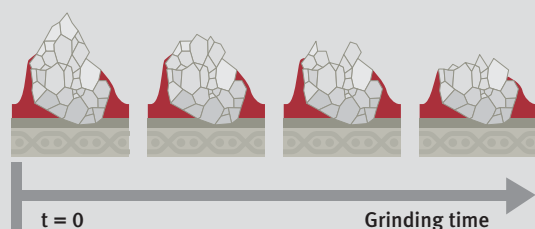
Grinding operation: Repair grinding or roughing of plates to remove surface failures
Grinding machine: Wide belt grinding machines
Contact wheel: – diameter: 350 mm
 – hardness: 70° Shore A
 – serration: 1:1 (land to groove ratio)
Cutting speed: 22 m/sec
Feed rate: 8 m/min
Belt dimension: 2100 x 2620 mm



Workstep 1: Roughing (removal of defects)
VSM product: VSM® CERAMICS XK870Y
Grit range: # 40
Characteristics: – powerful cutting action due to the sturdy backing in combination with the continuous creation of new grain cutting edges
 – TOP SIZE coating avoids overheating
 – dimensional stability of backing for high grinding requirements (wide belts)

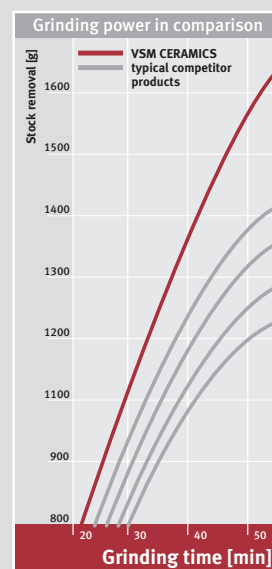
Workstep 2: Finishing (improve surface smoothness)
VSM product: VSM KP 712 COMPACTGRAIN
Grit range: # 120, 180, 240, 320
Characteristics: – medium bonded COMPACTGRAIN for smooth grinding and consistent surface finish
 – very long service life due to the high reserve of abrasives of self sharpening COMPACTGRAIN
 – additional additives reduce the grinding temperature and increase the service life (less machine downtime)

VSM® CERAMICS products for roughing

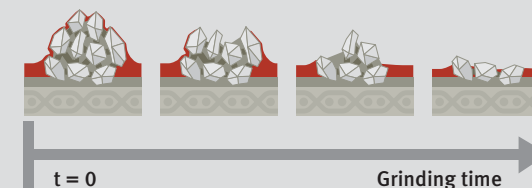


Benefits of VSM CERAMICS

- high level of stock removal
- long service life
- continuous self-sharpening
- cool grinding
- for hard work pieces

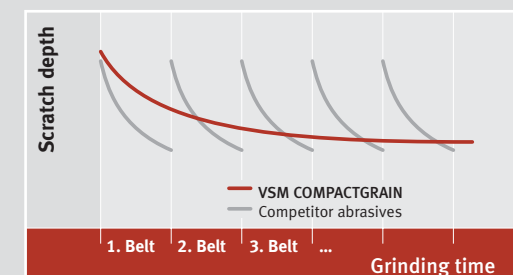


VSM® COMPACTGRAIN products for finishing



Benefits of VSM COMPACTGRAIN

- even stock removal
- fine surfaces
- continuous self-sharpening
- consistent surface finish during its entire service life



Application example 2: Grinding of square pipes with longitudinal seam

Workpiece: Square pipe
(100 x 40 mm, 6 m length)
Material: Chrome nickel steel (1.4003)

Grinding conditions

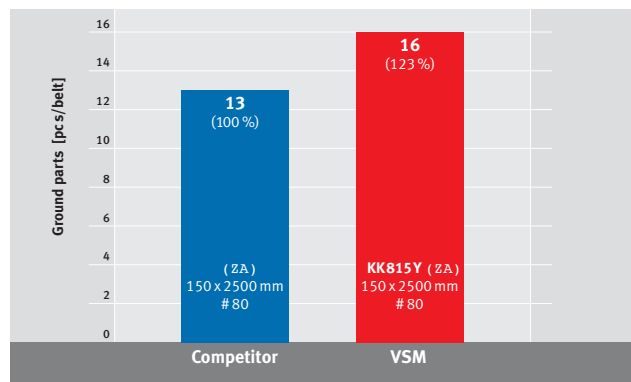
Grinding machine: Surface grinding machine
Contact wheel: — diameter: 250 mm
— hardness: 70–80° Shore A
Cutting speed: 30 m/sec
Feed rate: 2–3 m/min
Belt dimension: 150 x 2500 mm
Grit: P80
Lubricants: Emulsion (3%)



Grinding result

Grinding of square pipes with longitudinal seam

23% more ground parts with VSM KK815Y and increased service life (less machine downtime)



Application example 3: Grinding of fittings

Workpiece: Fittings
Material: Carbon steel (8620)

Grinding conditions

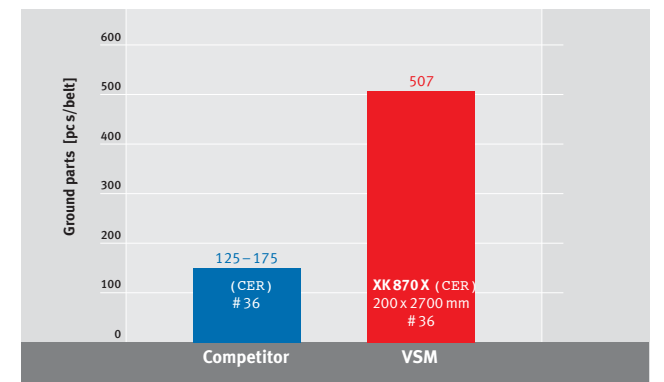
Grinding machine: Flat conveyor
Contact wheel: — diameter: 200 mm
— hardness: 80° Shore A
Cutting speed: 28 m/sec
Belt dimension: 200 x 2700 mm
Grit: P36
Lubricants: None



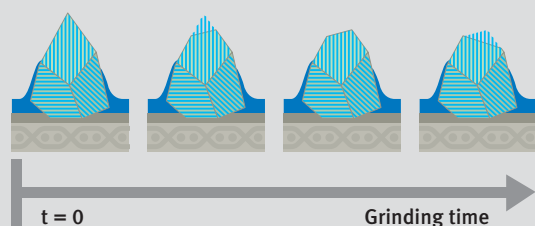
Grinding result

Grinding of fittings

190–305% more ground parts with VSM XK870X and increased service life (less machine downtime)

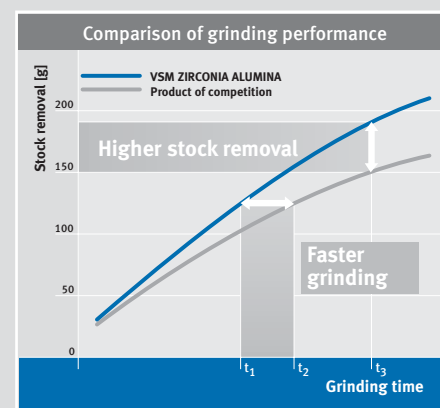


VSM® ZIRCONIA ALUMINA products for roughing



Benefits of VSM ZIRCONIA ALUMINA

- high level of stock removal
- long service life
- continuous self-sharpening



VSM® TOP SIZE products for cool cutting



ADDITIONAL COATING LAYER (TOP SIZE)

ADDITIONAL LAYER (TOP SIZE)

- for cooler grinding
- for higher cutting rate

