

Catalogue No. 6

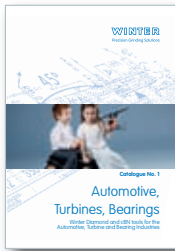
Standard Catalogue

WINTER Stock Programme
for Diamond and cBN Tools



Precision Grinding Solutions

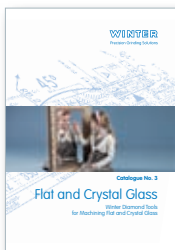
WINTER
SAINT-GOBAIN



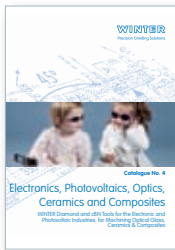
Catalogue No. 1: Automotive, Turbines, Bearings
WINTER Diamond and cBN Tools for the Automotive, Turbine and Bearing Industries



Catalogue No. 2: Tools
WINTER Diamond and cBN Tools for the Tools Industry



Catalogue No. 3: Flat and Crystal Glass
WINTER Diamond Tools for Machining Flat and Crystal Glass



Catalogue No. 4: Electronics, Photovoltaics, Optics, Ceramics and Composites
WINTER Diamond and cBN Tools for the Electronic and Photovoltaic Industries, for Machining Optical Glass, Ceramics & Composites



Catalogue No. 5: Dressing Tools
WINTER Diamond Tools for Dressing of Grinding Tools



Catalogue No. 6: Standard Catalogue
WINTER Stock Programme for Diamond and cBN Tools

Catalogue No. 6

Standard Catalogue

WINTER Stock Programme
for Diamond and cBN Tools

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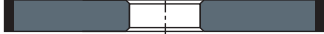
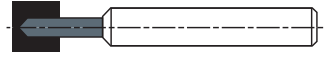
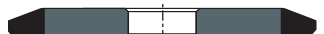
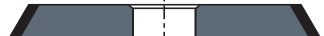
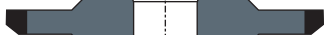
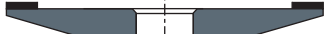
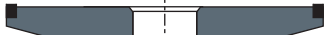
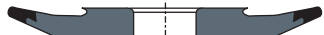






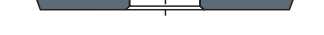

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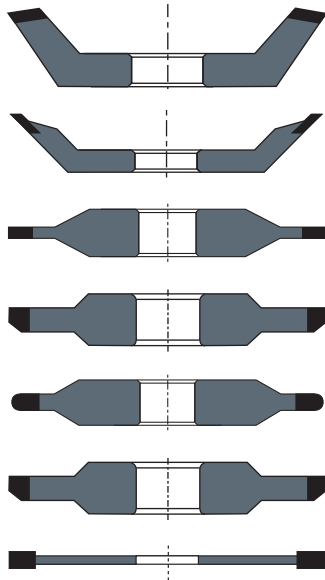
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WINTER
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A good Connection

Always close to the customer and customer-focused, our diverse market presence worldwide reflects the strength of a global player. Saint-Gobain's businesses are spread over 45 countries and new locations are being added frequently. Activities are clearly structured to ensure operational leadership. In Abrasives alone, over 16,000 people are employed. The company is the only manufacturer to offer a comprehensive product range of abrasives and dressing tools for almost all fields of industry. WINTER, as the premium brand for diamond and cBN grinding products, is one of the most well established and respected names in the market. Our combination of quality products, expertise and service, together with the international network of the parent company Saint-Gobain, is the key to success; WINTER grinding tools go with you worldwide, and lead you to your goals.

Saint-Gobain...

- ...was established in 1665 to supply glass for the Hall of Mirrors in the Palace of Versailles.
- ...kits out every second car in Europe with window glass
- ...establishes or acquires a new sales location every day
- ...inaugurates a new plant or a new production line every month
- ...presently has 206,000 employees
- ...generates € 43.4 billion annual turnover

| | | |
|---|---|---|
| <p>High Performance Materials WINTER Grinding Tools SAINT-GOBAIN No. 1 Worldwide</p> | <p>Flat Glass freeglass No. 1 in Europe, No. 3 Worldwide</p> | <p>SAINT-GOBAIN SEKURIT</p> |
| <p>NORTON Industrial Super Abrasives SAINT-GOBAIN</p> | <p>Glass Packaging No. 1 in Europe, No. 3 Worldwide</p> | <p>GLASSOLUTIONS</p> |
| <p>Bonded Abrasives BAYSTATE Coated Abrasives</p> | <p>Construction Products Insulating Materials No. 1 Worldwide</p> | <p>ISOVER SAINT-GOBAIN</p> |
| <p>flexOvit Thin Wheels Construction Products</p> | <p>SAINT-GOBAIN</p> | <p>Plaster/Plaster Boards No. 1 Worldwide</p> |
| <p>Ceramics and Plastics No. 1 Worldwide for Thermal and Mechanical Applications</p> | <p>Pipes No. 1 Worldwide in Cast Iron Pipes</p> | <p>Rigips SAINT-GOBAIN</p> |
| <p>Vetrotex Reinforcement Materials No. 1 Worldwide</p> | <p>Industrial Mortar No. 1 Worldwide in Tile Adhesives</p> | <p>PAM SAINT-GOBAIN</p> |
| <p>raab karcher Building Distribution No. 1 Worldwide in Tiles, No. 1 in Europe in Construction Materials and Industrial Woodworking</p> | <p>Exterior Siding No. 1 in USA for Exterior Siding, No. 3 in USA for Roofing</p> | <p>weber SAINT-GOBAIN</p> |

Worldwide Expertise

Saint-Gobain is in the top one hundred largest industrial groups in the world and is leading in the production of glass, high performance materials and construction products. Two major milestones stand out in the Saint-Gobain Group's long history; it was established in 1665 by Colbert under Louis XIV, then, over 300 years later, Saint-Gobain and Pont-à-Mousson merged in 1970. WINTER joined the group in 1996. Today, the group invests € 390 million per year in research and development and files around 300 patents per year, to support its reputation for innovation and discovery.

The WINTER Brand:

For over 160 years WINTER has been a worldwide synonym for high-quality diamond and cBN grinding tools for industrial production. As pioneer and trend-setter, WINTER has been actively involved in the development of the success story of grinding, as well as in the production of synthetic diamonds.

Custom-made Solutions - the key to success

Over 75% of all WINTER products are developed in close cooperation with our customers. The results are tailored grinding solutions that perfectly fit your special requirements. Our expert teams would also like to help you. Together we will meet your technical challenges.

Market Leader - in front through quality

In Superabrasives, WINTER is No. 1 in Europe with quality products and services. In Europe, over 500 employees in four production sites take care of our customers' needs. Worldwide, over 2,000 people are employed in our global business.

INNOVATIONS

To this day, the WINTER philosophy is closely connected to innovation and technical progress. We thank our customers for over 160 years of momentum, challenges and confidence. **And in the future our next generation of innovations will ensure your success.**

PERFORMANCE

The WINTER performance package contains top quality precision grinding tools, comprehensive service and individual customer care - which ranges from best grinding tool selection through to process optimisation.

Benefit from our full service, and make use of our leading technical expertise to increase your profitability.

WINTER

SAINT-GOBAIN

PRECISION

From ACCURACY to Z-AXIS - the WINTER precision alphabet spells the suitable solution for your needs. Profile accuracies below 1 µm and a surface finish in the nanometer range are achieved regularly. **You can trust WINTER.**

QUALITY

Since the foundation of the company, WINTER has stood for quality at the highest level. It begins with the first customer contact, and covers the identification of appropriate tool specifications, manufacturing, customer support and the final optimisation of your production process. **WINTER quality: Satisfaction guaranteed!**

Quality, Environmental Protection and Safety

As a responsible manufacturer of quality grinding tools, WINTER production is eco-friendly and avoids waste of precious resources according to the latest international standards and certification requirements. WINTER is certified to ISA 9001 (Quality Management), ISO 14001 (environmental management) and OHSAS 18001 (health and safety management). All rotating WINTER tools bear the OSA safety seal (OSA: Organization for the Safety of Abrasives), granting WINTER the customers' highest safety tool in application.



Organization
for the Safety
of Abrasives (oSa)

Snapshots of a long history

WINTER was established in 1847 by Ernst Winter as a family-owned company. We still adhere to the original goal of developing ultra-hard crystal tools of the highest quality. Our claim is to be the best. In numerous fields of application for diamond and cBN grinding tools we have been pioneers, and today we still follow this way as trend-setters and the technology leader.



Ernst Winter
Goldsmith and diamantaire, started his diamond tool workshop in 1847.



WINTER in Hamburg

1872: WINTER's first company building in Hamburg.



With WINTER to Outer Space

Laser reflectors ground with WINTER diamond tools enable the most accurate astronomic and geographic measurements.



Innovations: Yesterday's vision of

WINTER bridges the combination of inventive skills, creativity, identification of challenges and the ambition to meet our customers' expectations: WINTER developments of the past are found in industrial museums. Yesterday's vision of the future is today's standard. We are committed to over 160 years of company history: Today and in the future, we work hand in hand with our customers on innovations and their economical implementation

1847

WINTER produced lithography diamonds, replacing the conventional steel tips.

1969

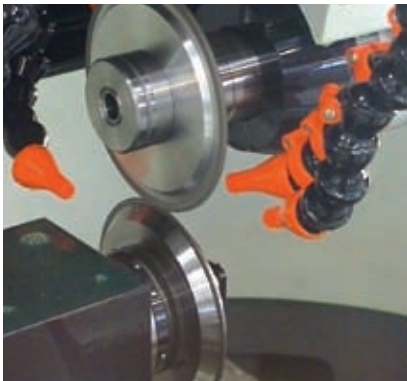
As the first grinding tool manufacturer worldwide, WINTER presented cBN grinding tools with a special resin bond (KSS) for HSS tool grinding..

2008

WINTER offered metal bonded tools with internal cooling for creep-feed glass edging.

1935

WINTER produced the first phenolic bond grinding wheel to replace previously used grinding wheels with loose, hammered or rolled-in grain



2006

With Q-Flute®Dress, WINTER offered the first resin bonded grinding wheel dressable with a diamond rotary dresser.

1975

WINTER DMC diamond grinding wheels and BMC cBN grinding wheels came into the market: WINTER MC grinding wheels allow cost-effective profile grinding for difficult to machine work pieces. They also reduce thermal effects of the near-surface microstructure and assure extremely long profile lifetime. WINTER DMC and BMC grinding wheels can be profiled by crushing directly on the grinding machine.

2001

WINTER introduced special cutting wheel products for slicing advanced ceramics like SiC.

1993

WINTER SG-CNC rotary dressers conquered the market. They have made dressing of vitrified cBN grinding wheels possible..



In|no|

1548. from L. innovatus, pp. of innovare "to renew or change", from in- "into" + novus "new".

1988

New super-light cutting wheels with carbon fibre bodies were patented.

1958

WINTER was the first in Europe producing grinding tools with synthetic diamonds. In combination with WINTER special resin bonds, full performance benefits were achieved..

the Future

1971

At the European Machine Tool Exhibition WINTER showed for the first time a novel grinding wheel type that met the demand for short grinding cycle times. The structure of metallic and non-metallic bond components allows the efficient grinding of tungsten carbide and steel combinations. (M+789).



2003

WINTER developed the DDS (Diamond Dressing System), permitting the dressing of vitrified and resin bonded grinding wheels directly on the production machine. Until then, it was performed on external machines. Due to its free standing layer, outstanding profile grinding capability is achieved.

1992

New standards are set with the "34SG" series in the field of laminated safety glass and fire-resistant glass machining.

1929

WINTER beginnt mit der Herstellung von Diamant-Mikrokörnungen im Sedimentierverfahren.

1875

Delivery of WINTER diamond particles to Zeiss Jena, enabling the engraving of 150 lines per millimeter.

2006

N7 as a glass-ceramic bond system was introduced to the market. This bond can be precisely engineered to meet individual customer application requirements: Very high bond-hardness, optimised wetting of the grains and perfect development of bond bridges enable the creation of very high porosity for cool grinding and extremely long tool life.

1950-1954

WINTER developed a large variety of electroplated tools: Files, grinding pins, cutting wheels, drills...

1982

The patented dressing process "TDC" (Touch Dressing cBN) was developed by WINTER.

1977 / 78

WINTER presented the special bond "VF/ VFF" for grinding and finishing polycrystalline diamond and cBN materials.

1996

For four generations the company, founded by Ernst WINTER in 1847, was family-owned. In 1996 it was taken over by the French Saint-Gobain group.



2008

WINTER tools "Ti-Tan" and "Furioso" are a new generation of extremely wear-resistant stationary dressers.



2001

"Tiger" caused a stir with a new revolutionary grinding wheel geometry for narrow tooth gaps in saw manufacturing.

v|a|l|t|i|o|n

In general linguistic usage as a nonspecific term in the sense of new ideas and inventions and their conversion to economic use.

Your best solution

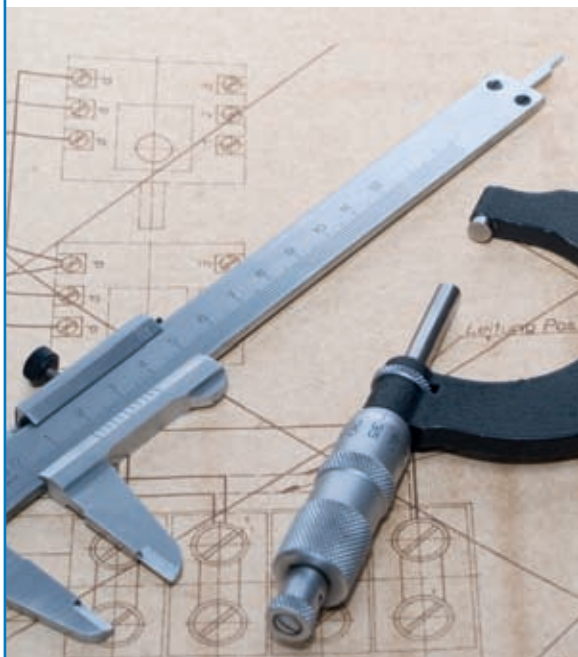
WINTER diamond tools gain great recognition in the fields of quality, performance and cost effectiveness. This is no coincidence, as WINTER is not limited to manufacturing excellent grinding tools: more than 75% of the cases are tailor-made solutions, developed in close cooperation with the customer. This successful engineering is based on a modular performance package, specifically equipped according to individual needs

Tailor-made products

Optimised grinding solutions for your specific application provide the greatest benefit: In the end, you generate cost savings through more productivity, less down time, and better quality.

Each one of your technological challenges is an incentive for our product managers and our application engineers to achieve the best grinding results. Please contact us.

Besides the high percentage of custom-made solutions, WINTER offers a comprehensive range of stock products - and can supply these short term straight to your production line.



Focused on the goal ahead

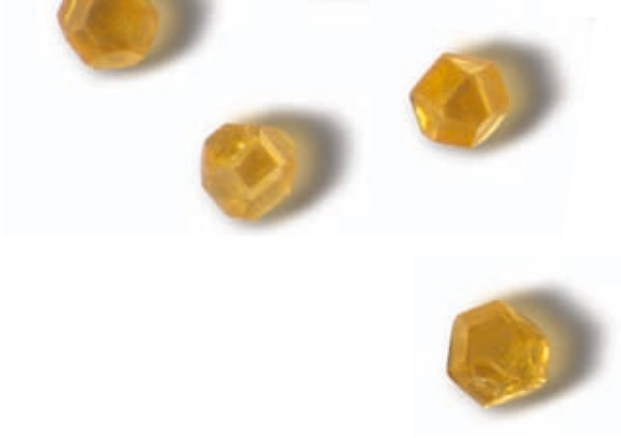
Comprehensive technical advice in all questions about WINTER products and grinding processes. Our field sales force and our customer service are at your disposal.

Advice

Expertise

Advantage in accumulated knowledge: Seminars about current grinding issues as well as training programs matching our customers requirements.





Product Development

The cream of the crop

In order to meet your production-oriented challenges, take advantage of our dedicated specialists: In the R&D department and the European Grinding Technology Centre about 50 scientists are at your disposal for developing grinding tools and processes.

Solution



Trainings



Process Optimisation

Fine Tuning

Our application engineers and our product developers will help you. Either at your premises, or in our EGTC (European Grinding Technology Centre), where we can optimise your production process, without interfering with your workflow.

Please ask your sales advisor - contact details on the last page.



Solutions

WINTER Facts

Grinding

Cutting

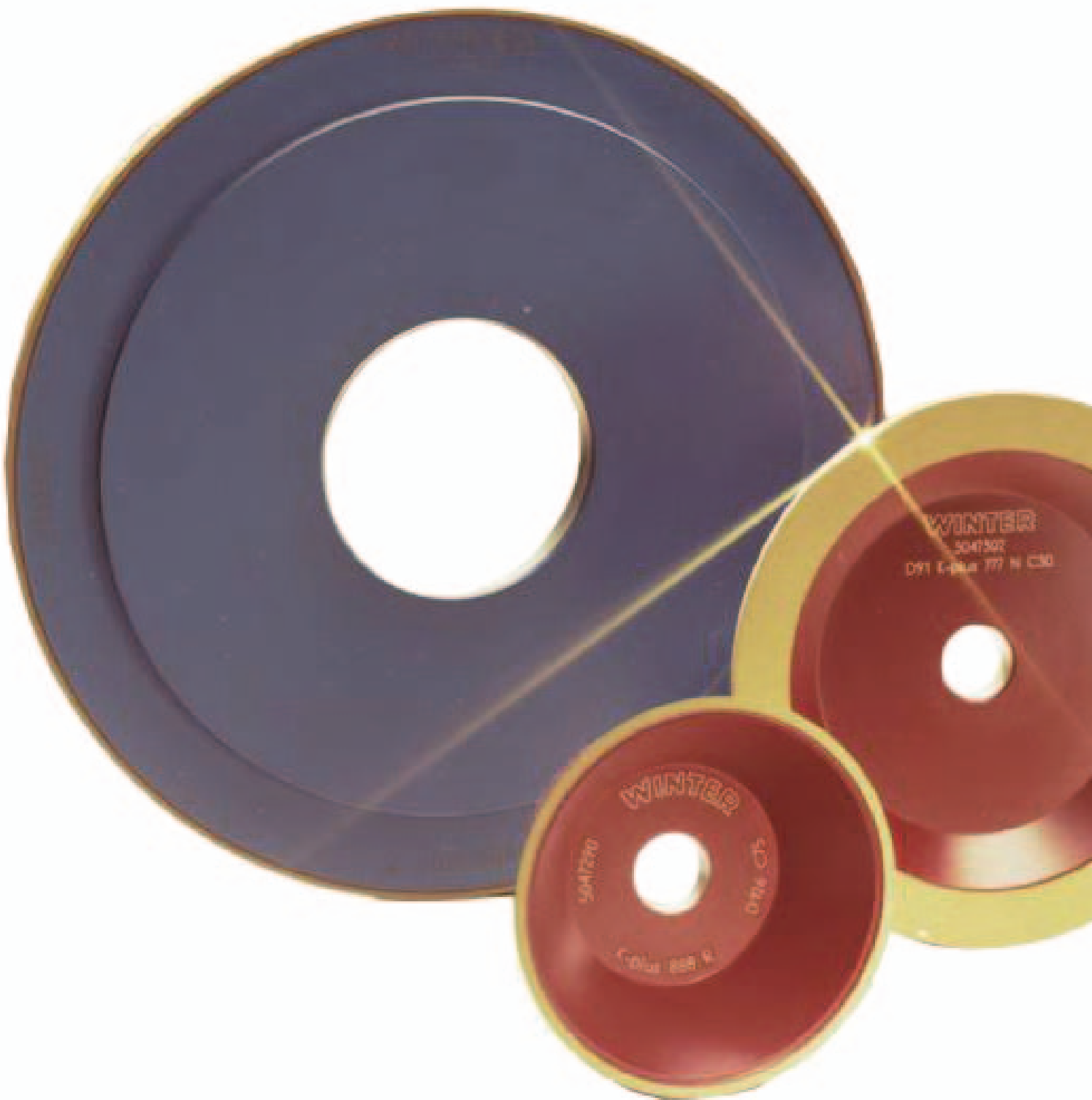
Filing

Lapping Polishing Micron powder

Dressing

Service Glossary Contact

Diamond and cBN Grinding tools



The product range of grinding tools is extremely broad. Depending on how each tool is applied, geometry, bond, grain size and type vary.

This standard catalogue contains a clear overview of all the grinding tools from our various catalogues that are in stock. The chapter on "Diamond and cBN Grinding Wheels" contains images of grinding wheels, arranged by the FEPA grinding wheel shapes.

The diamond and CBN grinding wheels listed here provide solutions for nearly all standard grinding requirements, whether manual or CNC-controlled. The individual grinding wheel shapes are divided into two tables (Diamond and cBN) and into the relevant bonding systems, i.e. resin bonds, sintered metal bonds and galvanic metal bonds. The tables also contain application advice and references to each of the product catalogues where the relevant tool is listed and specified in detail. Further articles and additional details can be found in our Product Catalogues Nos. 1-5.

Information

Further information on applications and products can be found at www.winter-superabrasives.com.

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| 40 | 4A9 Grinding wheels / Special shape 700 |
| 42 | 4BT9 Grinding wheels / Special shape 700 |
| 44 | 4V4 Grinding wheels |
| 45 | 6A2 Grinding wheels |
| 48 | 6A9 Grinding wheels |
| 49 | 6V5 Grinding wheels / Special shape 222 |
| 51 | 6VV5 Grinding wheels / Special shape 222 |
| 54 | 9A3 Grinding wheels |
| 55 | 11A2 Grinding wheels / Special shape 222 |
| 56 | 11V2 Grinding wheels |
| 57 | 11V9 Grinding wheels / Special shape 222 |
| 61 | 12A2 Grinding wheels / Special shape 222 |
| 65 | 12V2 Grinding wheels / Special shape 222 |
| 67 | 12V5 Grinding wheels |
| 68 | 12V9 Grinding wheels |
| 72 | 13A2 Grinding wheels / Special shape 222 |
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| 75 | 14B1 Grinding wheels |
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| 80 | 14M1 Grinding wheels |
| 81 | 34P Grinding wheels |


Grinding Tool Guide

This chapter is structured according to FEPA shapes (1A1, 1A1W and 1D1). Our WINTER bonding selection assistant contains an overview of the different bonds, sorted by their levels of wear resistance, at the beginning of each list. Recommendations for use enable you to find the right bonds for a given grinding job as quickly as possible. The application columns in each table contain further details on the use of each grinding wheel / grinding pin.



1A1 Grinding wheels

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---|
| Q-Flute | ↑ | High-performance resin bond for flute grinding |
| K+920 | | More wear-resistant resin bond also dry grinding |
| K+921 | | More wear-resistant resin bond preferably wet grinding |
| Maxi 1313RY | | Special resin bond for tungsten carbide-steel combination, wet grinding |
| K+1421R | | Standard resin bond for CNC applications |
| K+1414N | | Special resin bond for tungsten carbide-steel combination, dry grinding |
| K+888R | | Universal resin bond for dry grinding |
| Maxi 888NY | | Universal resin bond for wet grinding |
| Maxi 8837 | | Standard resin bond for surface and OD grinding |
| Maxi 125 | | Universal resin bond for surface and OD grinding > Ø250 |
| Maxi 280 | | Universal resin bond for surface and OD grinding < Ø250 |
| Maxi 777N | | Universal resin bond for fine grit applications |
| Maxi 777J | | Universal resin bond for fine grit applications |

|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| KSSRY | ↑ | Universal resin bond for wet grinding |
| KSS12N | | Standard resin bond for CNC applications |
| Maxi 191 | | Universal resin bond for surface and OD grinding |
| KSS10N | | Universal resin bond for tool grinding |
| Maxi 10N | | Universal resin bond for tool grinding |
| Maxi 67 | | Standard resin bond for surface and OD grinding |

1A1

WINTER Facts

Grinding

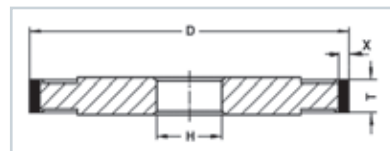
Cutting

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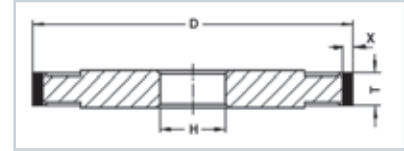

1A1 Diamond grinding wheels in resin bond

| Shape | D | T | X | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|----|----|----|-----------|-------------------------|---------------|------|--------------------------|--------------------|-------------|
| K1A1 | 75 | 3 | 5 | 20 | D46 | K+920 | C100 | A | 60157643388 | Flute grinding | 2 |
| K1A1 | 75 | 10 | 5 | 20 | D64 | K+1421R | C100 | H | 66260339426 | Flute grinding | 2 |
| K1A1 | 100 | 6 | 10 | 20 | D64 | K+888R | C50 | A | 66260131547 | Universal grinding | 2 |
| SPIA1 | 100 | 8 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765140 ²⁾ | Flute grinding | 2 |
| SPIA1 | 100 | 8 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765158 ²⁾ | Flute grinding | 2 |
| K1A1 | 100 | 10 | 4 | 20 | D126 | K+1414N | C100 | A | 66260127052 | Universal grinding | 2 |
| K1A1 | 100 | 10 | 5 | 20 | D64 | K+1421R | C100 | H | 66260339422 | Flute grinding | 2 |
| SPIA1 | 100 | 10 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765147 ²⁾ | Flute grinding | 2 |
| SPIA1 | 100 | 10 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765159 ²⁾ | Flute grinding | 2 |
| K1A1 | 100 | 12 | 5 | 20 | D64 | K+1421R | C100 | H | 66260347629 | Flute grinding | 2 |
| SPIA1 | 100 | 12 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765148 ²⁾ | Flute grinding | 2 |
| SPIA1 | 100 | 12 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765160 ²⁾ | Flute grinding | 2 |
| K1A1 | 100 | 15 | 5 | 20 | D64 | K+1421R | C100 | H | 66260339419 | Flute grinding | 2 |
| SPIA1 | 100 | 15 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765149 ²⁾ | Flute grinding | 2 |
| SPIA1 | 100 | 15 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765161 ²⁾ | Flute grinding | 2 |
| K1A1 | 125 | 5 | 10 | 20 | D64 | K+1421R | C100 | A | 66260350079 | Flute grinding | 2 |
| K1A1 | 125 | 5 | 15 | 20 | D126 | K+921 | C100 | A | 66260131770 | Flute grinding | 2 |
| K1A1 | 125 | 6 | 15 | 20 | D64 | K+921 | C100 | A | 66260132044 | Flute grinding | 2 |
| K1A1 | 125 | 8 | 15 | 20 | D64 | K+921 | C100 | A | 66260131843 | Flute grinding | 2 |
| SPIA1 | 125 | 8 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765150 ²⁾ | Flute grinding | 2 |
| SPIA1 | 125 | 8 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765162 ²⁾ | Flute grinding | 2 |
| K1A1 | 125 | 10 | 10 | 20 | D64 | K+1421R | C100 | A | 66260341750 | Flute grinding | 2 |
| K1A1 | 125 | 10 | 15 | 20 | D64 | K+921 | C100 | A | 66260374178 | Flute grinding | 2 |
| SPIA1 | 125 | 10 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765151 ²⁾ | Flute grinding | 2 |
| SPIA1 | 125 | 10 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765163 ²⁾ | Flute grinding | 2 |
| K1A1 | 125 | 12 | 10 | 20 | D64 | K+1421R | C100 | A | 66260352659 | Flute grinding | 2 |
| SPIA1 | 125 | 12 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765152 ²⁾ | Flute grinding | 2 |
| SPIA1 | 125 | 12 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765165 ²⁾ | Flute grinding | 2 |
| SPIA1 | 125 | 15 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765153 ²⁾ | Flute grinding | 2 |
| SPIA1 | 125 | 15 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765166 ²⁾ | Flute grinding | 2 |
| SPIA1 | 150 | 8 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765154 ²⁾ | Flute grinding | 2 |

¹⁾ Available while stocks last

²⁾ Delivery time approx. 5 working days after receipt of order.

All dimensions in mm



1A1 Diamond grinding wheels in resin bond

| Shape | D | T | X | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|----|----|-----|-----------|-------------------------|---------------|------|---------------------------|-------------------------|-------------|
| SP1A1 | 150 | 8 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765167 ²⁾ | Flute grinding | 2 |
| SP1A1 | 150 | 10 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765155 ²⁾ | Flute grinding | 2 |
| SP1A1 | 150 | 10 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765168 ²⁾ | Flute grinding | 2 |
| K1A1 | 150 | 12 | 10 | 20 | D64 | K+1421R | C100 | A | 66260352657 | Flute grinding | 2 |
| SP1A1 | 150 | 12 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765156 ²⁾ | Flute grinding | 2 |
| SP1A1 | 150 | 12 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765169 ²⁾ | Flute grinding | 2 |
| SP1A1 | 150 | 15 | 16 | 20 | D54 | Q-Flute ² | | C | 7958765157 ²⁾ | Flute grinding | 2 |
| SP1A1 | 150 | 15 | 16 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958765170 ²⁾ | Flute grinding | 2 |
| K1A1 | 200 | 10 | 5 | 51 | D20B | Maxi 777J | C50 | B | 66260119254 | Surface and OD grinding | 2 |
| | | | | | D91 | Maxi 888NY | C75 | B | 66260119259 | | |
| | | | | | D126 | Maxi 888NY | C75 | B | 66260119262 | | |
| K1A1 | 200 | 15 | 5 | 51 | D64 | Maxi 280 | C75 | B | 66260119613 ¹⁾ | Surface and OD grinding | 2 |
| K1A1 | 200 | 20 | 5 | 51 | D126 | Maxi 888NY | C75 | B | 66260119266 | Surface and OD grinding | 2 |
| K1A1 | 225 | 10 | 5 | 51 | D91 | Maxi 280 | C75 | H | 66260119623 | Surface and OD grinding | 2 |
| | | | | | D91 | Maxi 888NY | C75 | B | 66260119268 ¹⁾ | | |
| K1A1 | 250 | 15 | 5 | 51 | D126 | Maxi 280 | C75 | H | 66260119642 ¹⁾ | Surface and OD grinding | 2 |
| K1A1 | 250 | 15 | 5 | 76 | D126 | Maxi 888NY | C75 | B | 66260119337 | Surface and OD grinding | 2 |
| K1A1 | 250 | 20 | 5 | 76 | D126 | Maxi 1313RY | C75 | B | 66260119339 | Surface and OD grinding | 2 |
| K1A1 | 300 | 10 | 5 | 127 | D91 | Maxi 8837 | C75 | B | 66260119219 | Surface and OD grinding | 2 |
| | | | | | D126 | Maxi 8837 | C75 | B | 66260119221 | | |
| K1A1 | 300 | 15 | 5 | 127 | D91 | Maxi 125 | C75 | H | 66260119648 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | D91 | Maxi 8837 | C75 | B | 66260119208 | | |
| | | | | | D126 | Maxi 1313RY | C75 | B | 66260119206 | | |
| | | | | | D126 | Maxi 8837 | C75 | B | 66260119210 | | |
| K1A1 | 300 | 20 | 5 | 127 | D126 | Maxi 8837 | C75 | B | 66260119204 | Surface and OD grinding | 2 |
| K1A1 | 300 | 25 | 5 | 127 | D91 | Maxi 8837 | C75 | B | 66260119193 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | D126 | Maxi 8837 | C75 | B | 66260119190 ¹⁾ | | |
| K1A1 | 300 | 30 | 5 | 127 | D126 | Maxi 125 | C75 | H | 66260119652 ¹⁾ | Surface and OD grinding | 2 |
| K1A1 | 350 | 10 | 5 | 127 | D126 | Maxi 8837 | C75 | B | 66260119187 | Surface and OD grinding | 2 |
| K1A1 | 350 | 20 | 5 | 127 | D126 | Maxi 8837 | C75 | B | 66260119185 | Surface and OD grinding | 2 |
| K1A1 | 350 | 30 | 5 | 127 | D126 | Maxi 8837 | C75 | B | 66260119184 ¹⁾ | Surface and OD grinding | 2 |

¹⁾ Available while stocks last

²⁾ Delivery time approx. 5 working days after receipt of order.

All dimensions in mm

1A1

WINTER Facts

Grinding

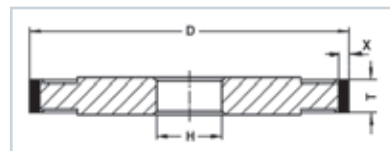
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



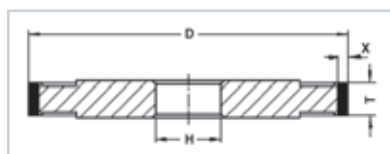
1A1 Diamond grinding wheels in resin bond

| Shape | D | T | X | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|----|---|-------|-----------|-------------|---------------|------|--------------|-------------------------|-------------|
| K1A1 | 400 | 10 | 5 | 127 | D20A | Maxi 777N | C50 | B | 66260119180 | Surface and OD grinding | 2 |
| | | | | | D126 | Maxi 8837 | C75 | B | 66260119231 | | |
| K1A1 | 400 | 20 | 5 | 127 | D126 | Maxi 1313RY | C75 | B | 66260119174 | Surface and OD grinding | 2 |
| | | | | | D126 | Maxi 8837 | C75 | B | 66260119177 | | |
| K1A1 | 500 | 20 | 5 | 203,2 | D126 | Maxi 8837 | C75 | B | 66260119514 | Surface and OD grinding | 2 |
| | | | | | D126 | Maxi 1313RY | C75 | B | 66260119518 | | |
| K1A1 | 500 | 30 | 5 | 203.2 | D126 | Maxi 8837 | C75 | B | 66260119523 | Surface and OD grinding | 2 |
| K1A1 | 600 | 30 | 5 | 305 | D126 | Maxi 8837 | C75 | B | 66260119524 | Surface and OD grinding | 2 |

¹⁾ Available while stocks last

²⁾ Delivery time approx. 5 working days after receipt of order.

All dimensions in mm

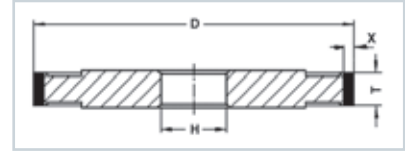


1A1 cBN grinding wheels in resin bond

| Shape | D | T | X | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|----|---|----|-----------|--------|---------------|------|--------------|--------------------|-------------|
| K1A1 | 10 | 10 | 2 | 4 | B126 | KSSRY | V180 | E | 66260136508 | ID grinding | 2 |
| K1A1 | 12 | 10 | 2 | 6 | B126 | KSSRY | V180 | E | 66260135986 | ID grinding | 2 |
| K1A1 | 15 | 10 | 2 | 6 | B126 | KSSRY | V180 | E | 66260135985 | ID grinding | 2 |
| K1A1 | 18 | 10 | 2 | 6 | B126 | KSSRY | V180 | E | 66260136448 | ID grinding | 2 |
| K1A1 | 20 | 10 | 2 | 8 | B126 | KSSRY | V180 | E | 66260136444 | ID grinding | 2 |
| K1A1 | 20 | 15 | 2 | 8 | B126 | KSSRY | V180 | E | 66260135984 | ID grinding | 2 |
| K1A1 | 25 | 10 | 2 | 8 | B126 | KSSRY | V180 | E | 66260134811 | ID grinding | 2 |
| K1A1 | 25 | 15 | 2 | 8 | B126 | KSSRY | V180 | E | 66260134883 | ID grinding | 2 |
| K1A1 | 30 | 10 | 2 | 10 | B126 | KSSRY | V180 | E | 66260136445 | ID grinding | 2 |
| K1A1 | 30 | 15 | 2 | 10 | B126 | KSSRY | V180 | E | 66260135983 | ID grinding | 2 |
| K1A1 | 50 | 10 | 2 | 20 | B126 | KSSRY | V180 | A | 66260134895 | ID grinding | 2 |
| K1A1 | 100 | 10 | 2 | 20 | B126 | KSSRY | V180 | H | 66260136247 | Universal grinding | 2 |
| K1A1 | 100 | 10 | 5 | 20 | B107 | KSS12N | V240 | H | 66260352654 | Flute grinding | 2 |
| K1A1 | 100 | 15 | 5 | 20 | B107 | KSS12N | V240 | H | 66260347909 | Flute grinding | 2 |
| K1A1 | 125 | 10 | 2 | 20 | B126 | KSS10N | V120 | H | 66260134925 | Universal grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm



1A1 cBN grinding wheels in resin bond

| Shape | D | T | X | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|----|---|-------|-----------|----------|---------------|------|---------------------------|-------------------------|-------------|
| K1A1 | 125 | 10 | 5 | 20 | B107 | KSS12N | V240 | A | 66260352653 | Flute grinding | 2 |
| K1A1 | 150 | 12 | 5 | 20 | B107 | KSS12N | V240 | A | 66260352652 | Flute grinding | 2 |
| K1A1 | 200 | 10 | 5 | 51 | B91 | Maxi 191 | V180 | A | 66260119656 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 10N | V120 | B | 66260119532 ¹⁾ | | |
| | | | | | B126 | Maxi 191 | V180 | A | 66260119658 | | |
| K1A1 | 200 | 15 | 5 | 51 | B91 | Maxi 191 | V180 | A | 66260119660 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 10N | V180 | A | 66260119661 ¹⁾ | | |
| K1A1 | 225 | 10 | 5 | 51 | B126 | Maxi 10N | V120 | B | 66260119537 | Surface and OD grinding | 2 |
| K1A1 | 225 | 15 | 5 | 51 | B91 | Maxi 191 | V180 | H | 66260119748 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 10N | V120 | B | 66260119543 | | |
| K1A1 | 250 | 10 | 5 | 51 | B126 | Maxi 191 | V180 | H | 66260119752 | Surface and OD grinding | 2 |
| K1A1 | 250 | 15 | 5 | 51 | B91 | Maxi 191 | V180 | H | 66260119753 | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 10N | V120 | B | 66260119391 | | |
| K1A1 | 250 | 20 | 5 | 51 | B91 | Maxi 191 | V180 | H | 66260119757 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 10N | V120 | B | 66260119393 | | |
| K1A1 | 300 | 15 | 5 | 76 | B126 | Maxi 191 | V180 | H | 66260119776 ¹⁾ | Surface and OD grinding | 2 |
| | | | | 76.2 | B126 | Maxi 67 | V120 | B | 66260119390 | | |
| K1A1 | 300 | 15 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119386 | Surface and OD grinding | 2 |
| K1A1 | 300 | 20 | 5 | 76 | B91 | Maxi 191 | V180 | H | 66260119778 ¹⁾ | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 191 | V180 | H | 66260119780 | | |
| K1A1 | 300 | 20 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119384 | Surface and OD grinding | 2 |
| K1A1 | 300 | 30 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119366 | Surface and OD grinding | 2 |
| K1A1 | 350 | 20 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119367 | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 191 | V180 | H | 66260119781 | | |
| K1A1 | 350 | 30 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119370 | Surface and OD grinding | 2 |
| K1A1 | 400 | 15 | 5 | 127 | B126 | Maxi 191 | V180 | H | 66260119785 | Surface and OD grinding | 2 |
| K1A1 | 400 | 20 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119374 | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 67 | V180 | B | 66260119376 | | |
| K1A1 | 400 | 30 | 5 | 127 | B126 | Maxi 67 | V120 | B | 66260119380 | Surface and OD grinding | 2 |
| | | | | | B126 | Maxi 67 | V180 | B | 66260119381 | | |
| K1A1 | 450 | 20 | 5 | 203.2 | B126 | Maxi 67 | V120 | B | 66260119405 ¹⁾ | Surface and OD grinding | 2 |
| K1A1 | 500 | 20 | 5 | 203.2 | B126 | Maxi 67 | V120 | B | 66260119409 | Surface and OD grinding | 2 |

¹⁾ Available while stocks last
All dimensions in mm

1A1

WINTER Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

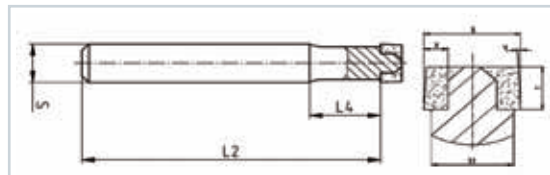
1A1W Grinding pins / Special shape 07B

Selection assistant for WINTER bond systems

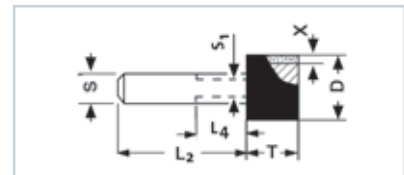
| Diamond grinding pins | Wear resistance | Recommendations for use |
|-----------------------|-----------------|--|
| G820 | ↑ | Standard sintered metal bonds for dry and wet grinding |
| BZ351 | | Standard sintered metal bonds preferably wet grinding |
| KS449 | | More wear-resistant resin bond preferably wet grinding |
| K+920 | | More wear-resistant resin bond also dry grinding |
| K+921 | | More wear-resistant resin bond preferably wet grinding |
| K+888TY | | Universal resin bond for wet grinding |
| K+888RY | | Universal resin bond for wet grinding |
| K+777R | | Universal resin bond for fine grit applications |

| cBN grinding pins | Wear resistance | Recommendations for use |
|-------------------|-----------------|--|
| G825 | ↑ | Standard sintered metal bonds for dry and wet grinding |
| KSSRY | | Universal resin bond for wet grinding |

Hollow ground teeth



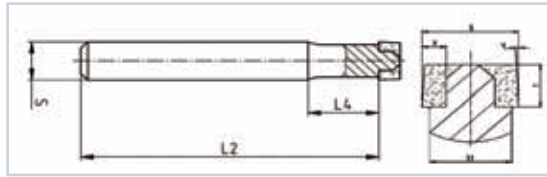
ID grinding



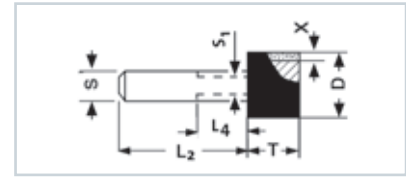
| 1A1W Diamond grinding pins in resin bond | | | | | | | | | | | | | | |
|--|---|---|------|---|----------------|----------------|----------------|-------|-----------|---------|---------------|--------------|-------------|-------------|
| Shape | D | T | X | S | L ₂ | S ₁ | L ₄ | V° | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
| K1A1W | 3 | 6 | 0.65 | 3 | 60 | 1.7 | 8 | 2°50' | D15C | K+888RY | C100 | 60157643985 | ID grinding | 2 |
| | | | | | | | | | D46 | K+888RY | C100 | 60157643693 | | |
| | | | | | | | | | D64 | K+888RY | C100 | 60157644200 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 66260110217 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260133993 | | |
| K1A1W | 4 | 6 | 1.15 | 3 | 60 | 1.7 | 8 | | D15C | K+888RY | C100 | 66260100083 | ID grinding | 2 |
| | | | | | | | | | D46 | K+888RY | C100 | 60157644166 | | |
| | | | | | | | | | D64 | K+888RY | C100 | 60157643874 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 60157643582 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260133998 | | |

¹⁾ Available while stocks last
All dimensions in mm

Hollow ground teeth



ID grinding



1A1W Diamond grinding pins in resin bond

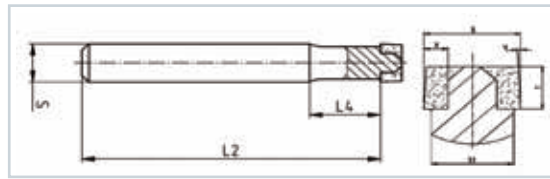
| Shape | D | T | X | S | L ₂ | S ₁ | L ₄ | V° | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|--------|---------|------|-------------|---|----------------|----------------|----------------|-------|-----------|---------|---------------|---------------------------|---------------------|-------------|
| 5K1A1W | 5 | 3 | 1.5 | 6 | 42 | 3.5 | 10 | 2°50' | D76 | K+921 | C125 | 60157643650 | Hollow ground teeth | 2 |
| K1A1W | 5 | 6 | 1.5 | 3 | 60 | 2.1 | 8 | | D7 | K+777R | C100 | 60157644191 | ID grinding | 2 |
| | | | | | | | | | D15C | K+888RY | C100 | 60157643428 | | |
| | | | | | | | | | D46 | K+888RY | C100 | 66260110138 | | |
| | | | | | | | | | D64 | K+888RY | C100 | 60157643946 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 66260134002 ¹⁾ | | |
| D126 | K+888RY | C100 | 66260134003 | | | | | | | | | | | |
| 3K1A1W | 6 | 3 | 1.5 | 6 | 42 | 5.1 | 10 | 2°50' | D76 | K+921 | C125 | 66260111416 | Hollow ground teeth | 2 |
| K1A1W | 6 | 6 | 1.5 | 6 | 60 | 3 | 8 | | D15C | K+888RY | C100 | 66260100095 | ID grinding | 2 |
| | | | | | | | | | D46 | K+888RY | C100 | 60157643902 | | |
| | | | | | | | | | D64 | K+888RY | C100 | 66260134007 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 66260110235 | | |
| K1A1W | 6 | 6 | 1.5 | 6 | 60 | 3.1 | 8 | | D64 | K+888RY | C125 | 66260134006 | ID grinding | 2 |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134009 | | |
| K1A1W | 6 | 8 | 1.5 | 6 | 60 | 3 | 8 | | D46 | K+888RY | C100 | 60157643976 | ID grinding | 2 |
| 8K1A1W | 6 | 8 | 1.5 | 6 | 75 | 3.1 | 10 | | D7 | K+777R | C68 | 66260100311 ¹⁾ | ID grinding | 2 |
| | | | | | | | | | D15C | K+888RY | C100 | 60157643224 | | |
| | | | | | | | | | D46 | K+888RY | C100 | 60157644144 | | |
| 8K1A1W | 6.5 | 3 | 1.75 | 6 | 33 | 4.1 | 10 | 2° | D76 | K+921 | C125 | 66260134445 | Hollow ground teeth | 2 |
| 2K1A1W | 6.5 | 3 | 1.75 | 6 | 42 | 3.1 | 10 | 2°50' | D76 | K+921 | C125 | 66260134718 | Hollow ground teeth | 2 |
| | | | | | | | | | D91 | K+888TY | C150 | 60157643974 | | |
| 6K1A1W | 6.5 | 3 | 1.75 | 6 | 42 | 4.1 | 10 | | D76 | K+888RY | C125 | 66260111088 | Hollow ground teeth | 2 |
| | | | | | | | | | D76 | K+921 | C125 | 66260368674 | | |
| 1K1A1W | 6.5 | 3 | 1.75 | 6 | 42 | 5.1 | 10 | 2°50' | D76 | K+920 | C125 | 66260110241 | Hollow ground teeth | 2 |
| | | | | | | | | | D76 | K+921 | C125 | 66260133964 | | |
| 1K1A1W | 6.5 | 3 | 2 | 6 | 42 | 4.5 | 10 | | D76 | KS449 | C125 | 66260341274 | Hollow ground teeth | 2 |
| 1K1A1W | 6.5 | 6 | 1.75 | 6 | 60 | 3.1 | 8 | | D76 | K+888RY | C100 | 66260113144 | ID grinding | 2 |

¹⁾ Available while stocks last
All dimensions in mm

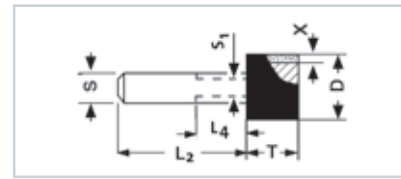
1A1W

- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing
- Service
Glossary
Contact

Hollow ground teeth



ID grinding



1A1W Diamond grinding pins in resin bond

| Shape | D | T | X | S | L ₂ | S ₁ | L ₄ | V° | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|---------|----|----|---|---|----------------|----------------|----------------|-------|-----------|---------|---------------|---------------------------|---------------------|-------------|
| 2K1A1W | 7 | 3 | 2 | 6 | 42 | 5.1 | 10 | 2°50' | D20B | K+921 | C125 | 66260347880 | Hollow ground teeth | 2 |
| | | | | | | | | | D76 | K+921 | C125 | 66260133966 | | |
| | | | | | | | | | D91 | K+888TY | C150 | 60157643957 | | |
| | | | | | | | | | D91 | K+920 | C125 | 60157644164 | | |
| | | | | | | | | | D91 | K+921 | C125 | 60157643351 | | |
| K1A1W | 7 | 6 | 2 | 6 | 60 | 3.1 | 8 | | D64 | K+888RY | C100 | 66260134014 | ID grinding | 2 |
| | | | | | | | | | D64 | K+888RY | C125 | 60157644032 | | |
| | | | | | | | | | D91 | K+888TY | C150 | 66260134654 | | |
| 1K1A1W | 7 | 8 | 2 | 6 | 60 | 3 | 10 | | D46 | K+888RY | C100 | 60157643998 ¹⁾ | ID grinding | 2 |
| K1A1W | 8 | 6 | 2 | 6 | 60 | 4.1 | 8 | | D15C | K+888RY | C100 | 60157643754 | ID grinding | 2 |
| | | | | | | | | | D46 | K+888RY | C100 | 60157643962 | | |
| | | | | | | | | | D64 | K+888RY | C100 | 60157644087 | | |
| | | | | | | | | | D64 | K+888RY | C125 | 66260134020 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 66260134022 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134023 | | |
| K1A1W | 8 | 10 | 2 | 6 | 60 | 4.1 | 12 | | D15C | K+888RY | C100 | 60157644127 | ID grinding | 2 |
| | | | | | | | | | D46 | K+888RY | C100 | 66260134026 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134028 | | |
| 18K1A1W | 8 | 10 | 2 | 6 | 75 | 4.1 | 12 | | D46 | K+888RY | C100 | 66260100352 | ID grinding | 2 |
| K1A1W | 10 | 6 | 2 | 6 | 60 | | | | D46 | K+888RY | C100 | 66260100065 | ID grinding | 2 |
| | | | | | | | | | D64 | K+888RY | C100 | 60157643781 | | |
| | | | | | | | | | D64 | K+888RY | C125 | 60157643973 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 60157644098 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134036 | | |
| K1A1W | 10 | 10 | 2 | 6 | 60 | | | | D15C | K+888RY | C100 | 66260110355 | ID grinding | 2 |
| | | | | | | | | | D46 | K+888RY | C100 | 66260134038 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134040 | | |
| 22K1A1W | 10 | 10 | 2 | 6 | 75 | | | | D7 | K+777R | C68 | 60157643977 ¹⁾ | ID grinding | 2 |
| | | | | | | | | | D15C | K+888RY | C100 | 66260110521 | | |
| | | | | | | | | | D46 | K+888RY | C100 | 60157644085 | | |

¹⁾ Available while stocks last
All dimensions in mm

TATW

WINTER
Facts

Grinding

Cutting

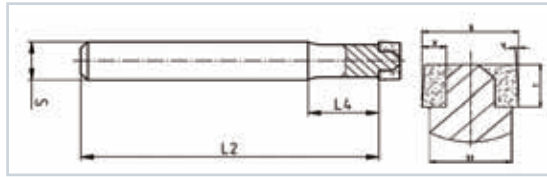
Filing

Lapping
Polishing
Micron powder

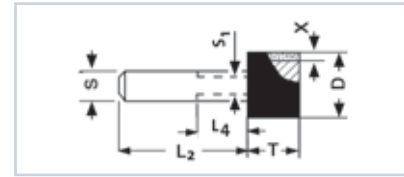
Dressing

Service
Glossary
Contact

Hollow ground teeth



ID grinding



1A1W Diamond grinding pins in resin bond

| Shape | D | T | X | S | L ₂ | S ₁ | L ₄ | V° | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|-------|----|----|---|---|----------------|----------------|----------------|----|-----------|---------|---------------|---------------------------|-------------|-------------|
| K1A1W | 12 | 6 | 2 | 6 | 60 | | | | D46 | K+888RY | C100 | 60157644002 | ID grinding | 2 |
| | | | | | | | | | D64 | K+888RY | C100 | 60157643710 | | |
| | | | | | | | | | D64 | K+888RY | C125 | 66260134081 | | |
| | | | | | | | | | D91 | K+888RY | C100 | 66260100327 | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134045 | | |
| K1A1W | 12 | 12 | 2 | 6 | 60 | | | | D126 | K+888RY | C100 | 66260100092 | ID grinding | 2 |
| K1A1W | 12 | 12 | 2 | 6 | 70 | | | | D15C | K+888RY | C100 | 66260100836 ¹⁾ | ID grinding | 2 |
| K1A1W | 14 | 6 | 2 | 6 | 60 | | | | D64 | K+888RY | C100 | 60157644132 ¹⁾ | ID grinding | 2 |
| | | | | | | | | | D126 | K+888RY | C100 | 66260114956 | | |
| K1A1W | 15 | 6 | 2 | 6 | 60 | | | | D126 | K+888RY | C100 | 66260134054 | ID grinding | 2 |
| K1A1W | 16 | 6 | 2 | 6 | 60 | | | | D46 | K+888RY | C100 | 66260110126 | ID grinding | 2 |
| | | | | | | | | | D64 | K+888RY | C100 | 60157643934 ¹⁾ | | |
| | | | | | | | | | D126 | K+888RY | C100 | 66260134059 | | |
| K1A1W | 18 | 6 | 2 | 6 | 60 | | | | D126 | K+888RY | C100 | 66260127657 | ID grinding | 2 |
| K1A1W | 24 | 6 | 2 | 6 | 60 | | | | D126 | K+888RY | C100 | 66260112903 | ID grinding | 2 |

¹⁾ Available while stocks last
All dimensions in mm

1A1W

WINTER
Facts

Grinding

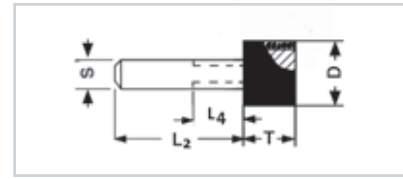
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



1A1W Diamond electroplated grinding pins

| Shape | D | T | S | L ₂ | L ₄ | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|-------|-----|---|---|----------------|----------------|-----------|------|---------------|---------------------------|-------------|-------------|
| S1A1W | 0.5 | 2 | 3 | 38 | 5 | D91 | G820 | S33 | 60157644111 | ID grinding | 2 |
| S1A1W | 0.6 | 4 | 3 | 36 | 3 | D91 | G820 | S33 | 66260110736 | ID grinding | 2 |
| S1A1W | 0.7 | 4 | 3 | 36 | 3 | D91 | G820 | S33 | 60157644152 | ID grinding | 2 |
| S1A1W | 0.8 | 2 | 3 | 38 | 7 | D91 | G820 | S33 | 60157643877 | ID grinding | 2 |
| S1A1W | 0.8 | 4 | 3 | 36 | 5 | D91 | G820 | S33 | 60157643493 | ID grinding | 2 |
| S1A1W | 1 | 4 | 3 | 36 | 5 | D91 | G820 | S33 | 66260134647 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 60157643706 | | |
| S1A1W | 1.2 | 4 | 3 | 36 | 8 | D91 | G820 | S33 | 60157643847 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 60157643955 | | |
| S1A1W | 1.3 | 4 | 3 | 36 | 8 | D126 | G820 | S33 | 60157643988 ¹⁾ | ID grinding | 2 |
| S1A1W | 1.5 | 4 | 3 | 36 | 8 | D91 | G820 | S33 | 66260134656 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 60157643944 | | |
| S1A1W | 2 | 4 | 3 | 36 | 12 | D46 | G820 | S33 | 60157643916 | ID grinding | 2 |
| | | | | | | D91 | G820 | S33 | 66260134665 | | |
| | | | | | | D126 | G820 | S33 | 66260134666 | | |
| | | | | | | D181 | G820 | S33 | 60157643806 | | |
| S1A1W | 2.2 | 4 | 3 | 36 | 12 | D91 | G820 | S33 | 66260134668 | ID grinding | 2 |
| S1A1W | 2.5 | 4 | 3 | 36 | 12 | D91 | G820 | S33 | 66260134670 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134671 | | |
| S1A1W | 3 | 5 | 3 | 35 | 15 | D91 | G820 | S33 | 66260134675 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134676 | | |
| | | | | | | D181 | G820 | S33 | 60157643785 | | |
| S1A1W | 3.5 | 5 | 3 | 35 | | D91 | G820 | S33 | 66260134678 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134679 | | |
| S1A1W | 4 | 5 | 3 | 45 | | D91 | G820 | S33 | 66260134681 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134682 | | |
| | | | | | | D181 | G820 | S33 | 66260100058 | | |
| S1A1W | 4 | 6 | 3 | 50 | | D91 | G820 | S33 | 66260110226 | ID grinding | 2 |
| S1A1W | 4.5 | 5 | 3 | 45 | | D126 | G820 | S33 | 60157643674 | ID grinding | 2 |
| S1A1W | 4.5 | 6 | 3 | 50 | | D91 | G820 | S33 | 66260110137 | ID grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm

1A1W

WINTER
Facts

Grinding

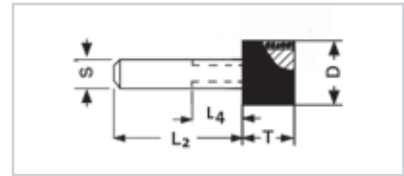
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



| 1A1W Diamond electroplated grinding pins | | | | | | | | | | | |
|--|----|----|---|----------------|----------------|-----------|------|---------------|--------------|-------------|-------------|
| Shape | D | T | S | L ₂ | L ₄ | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
| S1A1W | 5 | 6 | 3 | 50 | | D91 | G820 | S33 | 66260100334 | ID grinding | 2 |
| S1A1W | 5 | 7 | 3 | 43 | | D91 | G820 | S33 | 66260134687 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134688 | | |
| | | | | | | D181 | G820 | S33 | 60157644114 | | |
| S1A1W | 6 | 7 | 6 | 53 | 13 | D91 | G820 | S33 | 66260134690 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134691 | | |
| | | | | | | D181 | G820 | S33 | 66260134692 | | |
| S1A1W | 6 | 7 | 6 | 75 | | D91 | G820 | S33 | 60157643963 | ID grinding | 2 |
| S1A1W | 7 | 8 | 6 | 52 | | D91 | G820 | S33 | 66260134693 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134694 | | |
| | | | | | | D181 | G820 | S33 | 60157643771 | | |
| S1A1W | 8 | 10 | 6 | 50 | | D91 | G820 | S33 | 66260134696 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134697 | | |
| | | | | | | D181 | G820 | S33 | 66260134698 | | |
| S1A1W | 8 | 10 | 6 | 75 | | D91 | G820 | S33 | 66260110242 | ID grinding | 2 |
| | | | | | | D181 | G820 | S33 | 66260110167 | | |
| S1A1W | 10 | 10 | 6 | 50 | | D91 | G820 | S33 | 66260134699 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134700 | | |
| | | | | | | D181 | G820 | S33 | 66260134701 | | |
| S1A1W | 10 | 10 | 6 | 75 | | D91 | G820 | S33 | 60157644175 | ID grinding | 2 |
| | | | | | | D181 | G820 | S33 | 60157644083 | | |
| S1A1W | 12 | 10 | 6 | 50 | | D91 | G820 | S33 | 66260134702 | ID grinding | 2 |
| | | | | | | D126 | G820 | S33 | 66260134703 | | |
| S1A1W | 12 | 10 | 6 | 75 | | D91 | G820 | S33 | 60157643803 | ID grinding | 2 |
| | | | | | | D181 | G820 | S33 | 60157644091 | | |
| S1A1W | 15 | 10 | 6 | 50 | | D126 | G820 | S33 | 60157643885 | ID grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm

1A1W

WINTER Facts

Grinding

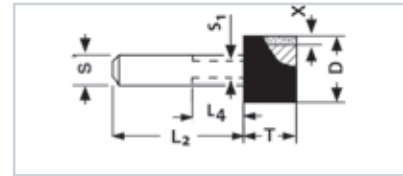
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



1A1W cBN grinding pins in resin bond

| Shape | D | T | X | S | L ₂ | S ₁ | L ₄ | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|-------|----|----|------|---|----------------|----------------|----------------|-----------|-------|---------------|---------------------------|-------------|-------------|
| K1A1W | 3 | 6 | 0.65 | 3 | 60 | 1.8 | 8 | B126 | KSSRY | V240 | 66260134724 | ID grinding | 2 |
| K1A1W | 4 | 6 | 1.15 | 3 | 60 | 1.8 | 8 | B91 | KSSRY | V240 | 66260134738 ¹⁾ | ID grinding | 2 |
| | | | | | | | | B126 | KSSRY | V240 | 66260134735 | | |
| | | | | | | | | B151 | KSSRY | V240 | 66260134733 ¹⁾ | | |
| K1A1W | 5 | 6 | 1.5 | 3 | 60 | 2.1 | 8 | B126 | KSSRY | V240 | 66260134743 | ID grinding | 2 |
| K1A1W | 6 | 6 | 1.5 | 6 | 60 | 3.1 | 8 | B91 | KSSRY | V240 | 66260133970 | ID grinding | 2 |
| | | | | | | | | B126 | KSSRY | V240 | 66260133969 | | |
| | | | | | | | | B151 | KSSRY | V240 | 60157643991 ¹⁾ | | |
| K1A1W | 6 | 8 | 1.5 | 6 | 60 | 3 | 10 | B126 | KSSRY | V240 | 66260134754 | ID grinding | 2 |
| K1A1W | 7 | 6 | 2 | 6 | 60 | 3 | 8 | B126 | KSSRY | V240 | 66260133906 | ID grinding | 2 |
| K1A1W | 8 | 6 | 2 | 6 | 60 | 4 | 8 | B91 | KSSRY | V240 | 66260134097 | ID grinding | 2 |
| | | | | | | | | B126 | KSSRY | V240 | 66260133918 | | |
| | | | | | | | | B151 | KSSRY | V240 | 60157643512 | | |
| K1A1W | 8 | 10 | 2 | 6 | 60 | 4 | 12 | B126 | KSSRY | V240 | 66260133924 | ID grinding | 2 |
| K1A1W | 10 | 6 | 2 | 6 | 60 | | | B91 | KSSRY | V240 | 66260134124 | ID grinding | 2 |
| | | | | | | | | B126 | KSSRY | V240 | 66260133971 | | |
| K1A1W | 10 | 10 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 66260133936 | ID grinding | 2 |
| K1A1W | 12 | 6 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 60157643978 | ID grinding | 2 |
| K1A1W | 12 | 12 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 66260133954 | ID grinding | 2 |
| K1A1W | 14 | 6 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 66260134098 | ID grinding | 2 |
| K1A1W | 15 | 6 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 66260133963 ¹⁾ | ID grinding | 2 |
| K1A1W | 16 | 6 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 60157644185 | ID grinding | 2 |
| K1A1W | 18 | 6 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 66260100280 | ID grinding | 2 |
| K1A1W | 20 | 6 | 2 | 6 | 60 | | | B126 | KSSRY | V240 | 60157644104 | ID grinding | 2 |

¹⁾ Available while stocks last
All dimensions in mm

T1A1W

WINTER
Facts

Grinding

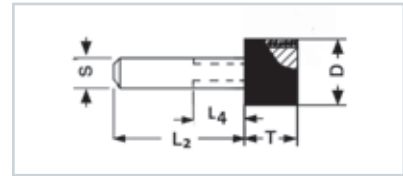
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



1A1W cBN electroplated grinding pins

| Shape | D | T | S | L ₂ | L ₄ | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|-------|-----|---|---|----------------|----------------|-----------|------|---------------|--------------|-------------|-------------|
| S1A1W | 0.5 | 2 | 3 | 38 | 5 | B91 | G825 | S33 | 66260110140 | ID grinding | 2 |
| S1A1W | 0.6 | 2 | 3 | 38 | 5 | B91 | G825 | S33 | 60157644065 | ID grinding | 2 |
| S1A1W | 0.6 | 4 | 3 | 36 | 3 | B91 | G825 | S33 | 66260134726 | ID grinding | 2 |
| S1A1W | 0.7 | 2 | 3 | 38 | 5 | B91 | G825 | S33 | 60157643505 | ID grinding | 2 |
| S1A1W | 0.7 | 4 | 3 | 36 | 3 | B91 | G825 | S33 | 66260100338 | ID grinding | 2 |
| S1A1W | 0.8 | 2 | 3 | 38 | 7 | B91 | G825 | S33 | 60157643862 | ID grinding | 2 |
| S1A1W | 0.8 | 4 | 3 | 36 | 5 | B91 | G825 | S33 | 66260134734 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 60157643870 | | |
| S1A1W | 0.9 | 4 | 3 | 36 | 5 | B126 | G825 | S33 | 66260100335 | ID grinding | 2 |
| S1A1W | 1 | 2 | 3 | 38 | 7 | B91 | G825 | S33 | 66260134741 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260134739 | | |
| S1A1W | 1 | 4 | 3 | 36 | 5 | B91 | G825 | S33 | 66260134744 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260134742 | | |
| S1A1W | 1.2 | 4 | 3 | 36 | 8 | B91 | G825 | S33 | 66260134751 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260134749 | | |
| S1A1W | 1.3 | 4 | 3 | 36 | 8 | B91 | G825 | S33 | 66260110421 | ID grinding | 2 |
| S1A1W | 1.4 | 4 | 3 | 36 | 8 | B126 | G825 | S33 | 66260101138 | ID grinding | 2 |
| S1A1W | 1.5 | 4 | 3 | 36 | 8 | B91 | G825 | S33 | 66260134757 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260134755 | | |
| S1A1W | 1.6 | 4 | 3 | 36 | 8 | B91 | G825 | S33 | 66260110135 | ID grinding | 2 |
| S1A1W | 1.7 | 4 | 3 | 36 | 8 | B126 | G825 | S33 | 60157643451 | ID grinding | 2 |
| S1A1W | 1.8 | 4 | 3 | 36 | 8 | B91 | G825 | S33 | 60157643816 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 60157643992 | | |
| S1A1W | 2 | 4 | 3 | 36 | 12 | B91 | G825 | S33 | 66260133913 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133911 | | |
| | | | | | | B151 | G825 | S33 | 60157644057 | | |
| S1A1W | 2.5 | 4 | 3 | 36 | 12 | B91 | G825 | S33 | 66260133920 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133919 | | |
| S1A1W | 2.8 | 4 | 3 | 36 | 12 | B91 | G825 | S33 | 60157643883 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260107667 | | |
| S1A1W | 3 | 5 | 3 | 35 | 15 | B91 | G825 | S33 | 66260133929 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133927 | | |
| | | | | | | B151 | G825 | S33 | 66260133926 | | |

All dimensions in mm

1A1W

WINTER Facts

Grinding

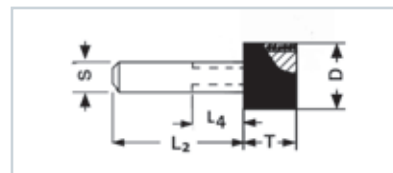
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



| 1A1W cBN electroplated grinding pins | | | | | | | | | | | |
|---|-----|----|---|----------------|----------------|-----------|------|---------------|--------------|-------------|-------------|
| Shape | D | T | S | L ₂ | L ₄ | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
| S1A1W | 3.5 | 5 | 3 | 35 | | B91 | G825 | S33 | 60157643964 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133931 | | |
| | | | | | | B151 | G825 | S33 | 66260133930 | | |
| S1A1W | 4 | 5 | 3 | 45 | | B91 | G825 | S33 | 66260133937 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133935 | | |
| | | | | | | B151 | G825 | S33 | 60157643772 | | |
| S1A1W | 4.5 | 5 | 3 | 45 | | B126 | G825 | S33 | 66260133939 | ID grinding | 2 |
| S1A1W | 5 | 7 | 3 | 43 | | B91 | G825 | S33 | 66260133944 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260100061 | | |
| | | | | | | B151 | G825 | S33 | 60157643453 | | |
| S1A1W | 6 | 7 | 6 | 53 | 13 | B91 | G825 | S33 | 66260133947 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133946 | | |
| | | | | | | B151 | G825 | S33 | 60157643694 | | |
| S1A1W | 6 | 7 | 6 | 68 | | B252 | G825 | S33 | 66260100064 | ID grinding | 2 |
| S1A1W | 6 | 7 | 6 | 75 | | B126 | G825 | S33 | 60157643703 | ID grinding | 2 |
| S1A1W | 7 | 8 | 6 | 52 | | B91 | G825 | S33 | 66260133951 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133949 | | |
| | | | | | | B151 | G825 | S33 | 60157643834 | | |
| S1A1W | 8 | 10 | 6 | 50 | | B91 | G825 | S33 | 66260133955 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133953 | | |
| | | | | | | B151 | G825 | S33 | 66260133952 | | |
| S1A1W | 8 | 10 | 6 | 70 | | B252 | G825 | S33 | 60157643793 | ID grinding | 2 |
| S1A1W | 8 | 10 | 6 | 75 | | B126 | G825 | S33 | 60157643605 | ID grinding | 2 |
| S1A1W | 10 | 10 | 6 | 50 | | B91 | G825 | S33 | 66260133958 | ID grinding | 2 |
| | | | | | | B126 | G825 | S33 | 66260133957 | | |
| | | | | | | B151 | G825 | S33 | 66260133956 | | |
| S1A1W | 10 | 10 | 6 | 75 | | B126 | G825 | S33 | 60157644046 | ID grinding | 2 |
| S1A1W | 12 | 10 | 6 | 50 | | B126 | G825 | S33 | 66260133960 | ID grinding | 2 |
| | | | | | | B151 | G825 | S33 | 66260133959 | | |
| S1A1W | 12 | 10 | 6 | 75 | | B126 | G825 | S33 | 66260100091 | ID grinding | 2 |
| S1A1W | 15 | 10 | 6 | 50 | | B126 | G825 | S33 | 60157644004 | ID grinding | 2 |
| | | | | | | B151 | G825 | S33 | 60157643797 | | |

All dimensions in mm

1A1W

WINTER Facts

Grinding

Cutting

Filing

Lapping Polishing Micron powder

Dressing

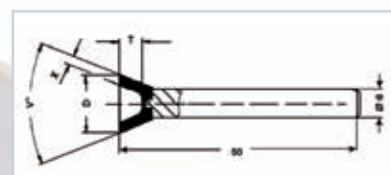
Service Glossary Contact

TA1W Grinding pins / Special shape 07B

Selection assistant for WINTER bond systems

| cBN grinding pins | Recommendations for use |
|-------------------|--|
| KSS10N | Universal resin bond for tool grinding |

Special shape 07B



07B cBN grinding pins in resin bond

| Shape | D | T | X | V° | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|-------|----|---|---|----|-----------|--------|---------------|--------------|---------------------|-------------|
| 2K07B | 10 | 5 | 2 | 40 | B126 | KSS10N | V240 | 60157643794 | Coordinate grinding | 2 |
| 1K07B | 12 | 5 | 2 | 40 | B126 | KSS10N | V240 | 66260107661 | Coordinate grinding | 2 |
| 1K07B | 15 | 5 | 2 | 40 | B126 | KSS10N | V240 | 60157644044 | Coordinate grinding | 2 |

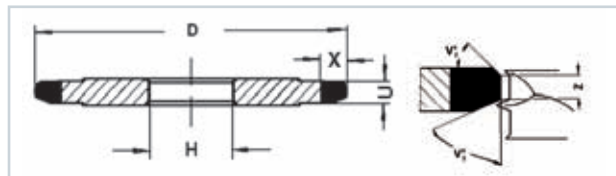
All dimensions in mm

1D1 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Recommendations for use |
|-------------------------|---------------------------------------|
| K+888R | Universal resin bond for dry grinding |

| cBN grinding wheels | Recommendations for use |
|---------------------|--|
| KSS10N | Universal resin bond for tool grinding |




| 1D1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | |
|---|----|-----|---|-----|----------------|----------------|----|-----------|--------|---------------|------|--------------|---------------|----------|-------------|
| Shape | D | U | X | Z | V ₁ | V ₂ | H | Grit size | Bond | Concentration | Body | Order number | Application | Comment | Catalog No. |
| 1K1D1 | 75 | 4.5 | 6 | 0.9 | 67.5 | 45 | 20 | D64 | K+888R | C75 | H | 60157642996 | Special tools | for Ø 4 | 2 |
| 1K1D1 | 75 | 4.5 | 6 | 1.4 | 67.5 | 45 | 20 | D64 | K+888R | C75 | H | 66260116659 | Special tools | for Ø 5 | 2 |
| 1K1D1 | 75 | 4.5 | 6 | 1.9 | 67.5 | 45 | 20 | D64 | K+888R | C75 | H | 66260136519 | Special tools | for Ø 6 | 2 |
| 1K1D1 | 75 | 5 | 6 | 2.8 | 67.5 | 45 | 20 | D64 | K+888R | C75 | H | 66260136520 | Special tools | for Ø 8 | 2 |
| 1K1D1 | 75 | 6 | 6 | 3.7 | 67.5 | 45 | 20 | D64 | K+888R | C75 | H | 66260136522 | Special tools | for Ø 10 | 2 |


| 1D1 cBN grinding wheels in resin bond | | | | | | | | | | | | | | | |
|---------------------------------------|----|-----|---|-----|----------------|----------------|----|-----------|--------|---------------|------|---------------------------|---------------|---------|-------------|
| Shape | D | U | X | Z | V ₁ | V ₂ | H | Grit size | Bond | Concentration | Body | Order number | Application | Comment | Catalog No. |
| 1K1D1 | 75 | 4.5 | 6 | 1.9 | 67.5 | 45 | 20 | B107 | KSS10N | V180 | H | 60157643017 ¹⁾ | Special tools | for Ø 6 | 2 |

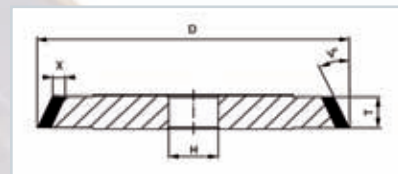
¹⁾ Available while stocks last
All dimensions in mm


TV1 Grinding wheels

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| Q-Flute | ↑ | High-performance resin bond for flute grinding |
| K+1421R | | Standard resin bond for CNC applications |

|  cBN grinding wheels | Recommendations for use |
|---|--|
| KSS12N | Standard resin bond for CNC applications |



|  TV1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|--|-----|----|----|----|----|-----------|-------------------------|---------------|------|---------------------------|----------------|-------------|--|
| Shape | D | T | X | V° | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | |
| 1K1V1 | 75 | 10 | 5 | 10 | 20 | D64 | K+1421R | C100 | H | 66260339433 | Flute grinding | 2 | |
| 1K1V1 | 100 | 10 | 5 | 10 | 20 | D64 | K+1421R | C100 | H | 66260339432 | Flute grinding | 2 | |
| SPIV1 | 100 | 10 | 6 | 45 | 20 | D54 | Q-Flute ² | | A | 66260129991 | Gashing | 2 | |
| SPIV1 | 100 | 10 | 10 | 30 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958762522 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 100 | 10 | 12 | 20 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958763630 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 100 | 10 | 14 | 10 | 20 | D54 | Q-Flute ² | | C | 66260137553 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 100 | 12 | 14 | 10 | 20 | D54 | Q-Flute ² | | C | 66260113283 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 100 | 12 | 14 | 10 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958755459 ²⁾ | Flute grinding | 2 | |
| K1V1 | 100 | 15 | 5 | 30 | 20 | D64 | K+1421R | C100 | H | 66260342813 | Flute grinding | 2 | |
| K1V1 | 100 | 15 | 5 | 45 | 20 | D64 | K+1421R | C100 | H | 66260352665 | Gashing | 2 | |
| SPIV1 | 100 | 15 | 13 | 10 | 20 | D54 | Q-Flute ² | | C | 60157680737 ²⁾ | Flute grinding | 2 | |
| 1K1V1 | 125 | 10 | 5 | 45 | 20 | D64 | K+1421R | C100 | A | 66260352664 | Gashing | 2 | |
| SPIV1 | 125 | 10 | 10 | 45 | 20 | D54 | Q-Flute ² | | A | 66260115514 | Gashing | 2 | |
| SPIV1 | 125 | 10 | 13 | 15 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958763555 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 125 | 10 | 14 | 10 | 20 | D54 | Q-Flute ² | | C | 66260129330 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 125 | 10 | 14 | 10 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958763554 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 125 | 12 | 14 | 10 | 20 | D54 | Q-Flute ² | | C | 66260113290 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 125 | 15 | 10 | 20 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958762965 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 125 | 15 | 13 | 10 | 20 | D54 | Q-Flute ² | | C | 66260128867 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 150 | 12 | 11 | 20 | 20 | D54 | Q-Flute ² | | C | 7958756013 ²⁾ | Flute grinding | 2 | |

TV1

WINTER Facts

Grinding

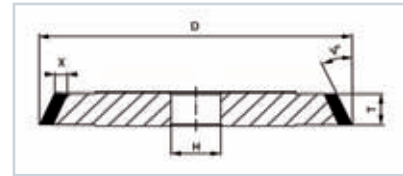
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact



| 1V1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|-----|----|----|----|----|-----------|-------------------------|---------------|------|--------------------------|----------------|-------------|--|
| Shape | D | T | X | V° | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | |
| SPIV1 | 150 | 12 | 11 | 20 | 20 | D54 | Q-FluteXL ⁴⁰ | | C | 7958755445 ²⁾ | Flute grinding | 2 | |
| SPIV1 | 150 | 15 | 13 | 10 | 20 | D54 | Q-Flute ² | | C | 7958754106 ²⁾ | Flute grinding | 2 | |

| 1V1 cBN grinding wheels in resin bond | | | | | | | | | | | | | |
|---------------------------------------|-----|----|---|----|----|-----------|--------|---------------|------|--------------|-------------|-------------|--|
| Shape | D | T | X | V° | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | |
| 1K1V1 | 125 | 12 | 5 | 45 | 20 | B107 | KSS12N | V240 | A | 66260352661 | Gashing | 2 | |

¹⁾ Available while stocks last

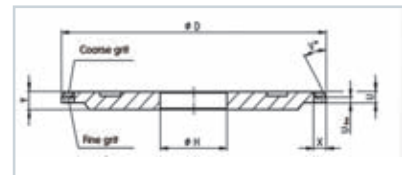
²⁾ Delivery time approx. 5 working days after receipt of order.

All dimensions in mm

3M1 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Recommendations for use |
|-------------------------|--|
| K+1313RY | Resin bond for mixed grinding and wet grinding |



| 3M1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | |
|---|-----|---|---|-------------------|----|-------|----|---|-----------|----------|---------------|------|--------------|--------------|-------------|
| Shape | D | U | X | U _{fine} | V° | Layer | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K3M1 | 127 | 5 | 6 | 2.0 | 15 | 2L | 32 | 8 | D54 | K+1313RY | C75 | A | 60157643404 | Top grinding | 2 |
| | | | | | | | | | D126 | | C100 | | | | |

All dimensions in mm

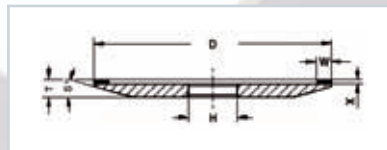
4A2 Grinding wheels / Special shape 222

Selection assistant for WINTER bond systems

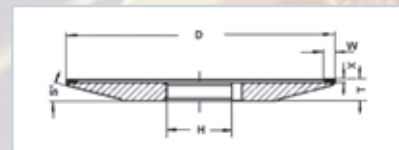
| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|--|
| K+920 | ↑ | More wear-resistant resin bond also dry grinding |
| K+921 | | More wear-resistant resin bond preferably wet grinding |
| K+888TY | | Universal resin bond for wet grinding |
| K+888RY | | Universal resin bond for wet grinding |
| K+888R | | Universal resin bond for dry grinding |
| K+888N | | Universal resin bond for dry grinding |
| K+888J | | Universal resin bond for dry grinding |
| K+1410 | | Free-grinding resin bond for dry grinding |

| cBN grinding wheels | Wear resistance | Recommendations for use |
|---------------------|-----------------|---|
| KSSRY | ↑ | Universal resin bond for wet grinding |
| KSSJY | | Universal resin bond for wet grinding |
| KSS10N | | Universal resin bond for tool grinding |
| KSS10J | | Universal resin bond for tool grinding |
| KSS0007N | | Free-grinding resin bond for dry grinding |

Universal grinding
Face and clearance grinding

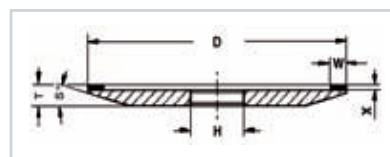


Face grinding



| 4A2 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|-----|---|---|----|----|----|-----------|---------|---------------|------|--------------|---|-------------|
| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K4A2 | 100 | 4 | 3 | 25 | 25 | 12 | D46 | K+888RY | C75 | H | 66260137095 | Face grinding | 2 |
| 6K4A2 | 125 | 5 | 2 | 20 | 15 | 10 | D46 | K+888J | C50 | H | 60157643448 | Universal grinding Face and clearance grinding | 2 |
| | | | | | | | D64 | K+888R | C50 | H | 60157643256 | | |
| 1K4A2 | 125 | 6 | 2 | 20 | 15 | 10 | D46 | K+1410 | C75 | H | 66260115833 | Universal grinding Face and clearance grinding | 2 |
| | | | | | | | D64 | K+1410 | C100 | H | 66260128030 | | |
| K4A2 | 150 | 5 | 4 | 20 | 15 | 13 | D64 | K+888N | C50 | H | 60157643184 | Universal grinding Face and clearance grinding | 2 |
| K4A2 | 175 | 5 | 4 | 20 | 15 | 13 | D64 | K+888N | C50 | H | 60157643327 | Universal grinding Face and clearance grinding | 2 |

All dimensions in mm



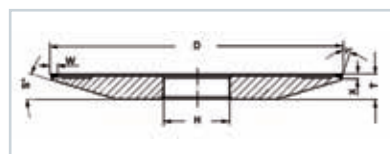
4A2 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|----|----|----|-----------|--------|---------------|------|--------------|---|-------------|
| K4A2 | 150 | 4 | 2 | 20 | 15 | 6 | B107 | KSS10N | V120 | H | 60157642791 | Universal grinding Face and clearance grinding | 2 |
| K4A2 | 150 | 4 | 3 | 20 | 15 | 12 | B91 | KSS12N | V240 | A | 66260127081 | Face and clearance grinding | 2 |
| K4A2 | 175 | 5 | 4 | 20 | 15 | 13 | B126 | KSS10J | V120 | H | 60157643668 | Universal grinding Face and clearance grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm

Special shape 222



222 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|-----|-----|----|----|------|----|-----------|---------|---------------|------|---------------------------|---------------|-------------|
| 1K222 | 100 | 3 | 3.3 | 25 | 15 | 10 | 15 | D54 | K+888RY | C75 | A | 60157642681 ¹⁾ | Face grinding | 2 |
| | | | | | | | | D76 | K+888RY | C75 | A | 66260137081 | | |
| 2K222 | 100 | 3 | 1.8 | 25 | 15 | 8 | 15 | D54 | K+888RY | C75 | A | 60157642713 | Face grinding | 2 |
| | | | | | | | | D64 | K+888RY | C75 | A | 66260135818 ¹⁾ | | |
| 1K222 | 125 | 2,5 | 1.2 | 32 | 15 | 11,5 | 15 | D54 | K+888RY | C75 | A | 60157642666 | Face grinding | 2 |
| | | | | | | | | D76 | K+888RY | C125 | A | 66260135745 | | |
| 1K222 | 125 | 3 | 3.8 | 32 | 15 | 14 | 15 | D54 | K+888RY | C75 | A | 60157642674 | Face grinding | 2 |
| 1K222 | 150 | 3 | 1.5 | 32 | 15 | 11.5 | 15 | D64 | K+920 | C100 | A | 66260135724 | Face grinding | 2 |
| 5K222 | 150 | 3 | 2 | 32 | 15 | 12 | 15 | D91 | K+888TY | C150 | A | 60157643360 | Face grinding | 2 |
| 1K222 | 160 | 3 | 2 | 32 | 15 | 12 | 15 | D64 | K+921 | C125 | A | 66260128437 ¹⁾ | Face grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm

WINTER
Facts

Grinding

Cutting

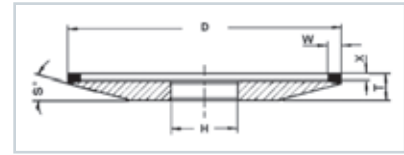
Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Special shape 222

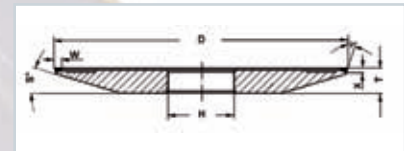


222 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|-----|----|----|----|-----------|--------|---------------|------|--------------|-----------------------------|-------------|
| 2K222 | 150 | 3 | 3.3 | 20 | 12 | 12 | D64 | K+1410 | C75 | A | 66260345390 | Face and clearance grinding | 2 |
| 2K222 | 200 | 3 | 3.3 | 20 | 12 | 12 | D64 | K+1410 | C75 | A | 66260340765 | Face and clearance grinding | 2 |

All dimensions in mm

Special shape 222

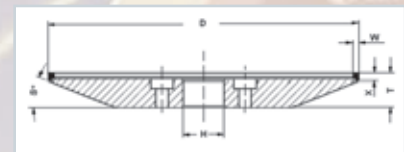


222 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|-----|----|----|----|----|-----------|-------|---------------|------|--------------|-------------------------------------|-------------|
| 1K222 | 125 | 3 | 3.8 | 32 | 15 | 14 | 15 | B107 | KSSRY | V180 | A | 60157643417 | Face grinding (Circular saw blades) | 2 |

All dimensions in mm

Special shape 222



222 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|-----|----|----|----|-----------|-------|---------------|------|--------------|---|-------------|
| 4K222 | 150 | 2 | 3.3 | 20 | 23 | 17 | B107 | KSSJY | V180 | A | 60157642630 | Profile knives, Face and clearance grinding | 2 |

All dimensions in mm

WINTER Facts

Grinding

Cutting

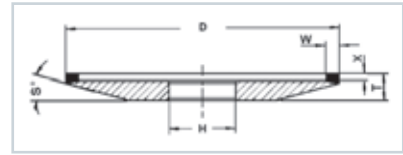
Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Special shape 222

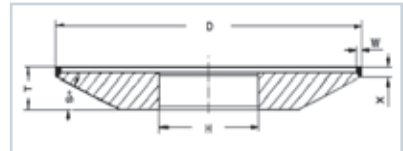


222 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|-----|----|----|----|-----------|------------|---------------|------|--------------|------------------------------|-------------|
| 2K222 | 150 | 3 | 3.3 | 20 | 12 | 12 | B107 | KSS007N-63 | V180 | A | 66260345388 | Cutting face (Face grinding) | 2 |
| 5K222 | 175 | 3 | 3.3 | 20 | 12 | 12 | B107 | KSS007N-63 | V180 | A | 66260347845 | Cutting face (Face grinding) | 2 |
| 2K222 | 200 | 3 | 3.3 | 20 | 12 | 12 | B107 | KSS007N-63 | V180 | A | 66260340761 | Cutting face (Face grinding) | 2 |

All dimensions in mm

Special shape 222



222 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Comment | Application | Catalog No. |
|-------|-----|---|-----|------|----|----|-----------|-------|---------------|------|--------------|-----------------|------------------------------------|-------------|
| 1K222 | 150 | 2 | 3.3 | 50.8 | 20 | 17 | B151 | KSSRY | V300 | A | 60157644021 | up to module 6 | Creep feed and reciprocal grinding | 2 |
| 1K222 | 200 | 2 | 3.3 | 50.8 | 23 | 22 | B151 | KSSRY | V300 | A | 66260134942 | up to module 12 | Creep feed and reciprocal grinding | 2 |

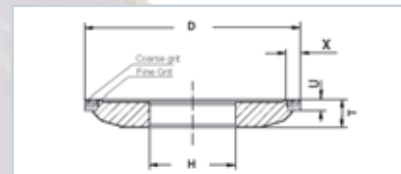
All dimensions in mm

4A9 Grinding wheels / Special shape 700

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|--------------------------|-----------------|--|
| μmicro [®] 2013 | ↑ | Wear-resistant high-performance resin bonds for mini and micro tools |
| K+921 | | More wear-resistant resin bond preferably wet grinding |
| K+888NY | | Universal resin bond for wet grinding |
| K+888JY | | Universal resin bond for wet grinding |
| K+730 | | Very free-grinding fine-grain bond, dry grinding possible |

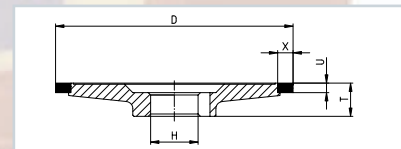
Special shape 700



| 700 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | |
|---|-----|---|-----|-------|----|----|-------------------|-----------|-------|---------------|------|--------------|----------------|-------------|
| Shape | D | U | X | Layer | H | T | U _{fine} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 3K700 | 86 | 4 | 5 | 2L | 32 | 10 | 2.0 | D54 | K+921 | C68 | A | 66260386978 | Flank grinding | 2 |
| | | | | | | | | D91 | | | | | | |
| 8K700 | 100 | 4 | 6.5 | 2L | 32 | 10 | 2.0 | D46 | K+921 | C50 | A | 66260399091 | Flank grinding | 2 |
| | | | | | | | | D91 | | | | | | |

All dimensions in mm

Special shape 700

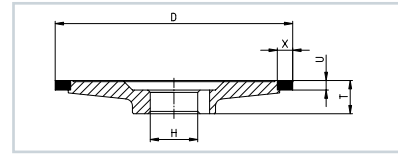


| 700 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | |
|---|----|---|-----|----|----|-----------|----------|---------------|------|--------------|----------------|-------------|-----|---|
| Shape | D | U | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | | |
| 1K700 | 76 | 4 | 4.5 | 20 | 14 | D54 | K+921 | C75 | A | 66260133242 | Flank grinding | 2 | | |
| | | | | | | D91 | K+730-42 | | | | | | C50 | A |

¹⁾Available while stocks last

All dimensions in mm

Special shape 700

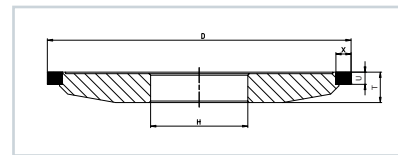


| 700 Diamond grinding wheels in resin bond | | | | | | | | | | | | |
|---|-----|---|-----|----|----|-----------|----------|---------------|------|---------------------------|----------------|-------------|
| Shape | D | U | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K700 | 100 | 4 | 4.5 | 20 | 14 | D54 | K+921 | C75 | A | 66260130080 | Flank grinding | 2 |
| | | | | | | D91 | K+730-42 | C50 | A | 66260136591 | | |
| | | | | | | D91 | K+888JY | C50 | A | 60157642952 | | |
| | | | | | | D126 | K+888NY | C75 | A | 66260136408 | | |
| 2K700 | 100 | 4 | 6.5 | 20 | 14 | D54 | K+921 | C75 | A | 66260134535 ¹⁾ | Flank grinding | 2 |
| | | | | | | D126 | K+888NY | C75 | A | 66260137143 | | |

¹⁾Available while stocks last

All dimensions in mm

Special shape 700





| 700 Diamond grinding wheels in resin bond | | | | | | | | | | | | |
|---|-----|---|---|----|----|-----------|----------|---------------|------|--------------|----------------|-------------|
| Shape | D | U | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K700 | 80 | 4 | 5 | 32 | 10 | D64 | K+921 | C75 | A | 66260132865 | Flank grinding | 2 |
| 1K700 | 86 | 4 | 5 | 32 | 10 | D54 | K+921 | C75 | A | 66260130320 | Flank grinding | 2 |
| 1K700 | 100 | 4 | 5 | 32 | 10 | D54 | K+921 | C75 | A | 66260131923 | Flank grinding | 2 |
| | | | | | | D64 | K+921 | C75 | A | 66260137345 | | |
| | | | | | | D91 | K+730-42 | C50 | A | 60157642622 | | |
| | | | | | | D107 | K+888NY | C75 | A | 66260136539 | | |
| | | | | | | D126 | K+888NY | C75 | A | 60157643744 | | |

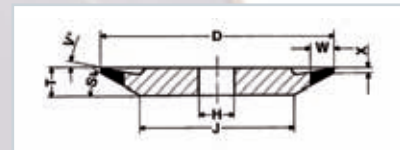
All dimensions in mm

4BT9 Grinding wheels / Special shape 700

Selection assistant for WINTER bond systems

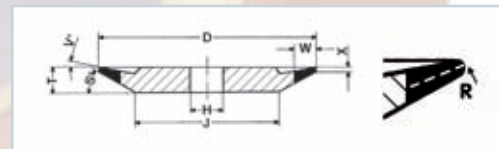
|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| K+1421R | ↑ | Standard resin bond for CNC applications |
| K+888R | | Universal resin bond for dry grinding |

|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| KM64 | ↑ | Particularly wear-resistant bond for machining of hobs |
| KSS920 | | More wear-resistant resin bond also dry grinding |
| KSS12N | | Standard resin bond for CNC applications |
| KSS10N | | Universal resin bond for tool grinding |
| KSS007N | | Free-grinding resin bond for dry grinding |



| 4BT9 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | |
|--|-----|----|---|----|----|----|----|-----------|---------|---------------|------|--------------|---|-------------|
| Shape | D | W | X | V° | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| K4BT9 | 100 | 10 | 1 | 5 | 20 | 20 | 10 | D126 | K+1421R | C75 | A | 66260348380 | Straight- or spiral-fluted gear hobs up to module 6 | 2 |

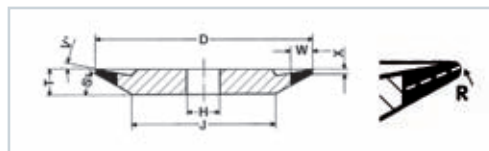
All dimensions in mm



| 4BT9 cBN grinding wheels in resin bond | | | | | | | | | | | | | | | |
|--|-----|----|---|----|----|---|----|----|-----------|--------|---------------|------|--------------|---|-------------|
| Shape | D | W | X | V° | H | R | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| K4BT9 | 100 | 10 | 1 | 5 | 20 | | 20 | 10 | B126 | KSS12N | V180 | A | 66260132772 | Straight- or spiral-fluted gear hobs up to module 6 | 2 |

¹⁾ Available while stocks last

All dimensions in mm



4BT9 cBN grinding wheels in resin bond

| Shape | D | W | X | V° | H | R | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|----|---|----|------|-----|----|----|-----------|------|---------------|------|---------------------------|---|-------------|
| 1SP4BT9 | 150 | 10 | 3 | 8 | 50.8 | 1.5 | 20 | 10 | B126 | KM64 | V300 | A | 66260354043 ¹⁾ | Straight- or spiral-fluted gear hobs up to module 8 | 2 |

¹⁾ Available while stocks last

All dimensions in mm

Special shape 700



700 Diamond grinding wheels in resin bond

| Shape | D | U | X | H | R | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|----|-----|---|----|---|----|---|----|-----------|--------|---------------|------|--------------|--------------------|-------------|
| 1K700 | 75 | 2.2 | 3 | 20 | 1 | 20 | 8 | 5 | D126 | K+888R | C100 | A | 60157643225 | Universal grinding | 2 |

All dimensions in mm

Special shape 700



700 Diamond grinding wheels in resin bond

| Shape | D | U | X | H | R | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|-----|---|----|---|----|---|----|-----------|---------|---------------|------|---------------------------|--------------------|-------------|
| 1K700 | 100 | 2.2 | 3 | 20 | 1 | 20 | 8 | 5 | B126 | KSS10N | V180 | A | 60157643543 ¹⁾ | Universal grinding | 2 |
| 1K700 | 100 | 4.4 | 5 | 20 | 2 | 20 | 8 | 5 | B181 | KSS007N | V180 | A | 60157642878 | Universal grinding | 2 |
| 1K700 | 125 | 4.4 | 5 | 20 | 2 | 20 | 8 | 5 | B126 | KSS920 | V180 | A | 66260135867 | Universal grinding | 2 |
| | | | | | | | | | B181 | KSS007N | V180 | A | 60157642948 | | |

All dimensions in mm

WINTER
Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

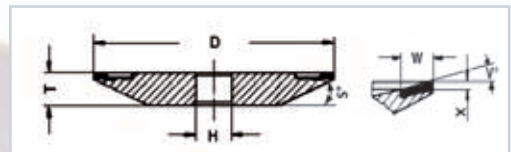
Dressing

Service
Glossary
Contact

4V4 Grinding wheels

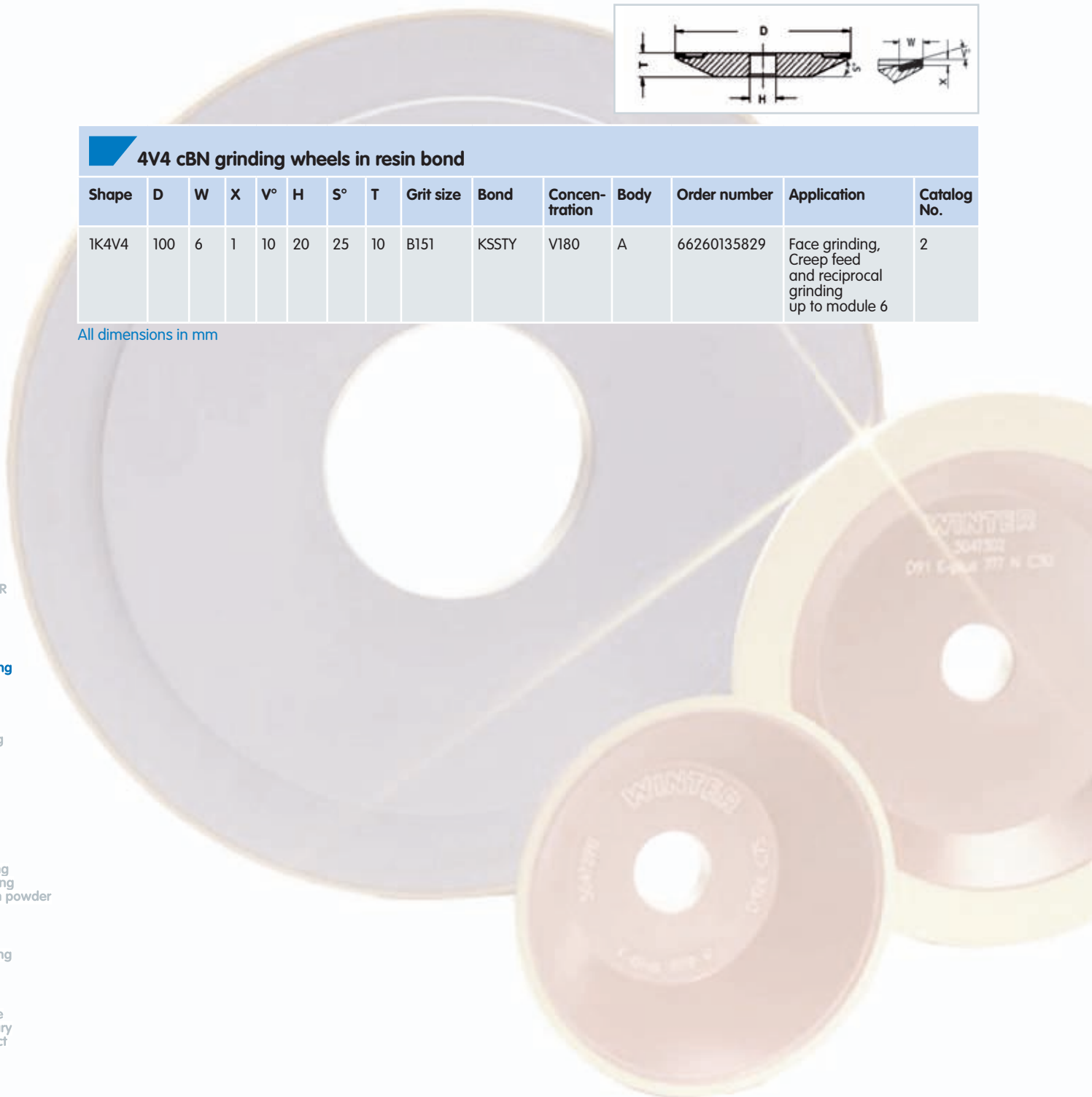
Selection assistant for WINTER bond systems

| cBN grinding wheels | Recommendations for use |
|---------------------|---------------------------------------|
| KSSTY | Universal resin bond for wet grinding |



| 4V4 cBN grinding wheels in resin bond | | | | | | | | | | | | | | |
|---------------------------------------|-----|---|---|----|----|----|----|-----------|-------|---------------|------|--------------|--|-------------|
| Shape | D | W | X | V° | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K4V4 | 100 | 6 | 1 | 10 | 20 | 25 | 10 | B151 | KSSTY | V180 | A | 66260135829 | Face grinding, Creep feed and reciprocal grinding up to module 6 | 2 |

All dimensions in mm



4V4

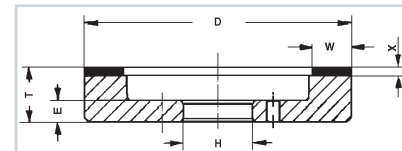
- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing
- Service
Glossary
Contact

6A2 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| VFK | ↑ | Metal bond for PCD rough pre-grinding |
| VF | | Metal bond for PCD pre-grinding |
| VFF | | Metal bond universal for PCD pre- and finish grinding |
| VP | | Metal bond for PCD polish grinding |
| BZ587 | | Standard metal bond for knife machining |
| PCX2350H | | Universal vitrified bond, also for PCD high carbide proportions |
| K+1313RY | | Resin bond for mixed grinding and wet grinding |

| cBN grinding wheels | Wear resistance | Recommendations for use |
|---------------------|-----------------|---|
| MSS587 | ↑ | Standard metal bond for knife machining |
| KSSRY | | Universal resin bond for wet grinding |
| KSS007N | | Free-grinding resin bond for dry grinding |



| 6A2 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|-----|---|---|----|----|----|-----------|----------|---------------|------|------------------------------|------------------------------|-------------|
| Shape | D | W | X | H | E | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 14K6A2 | 200 | 8 | 4 | 50 | 23 | 35 | D126 | K+1313RY | C100 | A | 66260134453 ^{1) 4)} | Surface and profile grinding | 2 |
| 26K6A2 | 200 | 8 | 4 | 75 | 23 | 35 | D126 | K+1313RY | C100 | A | 60157643892 ^{1) 5)} | Surface and profile grinding | 2 |
| 1K6A2 | 200 | 8 | 6 | 50 | 23 | 35 | D126 | K+1313RY | C100 | A | 7958762417 ⁴⁾ | Surface and profile grinding | 2 |
| 1K6A2 | 200 | 8 | 6 | 75 | 23 | 35 | D126 | K+1313RY | C100 | A | 7958762416 ⁵⁾ | Surface and profile grinding | 2 |

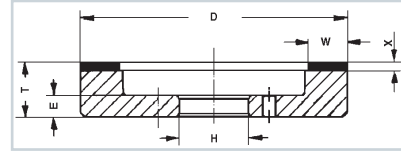
¹⁾ Available while stocks last

⁴⁾ Göckel grinding machines

⁵⁾ Reform grinding machines

May differ slightly from illustration depending on the machine's adapter flange

All dimensions in mm



6A2 Diamond grinding wheels in sintered metal bond

| Shape | D | W | X | H | T | E | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|----|---|----|----|----|-----------|-------|---------------|------|---------------------------|------------------------------|-------------|
| 8BZ6A2 | 150 | 6 | 8 | 40 | 26 | 10 | | VFK | | A | 60157643172 ²⁾ | PCD / PCBN inserts | 2 |
| 1BZ6A2 | 150 | 20 | 4 | 40 | 40 | 10 | | VF | | A | 66260135795 ²⁾ | PCD / PCBN inserts | 2 |
| | | | | | | | | VFF | | A | 60157643132 ²⁾ | | |
| | | | | | | | | VP | | A | 66260135772 ²⁾ | | |
| 3BZ6A2 | 200 | 8 | 4 | 75 | 35 | 17 | D64 | BZ587 | C25 | A | 60157642913 ⁵⁾ | Surface and profile grinding | 2 |
| 6BZ6A2 | 200 | 8 | 8 | 20 | 31 | 13 | D64 | BZ587 | C25 | A | 66260111969 ³⁾ | Surface and profile grinding | 2 |
| 5BZ6A2 | 200 | 8 | 8 | 50 | 31 | 13 | D64 | BZ587 | C25 | A | 66260110549 ⁴⁾ | Surface and profile grinding | 2 |
| 3BZ6A2 | 200 | 8 | 8 | 75 | 35 | 17 | D64 | BZ587 | C25 | A | 66260348688 ⁵⁾ | Surface and profile grinding | 2 |

²⁾EWAG manual machines

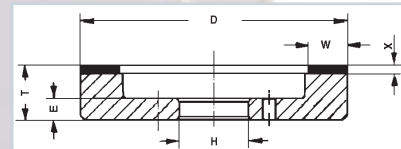
³⁾Universal tool grinding machines (bore can be adapted)

⁴⁾Göckel grinding machines

⁵⁾Reform grinding machines

May differ slightly from illustration depending on the machine's adapter flange

All dimensions in mm



6A2 Diamond grinding wheels in vitrified bond

| Shape | D | W | X | H | T | E | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|----|----|----|----|----|-----------|----------|---------------|------|--------------------------|--------------------|-------------|
| 5VG6A2 | 150 | 5 | 10 | 40 | 40 | 10 | D15A | PCX2350H | C120 | A | 7958716963 | PCD / PCBN inserts | 2 |
| 4VG6A2 | 150 | 10 | 10 | 40 | 40 | 10 | D15A | PCX2350H | C120 | A | 7958704537 | PCD / PCBN inserts | 2 |
| 3VG6A2 | 150 | 20 | 10 | 40 | 40 | 10 | D10 | PCX2350H | C120 | A | 69014142334 | PCD / PCBN inserts | 2 |
| | | | | | | | D15A | PCX2350H | C120 | A | 69014142337 | | |
| 2VG6A2 | 200 | 20 | 10 | 40 | 40 | 13 | D15A | PCX2350H | C120 | A | 7958706277 ¹⁾ | PCD / PCBN inserts | 2 |

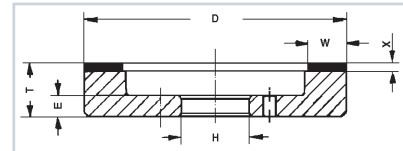
¹⁾ Available while stocks last

May differ slightly from illustration depending on the machine's adapter flange

All dimensions in mm

6A2

- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing
- Service
Glossary
Contact



6A2 cBN grinding wheels in resin bond

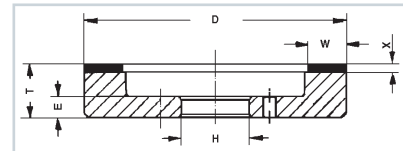
| Shape | D | W | X | H | T | E | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|----|----|----|-----------|------------|---------------|------|---------------------------|------------------------------|-------------|
| 2K6A2 | 125 | 3 | 4 | 20 | 18 | 10 | B107 | KSSRY | V120 | H | 66260134792 ⁶⁾ | Surface and profile grinding | 2 |
| 1K6A2 | 150 | 4 | 6 | 20 | 29 | 10 | B181 | KSS007N-63 | V180 | A | 60157643468 ³⁾ | Surface and profile grinding | 2 |

³⁾ Universal tool grinding machines (bore can be adapted)

⁶⁾ Weinig grinding machines

May differ slightly from illustration depending on the machine's adapter flange

All dimensions in mm



6A2 cBN grinding wheels in sintered metal bond

| Shape | D | W | X | H | T | E | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|---|---|----|----|----|-----------|--------|---------------|------|---------------------------|------------------------------|-------------|
| 5BZ6A2 | 200 | 8 | 8 | 50 | 31 | 13 | B126 | MSS587 | V120 | A | 66260133248 ⁴⁾ | Surface and profile grinding | 2 |
| 3BZ6A2 | 200 | 8 | 8 | 50 | 35 | 17 | B126 | MSS587 | V120 | A | 66260368698 ⁵⁾ | Surface and profile grinding | 2 |

⁴⁾ Göckel grinding machines


⁵⁾ Reform grinding machines

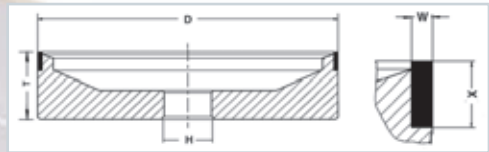
May differ slightly from illustration depending on the machine's adapter flange


All dimensions in mm

6A9 Grinding wheels

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| K+920 | ↑ | More wear-resistant resin bond also dry grinding |
| K+1421R | | Standard resin bond for CNC applications |



|  6A9 Diamond grinding wheels in resin bond | | | | | | | | | | | | |
|---|-----|---|----|----|----|-----------|---------|---------------|------|--------------|--------------------------|-------------|
| Shape | D | W | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 11K6A9 | 100 | 3 | 10 | 20 | 30 | D64 | K+1421R | C100 | H | 66260339412 | Clearance angle grinding | 2 |
| 1K6A9 | 125 | 3 | 10 | 20 | 30 | D126 | K+920 | C100 | A | 60157643461 | Clearance angle grinding | 2 |

All dimensions in mm

6A9

WINTER
Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

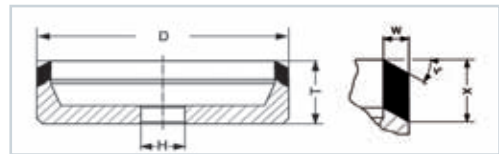
6V5 Grinding wheels / Special shape 222



Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| K+1421R | ↑ | Standard resin bond for CNC applications |
| K+4821 | | Free-grinding CNC bond, e.g. for Cermet |
| K+888RY | | Universal resin bond for wet grinding |
| K+777N | | Free-grinding resin bond (production grinding, oil) |

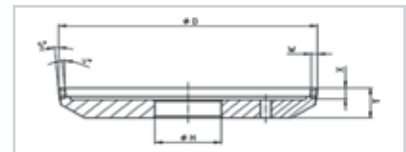
| cBN grinding wheels | Recommendations for use |
|---------------------|---------------------------------------|
| KSSRY | Universal resin bond for wet grinding |



| 6V5 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|-----|-----|----|----|----|----|-----------|---------|---------------|------|--------------|--------------------------|-------------|
| Shape | D | W | X | V° | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K6V5 | 100 | 4.5 | 10 | 30 | 20 | 34 | D64 | K+1421R | C100 | H | 66260370517 | Clearance angle grinding | 2 |

All dimensions in mm

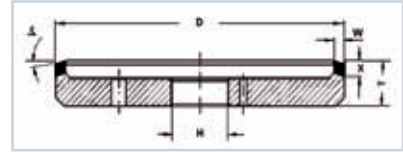
Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | |
|---|-----|---|-----|----|----|----|----|-----------|---------|---------------|------|--------------|--------------|-------------|
| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K222 | 125 | 3 | 6.5 | 32 | 35 | 18 | 5 | D54 | K+888RY | C100 | A | 60157642641 | Top grinding | 2 |
| | | | | | | | | D126 | K+888RY | C100 | A | 66260111456 | | |

All dimensions in mm

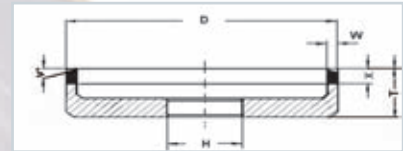
Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|-----|---|----|----|----|----|-----------|--------|---------------|------|--------------|--------------|-------------|
| Shape | D | W | X | H | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 27K222 | 125 | 5 | 6 | 32 | 18 | 8 | D91 | K+4821 | C100 | A | 60157643295 | Top grinding | 2 |
| 18K222 | 125 | 5 | 10 | 32 | 22 | 8 | D64 | K+777N | C75 | H | 60157643301 | Top grinding | 2 |

All dimensions in mm

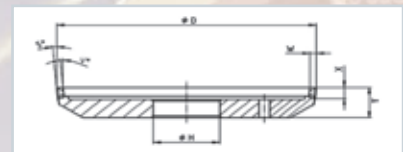
Special shape 222



| 222 cBN grinding wheels in resin bond | | | | | | | | | | | | | |
|---------------------------------------|-----|---|---|----|----|----|-----------|-------|---------------|------|--------------|------------------------------|-------------|
| Shape | D | W | X | H | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 3K222 | 100 | 3 | 6 | 20 | 30 | 3 | B126 | KSSRY | V120 | A | 60157643658 | Surface and profile grinding | 2 |

All dimensions in mm

Special shape 222



| 222 cBN grinding wheels in resin bond | | | | | | | | | | | | | | |
|---------------------------------------|-----|---|-----|----|----|----|----|-----------|-------|---------------|------|--------------|------------------------------|-------------|
| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K222 | 125 | 3 | 6.5 | 32 | 35 | 18 | 5 | B107 | KSSRY | V240 | A | 60157643394 | Stellite circular saw blades | 2 |

All dimensions in mm

WINTER Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

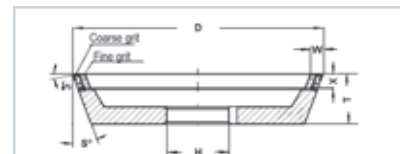
Service
Glossary
Contact

6V5 Grinding wheels / Special shape 222

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| K+921 | ↑ | More wear-resistant resin bond preferably wet grinding |
| K+888RY | | Universal resin bond for wet grinding |
| K+1066 | | Resin bond for top grinding (resharpening, copes with body contact) |
| K+434 | | Free-grinding resin bond (synthetic coolant) |

Special shape 222

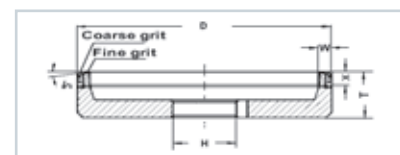


222 Diamond grinding wheels in resin bond

| Shape | D | W | X | Layer | H | S° | T | V° | W _{fine} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|-------|----|----|----|----|-------------------|-----------|---------|---------------|------|--------------|--------------|-------------|
| 4K222 | 100 | 5 | 6 | 2L | 25 | 70 | 20 | 8 | 2.5 | D46 | K+888RY | C75 | H | 60157642914 | Top grinding | 2 |
| | | | | | | | | | | D126 | | C100 | | | | |

All dimensions in mm

Special shape 222

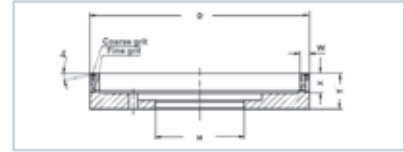


222 Diamond grinding wheels in resin bond

| Shape | D | W | X | Layer | H | T | V° | W _{fine} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|----|-------|----|----|----|-------------------|-----------|---------|---------------|------|--------------|--------------|-------------|
| 6K222 | 100 | 5 | 6 | 2L | 25 | 20 | 8 | 2.5 | D46 | K+888RY | C75 | H | 66260135827 | Top grinding | 2 |
| | | | | | | | | | D126 | | C100 | | | | |
| 1K222 | 100 | 5 | 10 | 2L | 25 | 24 | 8 | 2.5 | D46 | K+434 | C75 | H | 66260135783 | Top grinding | 2 |
| | | | | | | | | | D126 | | C100 | | | | |
| 2K222 | 100 | 5 | 10 | 2L | 25 | 24 | 8 | 2.0 | D46 | K+888RY | C100 | H | 60157643263 | Top grinding | 2 |
| | | | | | | | | | D126 | | C125 | | | | |

All dimensions in mm

Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | |
|---|-----|---|----|-------|------|----|----|-------------------|-----------|---------|---------------|------|--------------|--------------|-------------|
| Shape | D | W | X | Layer | H | T | V° | W _{fine} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 31K222 | 125 | 5 | 6 | 2L | 50.8 | 20 | 8 | 2.5 | D46 | K+888RY | C75 | H | 66260135844 | Top grinding | 2 |
| | | | | | | | | | D126 | | C100 | | | | |
| 8K222 | 125 | 5 | 10 | 2L | 50.8 | 24 | 8 | 2.5 | D46 | K+888RY | C75 | H | 66260135843 | Top grinding | 2 |
| | | | | | | | | | D126 | | C100 | | | | |

All dimensions in mm

Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | | | |
|---|-----|---|---|-------|----|----|----|----|-------------------|---------------------|-----------|--------|---------------|------|--------------|--------------|-------------|
| Shape | D | W | X | Layer | H | S° | T | V° | W _{fine} | W _{coarse} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 5K222 | 125 | 6 | 6 | 3L | 32 | 30 | 18 | 8 | 2 | 2 | D20B | K+1066 | C75 | H | 66260132898 | Top grinding | 2 |
| | | | | | | | | | | | D46 | | C100 | | | | |
| | | | | | | | | | | | D126 | | C100 | | | | |

All dimensions in mm

Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | | |
|---|-----|---|---|-------|----|----|----|-------------------|-----------|---------|---------------|------|--------------|--------------|-------------|--|
| Shape | D | W | X | Layer | H | T | V° | W _{fine} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | |
| 3K222 | 125 | 5 | 6 | 2L | 32 | 18 | 8 | 2.5 | D46 | K+434 | C75 | H | 66260136498 | Top grinding | 2 | |
| | | | | | | | | | D126 | | C100 | | | | | |
| | | | | | | | | | D46 | K+888RY | C75 | H | 66260136530 | | | |
| | | | | | | | | | D126 | | C100 | | | | | |

All dimensions in mm

WINTER Facts

Grinding

Cutting

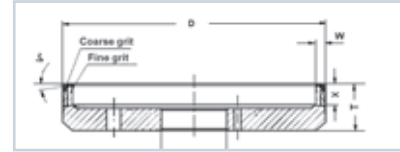
Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | | |
|---|-----|---|----|-------|----|----|----|-------------------|-----------|---------|---------------|------|--------------|--------------|-------------|--|
| Shape | D | W | X | Layer | H | T | V° | W _{fine} | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | |
| 5K222 | 125 | 5 | 10 | 2L | 32 | 22 | 8 | 2.5 | D15C | K+888RY | C50 | H | 66260115711 | Top grinding | 2 | |
| | | | | | | | | | D91 | | C75 | | | | | |
| | | | | | | | | | D20B | K+1066 | C100 | H | | | | |
| | | | | | | | | | D126 | | C125 | | | | | |
| | | | | | | | | | D25 | K+888RY | C100 | H | | | | |
| | | | | | | | | | D76 | | C125 | | | | | |
| | | | | | | | | | D46 | K+434 | C75 | H | | | | |
| | | | | | | | | | D126 | | C100 | | | | | |
| 5K222 | 125 | 5 | 10 | 2L | 32 | 22 | 8 | 2.5 | D46 | K+921 | C100 | H | 66260133442 | Top grinding | 2 | |
| | | | | | | | | | D126 | | C125 | | | | | |
| | | | | | | | | | D46 | K+1066 | C100 | H | | | | |
| | | | | | | | | | D126 | | C125 | | | | | |

All dimensions in mm

WINTER
Facts

Grinding

Cutting

Filing


Lapping
Polishing
Micron powder

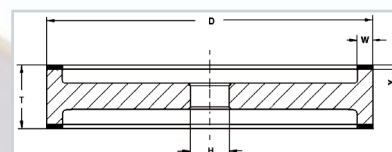
Dressing

Service
Glossary
Contact

9A3 Grinding wheels

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---------------------------------------|
| K+888NY | ↑ | Universal resin bond for wet grinding |
| K+888N | | Universal resin bond for wet grinding |




9A3 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|----|----|-----------|---------|---------------|------|---------------------------|--------------------|-------------|
| 1K9A3 | 175 | 5 | 2 | 20 | 30 | D126 | K+888N | C75 | A | 66260116615 ¹⁾ | Universal grinding | 2 |
| K9A3 | 175 | 8 | 2 | 20 | 35 | D64 | K+888NY | C31 | A | 66260134834 | Universal grinding | 2 |

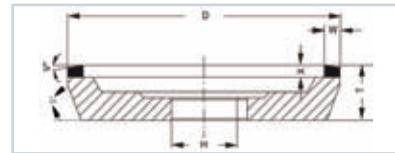
¹⁾ Available while stocks last
All dimensions in mm


11A2 Grinding wheels / Special shape 222

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Recommendations for use |
|---|---------------------------------------|
| K+888RY | Universal resin bond for wet grinding |

Special shape 222



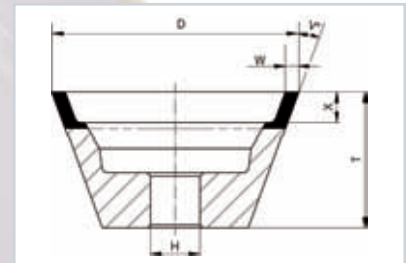
|  222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | |
|---|-----|---|---|----|----|----|----|-----------|---------|---------------|------|--------------|--------------|-------------|
| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 5K222 | 100 | 5 | 4 | 25 | 70 | 20 | 4 | D76 | K+888RY | C75 | H | 60157643743 | Top grinding | 2 |

All dimensions in mm

11V2 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | | Recommendations for use | |
|-------------------------|--|---------------------------------------|--|
| K+888R | | Universal resin bond for dry grinding | |
| cBN grinding wheels | | Wear resistance | Recommendations for use |
| KSS12N | | ↑ | Standard resin bond for CNC applications |
| KSS10N | | | Universal resin bond for tool grinding |




| 11V2 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|--|----|---|---|----|----|----|-----------|--------|---------------|------|--------------|---------------------|-------------|
| Shape | D | W | X | H | V° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 2K11V2 | 40 | 2 | 5 | 10 | 20 | 22 | D64 | K+888R | C75 | H | 60157642670 | Coordinate grinding | 2 |

| 11V2 cBN grinding wheels in resin bond | | | | | | | | | | | | | |
|--|----|---|---|----|----|----|-----------|--------|---------------|------|--------------|--------------------------------------|-------------|
| Shape | D | W | X | H | V° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 2K11V2 | 20 | 2 | 5 | 8 | 20 | 22 | B126 | KSS12N | V180 | H | 60157643026 | Coordinate grinding | 2 |
| K11V2 | 30 | 2 | 5 | 8 | 20 | 22 | B126 | KSS12N | V180 | H | 66260136462 | Coordinate grinding | 2 |
| K11V2 | 40 | 2 | 5 | 10 | 20 | 22 | B126 | KSS10N | V180 | H | 66260134764 | Coordinate grinding Special tools | 2 |

All dimensions in mm

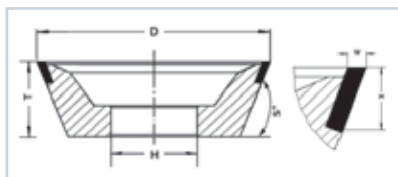
11V9 Grinding wheels / Special shape 222

Selection assistant for WINTER bond systems

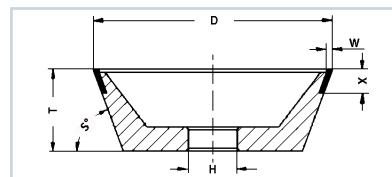
|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| V-Pro4073 | ↑ | High-performance resin bond for gashing and grinding of clearance angles |
| M+789 | | Special bond for tungsten carbide-steel combination grinding, dry |
| K+980 | | More wear-resistant, resin bond with high edge stability |
| K+921 | | More wear-resistant resin bond preferably wet grinding |
| K+1421R | | Standard resin bond for CNC applications |
| K+1414N | | Special resin bond for tungsten carbide-steel combination, dry grinding |
| K+1414J | | Special resin bond for tungsten carbide-steel combination, dry grinding |
| K+4821 | | Free-grinding CNC bond, e.g. for Cermet |
| K+888RY | | Universal resin bond for wet grinding |
| K+888R | | Universal resin bond for dry grinding |
| K+1410 | | Free-grinding resin bond for dry grinding |
| K+777R | | Universal resin bond for fine grit applications |
| KR250 | | Free-grinding resin bond, wet/dry grinding |

|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| KSS980 | ↑ | More wear-resistant, resin bond with high edge stability |
| KSS12N | | Standard resin bond for CNC applications |
| KSS10N | | Universal resin bond for tool grinding |
| KSS007N | | Free-grinding resin bond for dry grinding |
| KSS1065 | | Particularly free-grinding dry grinding bond |

CNC grinding



Universal grinding

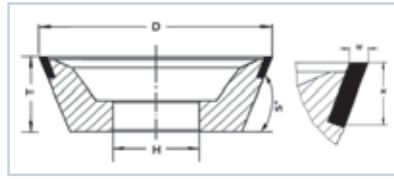


11V9 Diamond grinding wheels in resin bond

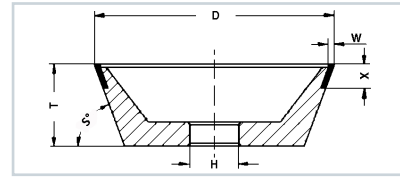
| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|--------|-----|-----|-------------|----|----|-----------|-----------|---------------|------|--------------|--------------------|-------------|
| K11V9 | 75 | 2 | 10 | 20 | 70 | 30 | D15C | K+888R | C50 | H | 66260111375 | Universal grinding | 2 |
| | | | | | | | D46 | K+888R | C75 | D | 66260128403 | | |
| | | | | | | | D64 | K+888R | C75 | D | 60157644128 | | |
| | | | | | | | D91 | K+888R | C75 | D | 66260136470 | | |
| | | | | | | | D126 | K+888R | C75 | D | 66260135883 | | |
| 7K11V9 | 75 | 2 | 10 | 20 | 70 | 30 | D64 | K+1421R | C100 | H | 66260338587 | CNC grinding | 2 |
| | | | | | | | D64 | K+1410 | C125 | H | 60157685425 | | |
| 1SP11V9 | 75 | 3 | 10 | 20 | 70 | 30 | D46 | V-Pro4073 | C125 | D | 7958711381 | CNC grinding | 2 |
| | | | | | | | D64 | V-Pro4073 | C125 | D | 7958708546 | | |
| 2K11V9 | 75 | 3 | 10 | 20 | 70 | 30 | D64 | K+1421R | C100 | H | 66260347304 | CNC grinding | 2 |
| M11V9 | 95.3 | 3.2 | 9.3 | 20 | 70 | 35 | D91 | M+789 | C50 | D | 60157642796 | Universal grinding | 2 |
| | | | | | | | D126 | M+789 | C50 | D | 66260136404 | | |
| | | | | | | | D126 | M+789 | C75 | D | 60157643011 | | |
| K11V9 | 100 | 2 | 10 | 20 | 70 | 35 | D15A | K+777R | C75 | H | 66260110921 | Universal grinding | 2 |
| | | | | | | | D46 | K+1414N | C75 | D | 66260114079 | | |
| | | | | | | | D64 | K+888R | C75 | D | 60157642864 | | |
| | | | | | | | D64 | K+888R | C75 | H | 60157642816 | | |
| | | | | | | | D91 | K+888R | C75 | D | 60157642783 | | |
| | | | | | | | D126 | K+888R | C75 | D | 66260137065 | | |
| | | | | | | | D126 | K+1414J | C75 | D | 66260100363 | | |
| | | | | | | | D126 | K+1414N | C75 | D | 60157643573 | | |
| D151 | K+1410 | C75 | D | 66260129623 | | | | | | | | | |
| 8K11V9 | 100 | 2 | 10 | 20 | 70 | 35 | D64 | K+1421R | C100 | H | 66260338586 | CNC grinding | 2 |
| | | | | | | | D64 | K+1410 | C125 | H | 69014163728 | | |
| | | | | | | | D64 | K+980-42 | C125 | H | 66260324844 | | |
| | | | | | | | D91 | K+921 | C125 | H | 66260383968 | | |
| | | | | | | | D126 | K+888R | C100 | H | 66260344473 | | |
| 10K11V9 | 100 | 3 | 10 | 20 | 70 | 35 | D64 | K+1421R | C100 | H | 66260334264 | CNC grinding | 2 |

All dimensions in mm

CNC grinding



Universal grinding

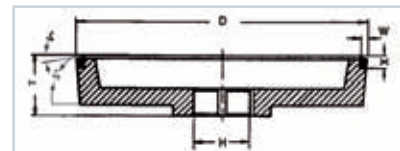


11V9 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|---|----|----|----|----|-----------|-----------|---------------|------|--------------|--------------------|-------------|
| K11V9 | 100 | 3 | 10 | 20 | 70 | 35 | D46 | K+1414N | C75 | D | 60157643080 | Universal grinding | 2 |
| | | | | | | | D64 | K+888R | C75 | D | 60157643467 | | |
| | | | | | | | D91 | K+888R | C75 | D | 66260134899 | | |
| | | | | | | | D126 | K+888R | C75 | D | 60157642950 | | |
| | | | | | | | D126 | K+1410 | C75 | D | 66260136164 | | |
| | | | | | | | D126 | K+1414N | C75 | D | 66260134959 | | |
| | | | | | | | D151 | K+1410 | C75 | D | 66260355670 | | |
| 3SP11V9 | 100 | 3 | 10 | 20 | 70 | 35 | D46 | V-Pro4073 | C125 | D | 7958704895 | CNC grinding | 2 |
| | | | | | | | D64 | V-Pro4073 | C125 | D | 69014133000 | | |
| 1SP11V9 | 125 | 3 | 10 | 20 | 70 | 40 | D46 | V-Pro4073 | 125 | D | 7958711383 | CNC grinding | 2 |
| | | | | | | | D64 | V-Pro4073 | 125 | D | 7958709384 | | |
| 11K11V9 | 125 | 3 | 10 | 20 | 70 | 40 | D64 | K+1421R | C100 | H | 66260338584 | CNC grinding | 2 |
| M11V9 | 125 | 3 | 10 | 20 | 70 | 40 | D126 | M+789 | C75 | D | 60157643328 | Universal grinding | 2 |

All dimensions in mm

Special shape 222



222 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|----|----|----|----|-----------|---------|---------------|------|--------------|--------------|-------------|
| 1K222 | 125 | 3 | 5 | 25 | 85 | 26 | 5 | D54 | K+888RY | C100 | A | 60157642941 | Top grinding | 2 |

All dimensions in mm

11V9 / Special shape 222

WINTER
Facts

Grinding

Cutting

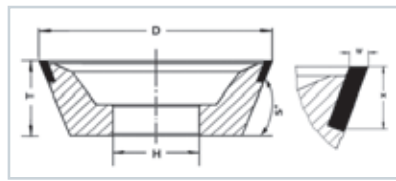
Filing

Lapping
Polishing
Micron powder

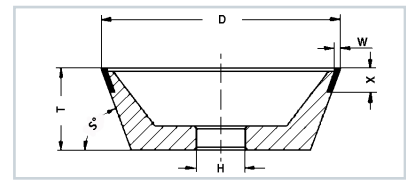
Dressing

Service
Glossary
Contact

CNC grinding



Universal grinding



11V9 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|---|----|----|----|----|-----------|-------------|---------------|------|---------------------------|--------------------|-------------|
| K11V9 | 75 | 2 | 6 | 20 | 70 | 30 | B181 | KSS007N | V180 | D | 60157643817 ²⁾ | Universal grinding | 2 |
| K11V9 | 75 | 2 | 10 | 20 | 70 | 30 | B126 | KSS10N | V180 | D | 60157643665 | Universal grinding | 2 |
| | | | | | | | B181 | KSS007N | V180 | D | 66260136571 ²⁾ | | |
| 7K11V9 | 75 | 2 | 10 | 20 | 70 | 30 | B107 | KSS12N | V240 | H | 66260352681 | CNC grinding | 2 |
| | | | | | | | B107 | KSS980-60 | V240 | H | 60157685182 | | |
| K11V9 | 75 | 3 | 10 | 20 | 70 | 30 | B126 | KSS10N | V180 | D | 60157643113 | Universal grinding | 2 |
| 1SP11V9 | 75 | 3 | 10 | 20 | 70 | 30 | B107 | V-Pro4073 | V300 | D | 7958713361 | CNC grinding | 2 |
| K11V9 | 100 | 2 | 10 | 20 | 70 | 35 | B91 | KSS12N | | D | 66260128013 ¹⁾ | Universal grinding | 2 |
| | | | | | | | B126 | KSS007N | | D | 60157643642 ²⁾ | | |
| | | | | | | | B126 | KSS10N | | D | 60157643300 | | |
| | | | | | | | B151 | KSS1065V-63 | | H | 66260355615 | | |
| | | | | | | | B181 | KSS007N | | D | 66260135739 ²⁾ | | |
| | | | | | | | B181 | KSS007N-63 | | D | 60157642872 ²⁾ | | |
| 8K11V9 | 100 | 2 | 10 | 20 | 70 | 35 | B107 | KSS12N | V240 | H | 66260352678 | CNC grinding | 2 |
| | | | | | | | B107 | KSS980-60 | V240 | H | 69014163185 | | |
| K11V9 | 100 | 3 | 10 | 20 | 70 | 35 | B126 | KSS10N | V180 | D | 60157643042 | Universal grinding | 2 |
| 10K11V9 | 100 | 3 | 10 | 20 | 70 | 35 | B107 | KSS12N | V240 | H | 66260352675 | CNC grinding | 2 |
| 3SP11V9 | 100 | 3 | 10 | 28 | 70 | 35 | B107 | V-Pro4073 | V300 | D | 7958710236 | CNC grinding | 2 |
| K11V9 | 125 | 2 | 10 | 20 | 70 | 40 | B126 | KSS10N | V180 | H | 60157643879 | Universal grinding | 2 |
| | | | | | | | B181 | KSS007N | V180 | D | 66260135770 ²⁾ | | |
| 11K11V9 | 125 | 3 | 10 | 20 | 70 | 40 | B107 | KSS12N | V240 | H | 66260352674 | CNC grinding | 2 |
| 2SP11V9 | 125 | 3 | 10 | 20 | 70 | 40 | B107 | V-Pro4073 | V300 | D | 7958747439 | CNC grinding | 2 |


¹⁾ Available while stocks last

²⁾ KSS007N high material removal rate at $v_c > 30$ m/s, Infeed $a_e = 0,05...0,15$ mm

All dimensions in mm

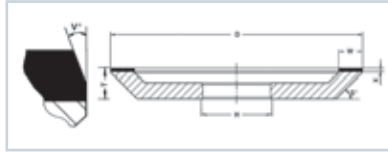
12A2 Grinding wheels / Special shape 222

Selection assistant for WINTER bond systems

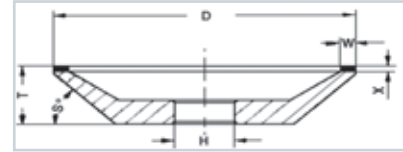
|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---|
| BZ560 | ↑ | Metal bond for wet and dry grinding |
| M+789 | | Special bond for tungsten carbide-steel combination grinding, dry |
| VFF | | Metal bond universal for pre- and finish grinding |
| K+1421R | | Standard resin bond for CNC applications |
| K+1414N | | Special resin bond for tungsten carbide-steel combination, dry grinding |
| K+888RY | | Universal resin bond for wet grinding |
| K+888R | | Universal resin bond for dry grinding |
| K+888N | | Universal resin bond for dry grinding |
| K+888J | | Universal resin bond for dry grinding |
| K+777N | | Universal resin bond for fine grit applications |
| K+777J | | Universal resin bond for fine grit applications |
| K+730 | | Very free-grinding fine-grain bond, dry grinding possible |

|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---|
| KSSJY | ↑ | Universal resin bond for wet grinding |
| KSS12N | | Standard resin bond for CNC applications |
| KSS10N | | Universal resin bond for tool grinding |
| KSS10J | | Universal resin bond for tool grinding |
| KR102 | | Free-grinding resin bond for wet grinding |

CNC grinding



Universal grinding



12A2 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|------|---|----|----|----|----|-----------|-----------|---------------|------|--------------|--------------------|-------------|
| 1K12A2 | 75 | 3 | 4 | 20 | 45 | 24 | | D7 | K+730 | C50 | B | 60157643560 | Universal grinding | 2 |
| | | | | | | | | D15B | K+777J | C50 | B | 66260135928 | | |
| | | | | | | | | D46 | K+888J | C75 | D | 60157643552 | | |
| | | | | | | | | D64 | K+888J | C75 | D | 66260136270 | | |
| | | | | | | | | D91 | K+888R | C75 | H | 60157642779 | | |
| | | | | | | | | D126 | K+888R | C75 | A | 66260136273 | | |
| M12A2 | 75 | 3 | 4 | 20 | 45 | 24 | | D91 | M+789 | C50 | A | 60157643230 | Universal grinding | 2 |
| K12A2 | 100 | 5 | 2 | 20 | 45 | 25 | | D46 | K+888N | C50 | H | 60157643097 | Universal grinding | 2 |
| | | | | | | | | D91 | K+888R | C50 | H | 60157643285 | | |
| | | | | | | | | D91 | K+888R-69 | C50 | A | 66260147081 | | |
| K12A2 | 100 | 6 | 4 | 20 | 45 | 27 | | D64 | K+888R | C50 | B | 60157642582 | Universal grinding | 2 |
| | | | | | | | | D126 | K+888R | C75 | D | 60157642588 | | |
| M12A2 | 100 | 6 | 4 | 20 | 45 | 27 | | D91 | M+789 | C50 | H | 60157642871 | Universal grinding | 2 |
| | | | | | | | | D126 | M+789 | C50 | H | 60157642688 | | |
| K12A2 | 100 | 10 | 2 | 20 | 45 | 25 | | D64 | K+888J | C50 | H | 66260136330 | Universal grinding | 2 |
| | | | | | | | | D126 | K+888J | C50 | H | 60157642866 | | |
| K12A2 | 100 | 10 | 4 | 20 | 45 | 27 | | D126 | K+888N | C75 | H | 66260135975 | Universal grinding | 2 |
| K12A2 | 125 | 6 | 2 | 20 | 45 | 25 | | D46 | K+888R | C50 | H | 60157642628 | Universal grinding | 2 |
| K12A2 | 125 | 12.5 | 2 | 20 | 45 | 25 | | D64 | K+888J | C50 | H | 60157642835 | Universal grinding | 2 |
| | | | | | | | | D91 | K+888J | C50 | H | 60157642684 | | |
| | | | | | | | | D126 | K+888J | C50 | H | 60157642792 | | |
| 2K12A2 | 125 | 15 | 3 | 20 | 45 | 26 | 20 | D46 | K+1421R | C100 | H | 66260352597 | CNC grinding | 2 |
| K12A2 | 150 | 15 | 2 | 20 | 45 | 25 | | D91 | K+777N | C50 | H | 66260136459 | Universal grinding | 2 |

All dimensions in mm



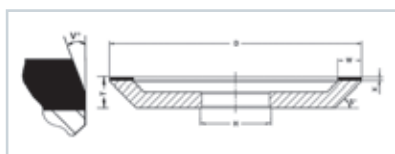
12A2 Diamond grinding wheels in sintered metal bond

| Shape | D | W | X | H | E | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|----|---|----|----|----|----|-----------|-------|---------------|------|---------------------------|--------------------|-------------|
| BZ12A2 | 125 | 10 | 1 | 20 | 10 | 45 | 26 | D91 | BZ560 | C75 | E | 60157642968 | Universal grinding | 2 |
| 1BZ12A2 | 125 | 15 | 4 | 20 | 10 | 45 | 26 | | VFF | | A | 60157643666 ¹⁾ | PCD machining | 2 |

¹⁾ For Kelch SZ32K

All dimensions in mm

CNC grinding



Universal grinding



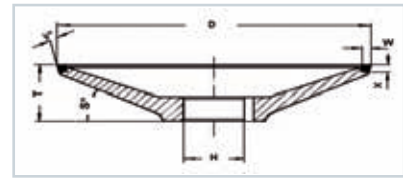
12A2 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|----|---|----|----|----|----|-----------|--------|---------------|------|---------------------------|---|-------------|
| 1K12A2 | 75 | 3 | 4 | 20 | 45 | 24 | | B46 | KSS10N | V180 | H | 60157643055 | Universal grinding | 2 |
| | | | | | | | | B91 | KSS10N | V180 | H | 66260135831 | | |
| K12A2 | 100 | 5 | 2 | 20 | 20 | 12 | | B126 | KSS10J | V120 | H | 66260136215 ¹⁾ | Universal grinding, Face and clearance grinding | 2 |
| K12A2 | 100 | 5 | 2 | 20 | 45 | 25 | | B126 | KSS10J | V120 | H | 60157643373 | Universal grinding | 2 |
| K12A2 | 125 | 5 | 2 | 20 | 20 | 16 | | B126 | KSS10J | V120 | H | 66260136538 ¹⁾ | Face and clearance grinding | 2 |
| 2K12A2 | 125 | 15 | 3 | 20 | 45 | 26 | 20 | B91 | KSS12N | V240 | H | 66260352593 | CNC grinding | 2 |
| K12A2 | 150 | 4 | 6 | 32 | 45 | 29 | | B76 | KR102 | V240 | A | 66260340323 ¹⁾ | Universal grinding | 2 |
| K12A2 | 150 | 5 | 2 | 20 | 20 | 18 | | B126 | KSS10J | V120 | H | 66260134924 | Universal grinding | 2 |
| K12A2 | 175 | 5 | 4 | 20 | 20 | 22 | | B126 | KSS10J | V120 | H | 66260128803 | Universal grinding | 2 |
| K12A2 | 200 | 5 | 4 | 20 | 20 | 24 | | B126 | KSS10J | V120 | H | 66260127109 | Universal grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm

Special shape 222

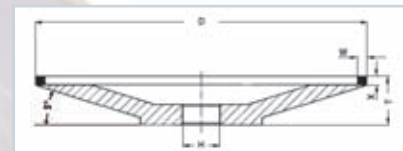


| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | |
|---|-----|---|-----|----|----|----|----|-----------|---------|---------------|------|---------------------------|---------------|-------------|
| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K222 | 125 | 3 | 3.3 | 25 | 25 | 26 | 15 | D54 | K+888RY | C75 | A | 60157642734 ¹⁾ | Face grinding | 2 |

¹⁾ Available while stocks last

All dimensions in mm

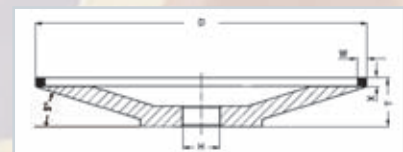
Special shape 222



| 222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|-----|---|---|----|----|----|-----------|---------|---------------|------|--------------|---------------------------------|-------------|
| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 14K222 | 150 | 5 | 4 | 20 | 20 | 23 | D64 | K+888R | C50 | H | 66260135778 | Cutting face (Face grinding) | 2 |
| | | | | | | | D151 | K+1414N | C75 | H | 66260128468 | | |
| 2K222 | 175 | 5 | 4 | 20 | 18 | 26 | D64 | K+888R | C50 | H | 66260135779 | Cutting face (Face grinding) | 2 |
| 6K222 | 200 | 5 | 4 | 20 | 16 | 28 | D64 | K+888R | C50 | H | 60157643208 | Cutting face (Face grinding) | 2 |

All dimensions in mm

Special shape 222



| 222 cBN grinding wheels in resin bond | | | | | | | | | | | | | |
|---------------------------------------|-----|---|---|----|----|----|-----------|--------|---------------|------|--------------|---------------------------------|-------------|
| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 14K222 | 150 | 5 | 4 | 20 | 20 | 23 | B54 | KSS10J | V120 | H | 66260110861 | Cutting face (Face grinding) | 2 |
| | | | | | | | B107 | KSS10J | V120 | H | 66260135777 | | |
| 2K222 | 175 | 5 | 4 | 20 | 18 | 26 | B107 | KSS10J | V120 | H | 66260135775 | Cutting face (Face grinding) | 2 |
| 6K222 | 200 | 5 | 4 | 20 | 16 | 28 | B107 | KSS10J | V120 | H | 60157643768 | Cutting face (Face grinding) | 2 |

All dimensions in mm

WINTER Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

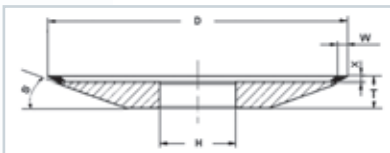
Service
Glossary
Contact

12V2 Grinding wheels / Special shape 222

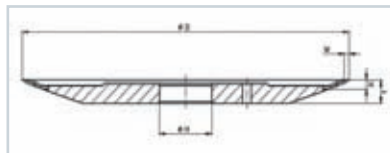
Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| Tiger II | ↑ | Wear-resistant resin bond for tooth-face grinding |
| K+921 | | Wear-resistant resin bond for tooth-face grinding |
| K+4821 | | Free-grinding CNC bond, e.g. for C _{mm} t |
| K+888RY | | Universal resin bond for wet grinding |
| K+888N | | Universal resin bond for dry grinding |
| K+730 | | Very free-grinding fine-grain bond, dry grinding possible |

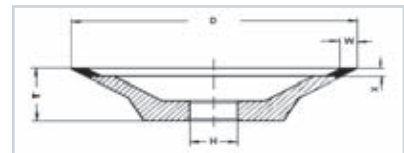
Face grinding



Face grinding (Tiger)



Face and clearance grinding

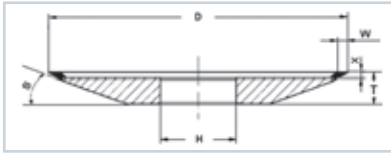


12V2 Diamond grinding wheels in resin bond

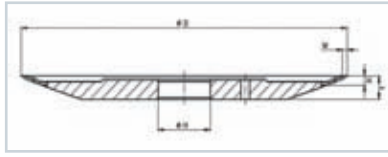
| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|-----|-----|----|----|----|----|--------------|---------|---------------|------|--------------|-----------------------------|-------------|
| 2K12V2 | 100 | 4 | 2 | 25 | 20 | 10 | 30 | D46 | K+921 | C125 | A | 66260128232 | Face grinding | 2 |
| | | | | | | | | D76 | K+4821 | C125 | A | 66260333648 | | |
| 1K12V2 | 125 | 2.5 | 5.5 | 32 | 25 | 13 | 25 | Tiger II | | | H | 66260375783 | Face grinding | 2 |
| 1K12V2 | 125 | 2.9 | 5.5 | 32 | 20 | 13 | 20 | Tiger II 20° | | | H | 60157695569 | Face grinding | 2 |
| 5K12V2 | 125 | 4 | 2 | 32 | 20 | 13 | 30 | D20A | K+730 | C75 | A | 66260114168 | Face grinding | 2 |
| | | | | | | | | D46 | K+921 | C125 | A | 66260115804 | | |
| | | | | | | | | D46 | K+4821 | C125 | A | 66260134429 | | |
| | | | | | | | | D76 | K+888RY | C125 | A | 66260135735 | | |
| | | | | | | | | D76 | K+4821 | C125 | A | 66260134487 | | |
| 1K12V2 | 125 | 5 | 3 | 20 | 30 | 26 | 30 | D64 | K+888N | C50 | H | 60157642736 | Face and clearance grinding | 2 |
| 1K12V2 | 125 | 5 | 4 | 20 | 29 | 26 | 29 | D46 | K+888N | C50 | H | 66260129020 | Face and clearance grinding | 2 |
| 1K12V2 | 125 | 8 | 4 | 20 | 30 | 26 | 30 | D46 | K+888N | C50 | H | 60157642744 | Face and clearance grinding | 2 |
| | | | | | | | | D64 | K+888N | C75 | H | 66260136367 | | |

All dimensions in mm

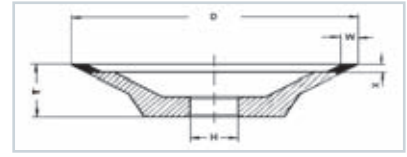
Face grinding



Face grinding (Tiger)



Face and clearance grinding

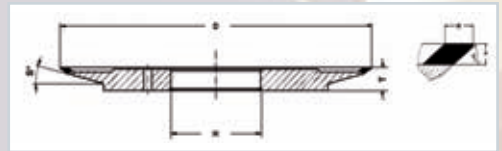


12V2 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|-----|-----|----|----|----|----|--------------|---------|---------------|------|--------------|---------------|-------------|
| 6K12V2 | 150 | 4 | 2 | 32 | 15 | 13 | 30 | D46 | K+921 | C125 | A | 66260127225 | Face grinding | 2 |
| | | | | | | | | D46 | K+888RY | C125 | A | 66260113968 | | |
| | | | | | | | | D64 | K+921 | C125 | A | 66260118587 | | |
| 1K12V2 | 155 | 2.5 | 5.5 | 32 | 25 | 13 | 25 | Tiger II | | | A | 69014168642 | Face grinding | 2 |
| 1K12V2 | 200 | 2 | 2 | 32 | 20 | 13 | 30 | D46 | K+921 | C125 | A | 66260133948 | Face grinding | 2 |
| 1K12V2 | 200 | 2.5 | 5.5 | 32 | 25 | 13 | 25 | Tiger II | | | H | 66260382131 | Face grinding | 2 |
| 1K12V2 | 200 | 2.9 | 5.5 | 32 | 20 | 13 | 20 | Tiger II 20° | | | H | 60157680758 | Face grinding | 2 |
| 2K12V2 | 200 | 4 | 2 | 32 | 20 | 13 | 30 | D25 | K+921 | C100 | A | 66260130483 | Face grinding | 2 |
| | | | | | | | | D46 | K+921 | C125 | A | 66260117017 | | |
| | | | | | | | | D76 | K+888RY | C125 | A | 66260115113 | | |

All dimensions in mm

Special shape 222



222 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | V° | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|------|----|----|----|-----------|---------|---------------|------|--------------|---------------|-------------|
| 1K222 | 175 | 4 | 2 | 50.8 | 15 | 12 | 30 | D76 | K+888RY | C125 | A | 66260136435 | Face grinding | 2 |

All dimensions in mm

WINTER Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

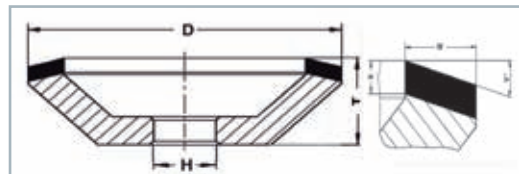
Dressing

Service
Glossary
Contact

12V5 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Recommendations for use |
|-------------------------|--|
| K+1421R | Standard resin bond for CNC applications |




| 12V5 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|--|-----|----|---|----|----|----|-----------|---------|---------------|------|--------------|--------------------------|-------------|
| Shape | D | W | X | V° | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| K12V5 | 100 | 10 | 5 | 20 | 20 | 28 | D46 | K+1421R | C100 | H | 66260352645 | Clearance angle grinding | 2 |

All dimensions in mm

12V9 Grinding wheels

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| V-Pro4073 | ↑ | High-performance resin bond for gashing and grinding of clearance angles |
| K+980 | | More wear-resistant, resin bond with high edge stability |
| Tiger G | | Wear-resistant resin bond for tooth-face grinding in coarse grit |
| Tiger | | Wear-resistant resin bond for tooth-face grinding |
| K+921 | | More wear-resistant resin bond preferably wet grinding |
| K+1421R | | Standard resin bond for CNC applications |
| K+1414N | | Special resin bond for tungsten carbide-steel combination, dry grinding |
| K+888RY | | Universal resin bond for wet grinding |
| K+888R | | Universal resin bond for dry grinding |
| K+888FM | | Fine-grit resin bond for polish grinding |
| K+1410 | | Free-grinding resin bond for dry grinding |
| K+777N | | Universal resin bond for fine grit applications |

|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| K+980 | ↑ | More wear-resistant, resin bond with high edge stability |
| KSSJY | | Universal resin bond for wet grinding |
| KSS12N | | Standard resin bond for CNC applications |
| KSS10N | | Universal resin bond for tool grinding |
| KSS007N | | Free-grinding resin bond for dry grinding |

12V9

WINTER Facts

Grinding

Cutting

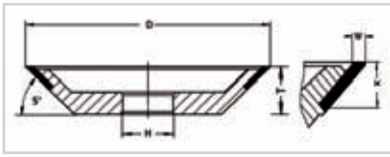
Filing

Lapping
Polishing
Micron powder

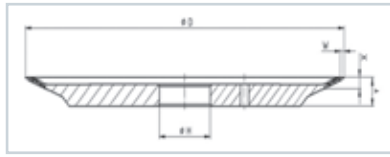
Dressing

Service
Glossary
Contact

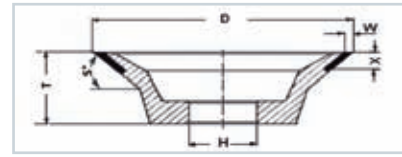
Universal and CNC grinding



Face grinding



Special tool

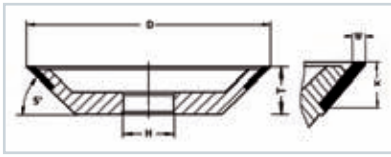


12V9 Diamond grinding wheels in resin bond

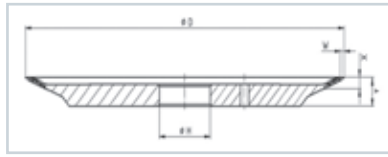
| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|--------|-----|-----|-------------|----|----|-----------|-----------|---------------|------|--------------|--------------------|-------------|
| 2K12V9 | 50 | 2 | 6 | 20 | 45 | 19 | D64 | K+1421R | C100 | A | 66260128817 | CNC grinding | 2 |
| K12V9 | 75 | 2 | 6 | 20 | 45 | 20 | D46 | K+1414N | C75 | D | 66260110121 | Universal grinding | 2 |
| | | | | | | | D64 | K+888R | C75 | D | 60157643020 | | |
| K12V9 | 75 | 2 | 10 | 20 | 45 | 20 | D15B | K+888FM | C100 | H | 66260129105 | Universal grinding | 2 |
| 2K12V9 | 75 | 2 | 10 | 20 | 45 | 25 | D15C | K+777N | C75 | H | 66260116643 | Universal grinding | 2 |
| | | | | | | | D64 | K+888R | C75 | D | 60157642957 | | |
| | | | | | | | D91 | K+888R | C75 | D | 66260132226 | | |
| | | | | | | | D126 | K+888R | C75 | D | 60157643465 | | |
| 3K12V9 | 75 | 2 | 10 | 20 | 45 | 20 | D64 | K+1421R | C100 | H | 66260338583 | CNC grinding | 2 |
| 1K12V9 | 75 | 2.3 | 7.1 | 20 | 45 | 26 | D46 | K+888R | C75 | H | 60157642595 | Special tools | 2 |
| | | | | | | | D64 | K+888R | C75 | H | 60157642687 | | |
| K12V9 | 75 | 3 | 6 | 20 | 45 | 20 | D46 | K+1414N | C75 | H | 66260119257 | Universal grinding | 2 |
| 2K12V9 | 75 | 3 | 10 | 20 | 45 | 20 | D64 | K+1421R | C100 | H | 66260352673 | CNC grinding | 2 |
| K12V9 | 100 | 1.5 | 6 | 20 | 45 | 20 | D151 | K+888RY | C75 | H | 60157643322 | Universal grinding | 2 |
| K12V9 | 100 | 2 | 6 | 20 | 45 | 20 | D91 | K+888R | C75 | H | 66260114858 | Universal grinding | 2 |
| | | | | | | | D46 | K+888R | C75 | D | 66260118421 | | |
| | | | | | | | D126 | K+888R | C75 | D | 60157643198 | | |
| 5K12V9 | 100 | 2 | 10 | 20 | 45 | 25 | D46 | K+888R | C75 | D | 66260118421 | Universal grinding | 2 |
| D64 | K+888R | C75 | D | 66260136069 | | | | | | | | | |
| D126 | K+888R | C75 | D | 60157643198 | | | | | | | | | |
| 6K12V9 | 100 | 2 | 10 | 20 | 45 | 20 | D64 | K+1421R | C100 | H | 66260344811 | CNC grinding | 2 |
| 3K12V9 | 100 | 2.3 | 4 | 25 | 20 | 10 | Tiger | | | D | 66260387961 | Face grinding | 2 |
| 3K12V9 | 100 | 3 | 6 | 20 | 30 | 20 | D91 | K+888R | C75 | A | 66260107650 | Universal grinding | 2 |
| 3K12V9 | 100 | 3 | 10 | 20 | 45 | 20 | D64 | K+1421R | C100 | H | 66260339437 | CNC grinding | 2 |
| | | | | | | | D126 | K+888R | C100 | H | 66260128545 | | |
| 4SP12V9 | 100 | 3 | 10 | 20 | 45 | 20 | D46 | V-Pro4073 | | A | 7958711384 | CNC grinding | 2 |
| | | | | | | | D64 | V-Pro4073 | | A | 69014147396 | | |
| 9K12V9 | 125 | 2 | 10 | 20 | 45 | 25 | D64 | K+1410 | C125 | H | 69014182731 | CNC grinding | 2 |
| | | | | | | | D64 | K+980-42 | C125 | H | 60157672850 | | |
| | | | | | | | D91 | K+921 | C125 | H | 66260383462 | | |
| 3K12V9 | 125 | 2.3 | 4 | 25 | 20 | 10 | Tiger | | | D | 66260135761 | Face grinding | 2 |

All dimensions in mm

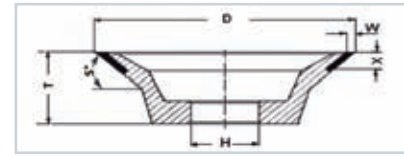
Universal and CNC grinding



Face grinding



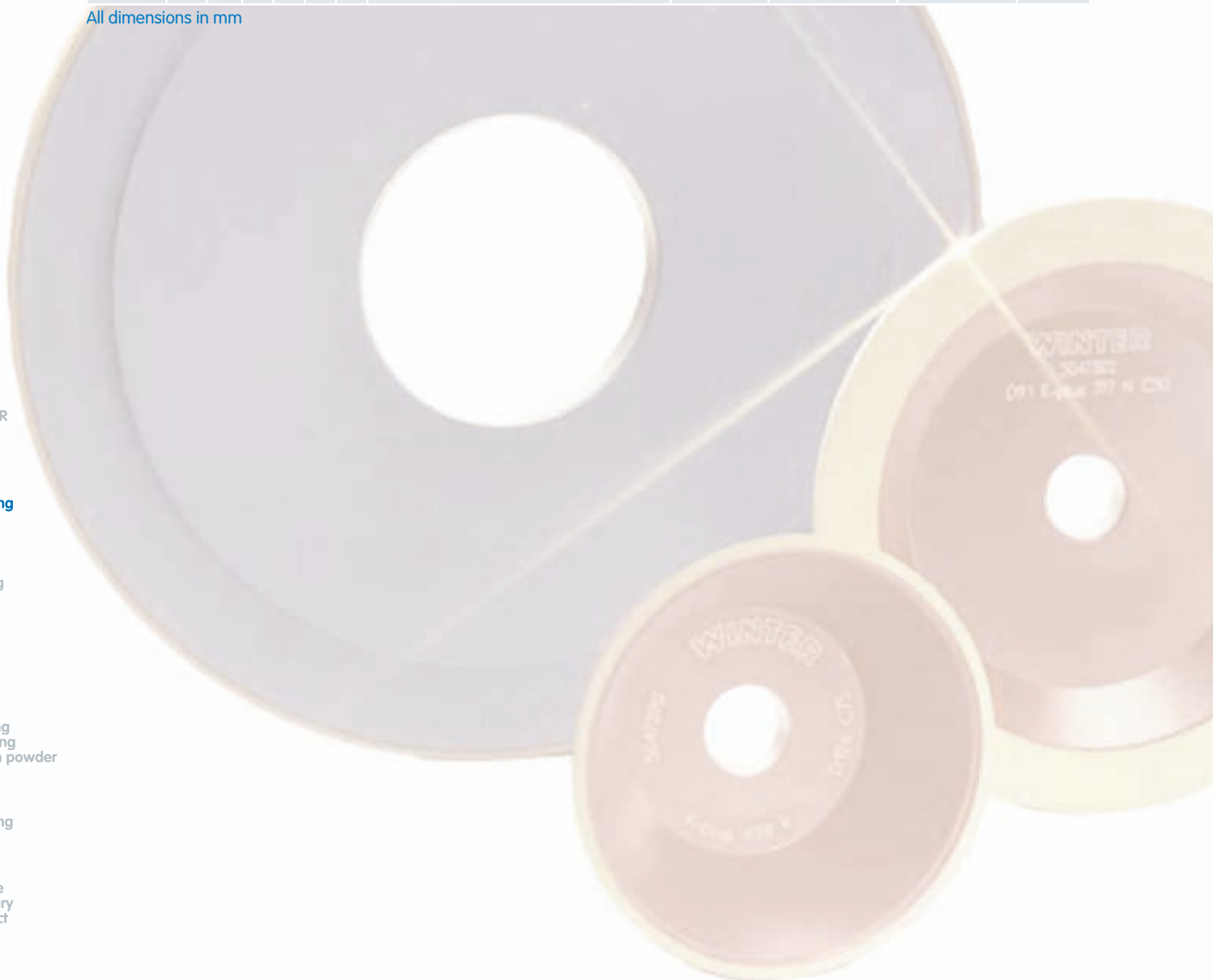
Special tool



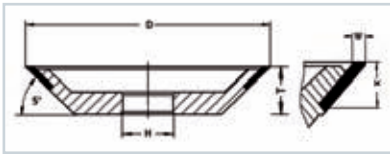
12V9 Diamond grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|-----|----|----|----|----|-----------|-----------|---------------|------|--------------|---------------|-------------|
| 1K12V9 | 125 | 2.3 | 4 | 32 | 20 | 13 | | Tiger | | D | 66260383182 | Face grinding | 2 |
| 1SP12V9 | 125 | 3 | 10 | 20 | 45 | 25 | D46 | V-Pro4073 | | A | 7958709321 | CNC grinding | 2 |
| | | | | | | | D64 | | | | | | |
| 5K12V9 | 125 | 3 | 10 | 20 | 45 | 25 | D64 | K+1421R | C100 | H | 66260334260 | CNC grinding | 2 |
| 1K12V9 | 150 | 2.3 | 4 | 32 | 20 | 13 | | Tiger | | D | 66260385221 | Face grinding | 2 |
| 5K12V9 | 150 | 3 | 10 | 20 | 45 | 25 | D64 | K+1421R | C100 | H | 66260117874 | CNC grinding | 2 |
| 1K12V9 | 155 | 2.3 | 4 | 32 | 20 | 13 | | Tiger G | | D | 66260354959 | Face grinding | 2 |
| 1K12V9 | 200 | 2.3 | 4 | 32 | 20 | 13 | | Tiger | | D | 66260383180 | Face grinding | 2 |

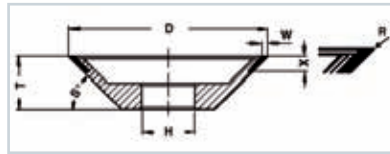
All dimensions in mm



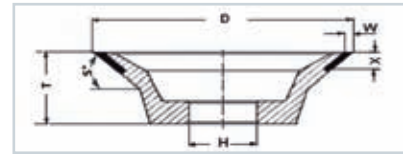
CNC grinding



Universal grinding



Special tool



12V9 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | R | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|-----|-----|----|----|----|---|-----------|------------|---------------|------|------------------------------|--------------------|-------------|
| 7K12V9 | 50 | 2 | 6 | 20 | 45 | 16 | | B126 | KSS10N | V180 | D | 66260136491 | CNC grinding | 2 |
| K12V9 | 75 | 2 | 6 | 20 | 45 | 20 | | B126 | KSS10N | V180 | D | 66260139893 | CNC grinding | 2 |
| 3K12V9 | 75 | 2 | 10 | 20 | 45 | 20 | | B107 | KSS12N | V240 | H | 66260352670 | CNC grinding | 2 |
| 2K12V9 | 75 | 2 | 10 | 20 | 45 | 25 | | B126 | KSS10N | V180 | D | 66260136065 | CNC grinding | 2 |
| 2K12V9 | 75 | 2.3 | 7.1 | 20 | 45 | 26 | | B126 | KSS007-63 | V180 | H | 66260113221 | Special tools | 2 |
| 3K12V9 | 75 | 3 | 6 | 20 | 45 | 20 | 1 | B181 | KSS007N | V180 | D | 60157643923 ²⁾ | Universal grinding | 2 |
| K12V9 | 100 | 2 | 6 | 20 | 45 | 35 | | B126 | KSS10N | V180 | D | 60157643398 | Universal grinding | 2 |
| 6K12V9 | 100 | 2 | 10 | 20 | 45 | 20 | | B107 | KSS12N | V240 | H | 66260352669 | CNC grinding | 2 |
| | | | | | | | | B107 | KSS980-60 | V240 | H | 60157685426 | | |
| 5K12V9 | 100 | 2 | 10 | 20 | 45 | 25 | | B126 | KSS10N | V180 | D | 60157643440 | Universal grinding | 2 |
| 4K12V9 | 100 | 2 | 10 | 20 | 45 | 24 | | B181 | KSS007N-63 | V180 | H | 66260114593 ²⁾ | Universal grinding | 2 |
| 6K12V9 | 100 | 3 | 6 | 20 | 45 | 20 | 1 | B181 | KSS007N | V180 | D | 60157643800 ²⁾ | Universal grinding | 2 |
| 7K12V9 | 100 | 3 | 6 | 20 | 35 | 20 | 1 | B181 | KSS007N | V180 | A | 60157643335 ²⁾ | Universal grinding | 2 |
| 4SP12V9 | 100 | 3 | 10 | 20 | | 20 | | B107 | V-Pro4073 | V300 | A | 7958722543 | CNC grinding | 2 |
| 1K12V9 | 100 | 3 | 15 | 20 | 45 | 20 | | B107 | KSS12N | V240 | H | 66260352668 | CNC grinding | 2 |
| | | | | | | | | B151 | KSSJY-77 | V240 | H | 60157642984 | | |
| 1K12V9 | 100 | 3 | 15 | 20 | 45 | 22 | | B151 | KSS007N-77 | V180 | H | 60157642915 ^{1) 2)} | Universal grinding | 2 |
| 9K12V9 | 125 | 2 | 10 | 20 | 45 | 25 | | B107 | KSS980-60 | V240 | H | 60157685183 | CNC grinding | 2 |
| 3K12V9 | 125 | 3 | 6 | 20 | 45 | 25 | 1 | B181 | KSS007N | V180 | D | 60157643131 ²⁾ | Universal grinding | 2 |
| 1SP12V9 | 125 | 3 | 10 | 20 | | 25 | | B107 | V-Pro4073 | V300 | A | 7958710238 | CNC grinding | 2 |
| 5K12V9 | 125 | 3 | 10 | 20 | 45 | 25 | | B107 | KSS12N | V240 | H | 66260354629 | CNC grinding | 2 |
| K12V9 | 125 | 3 | 10 | 20 | 45 | 40 | | B151 | KSS007N-77 | V180 | D | 66260112846 ²⁾ | Universal grinding | 2 |
| 6K12V9 | 125 | 3 | 15 | 20 | 45 | 25 | | B107 | KSS12N | V240 | H | 66260352667 | CNC grinding | 2 |
| | | | | | | | | B151 | KSSJY-77 | V240 | H | 66260128064 | | |


¹⁾ Available while stocks last


²⁾ KSS007N for high material removal rate at $v_c > 30$ m/s, Infeed $a_e = 0,05...0,15$ mm

All dimensions in mm

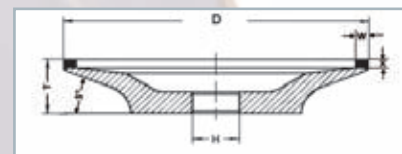
13A2 Grinding wheels / Special shape 222


Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---|
| K+1414J | ↑ | Resin bond for tungsten carbide-steel combination grinding, dry |
| K+888R | | Universal resin bond for dry grinding |
| K+888J | | Universal resin bond for dry grinding |
| K+1410 | | Free-grinding resin bond for dry grinding |

|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---|
| KSS10J | ↑ | Universal resin bond for tool grinding |
| KSS0007N | | Free-grinding resin bond for dry grinding |

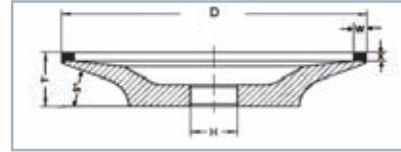
Special shape 222



|  222 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|---|--------|------|---|-------------|----|----|-----------|---------|---------------|------|--------------|-----------------------------|-------------|
| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K222 | 125 | 5 | 4 | 20 | 20 | 23 | D64 | K+1414J | C50 | H | 66260135758 | Face and clearance grinding | 2 |
| 16K222 | 125 | 5 | 4 | 20 | 20 | 23 | D151 | K+888R | C75 | H | 66260100321 | Face and clearance grinding | 2 |
| | | | | | | | D181 | K+888R | C100 | H | 60157643406 | | |
| 20K222 | 125 | 5 | 4 | 20 | 20 | 23 | D46 | K+888J | C50 | H | 66260349438 | Face and clearance grinding | 2 |
| | | | | | | | D46 | K+1410 | C75 | H | 66260111759 | | |
| | | | | | | | D64 | K+888R | C50 | H | 66260117305 | | |
| | | | | | | | D64 | K+1410 | C75 | H | 66260335191 | | |
| | | | | | | | D91 | K+888R | C50 | H | 66260117906 | | |
| | | | | | | | D126 | K+888R | C50 | H | 66260118608 | | |
| | | | | | | | D151 | K+888R | C75 | H | 66260130346 | | |
| | | | | | | | D181 | K+1410 | C100 | D | 66260115578 | | |
| D181 | K+1410 | C100 | H | 66260352288 | | | | | | | | | |

All dimensions in mm

Special shape 222



222 cBN grinding wheels in resin bond

| Shape | D | W | X | H | S° | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|---|---|----|----|----|-----------|------------|---------------|------|---------------------------|-----------------------------|-------------|
| 20K222 | 125 | 5 | 4 | 20 | 20 | 23 | B64 | KSS007N-63 | V120 | D | 66260115588 | Face and clearance grinding | 2 |
| | | | | | | | B107 | KSS10J | V120 | H | 66260133018 | | |
| | | | | | | | B126 | KSS10J | V120 | H | 66260350216 | | |
| | | | | | | | B151 | KSS007N-63 | V120 | H | 66260135854 | | |
| 22K222 | 125 | 5 | 4 | 20 | 20 | 23 | B107 | KSS10J | V120 | H | 60157642903 ¹⁾ | Face and clearance grinding | 2 |
| 1K222 | 150 | 5 | 4 | 20 | 20 | 23 | B107 | KSS007N-63 | V120 | H | 66260115865 | Face and clearance grinding | 2 |

¹⁾ 3x120° M6, pitch circle 32 / 3x120° Ø 6,6 , pitch circle 36

All dimensions in mm

WINTER
Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

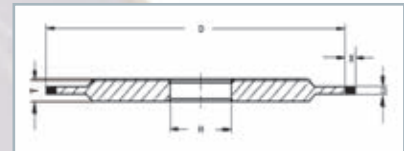
Dressing

Service
Glossary
Contact

14A1 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|---------------------------------------|---|
| K+920 | ↑ | More wear-resistant resin bond also dry grinding |
| K+1414N | | Special resin bond for tungsten carbide-steel combination, dry grinding |
| K+888R | | Universal resin bond for dry grinding |
| cBN grinding wheels | Recommendations for use | |
| KSSRY | Universal resin bond for wet grinding | |



| 14A1 Diamond grinding wheels in resin bond | | | | | | | | | | | | |
|--|-----|-----|---|----|----|-----------|---------|---------------|------|---------------------------|--------------------|-------------|
| Shape | D | U | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K14A1 | 75 | 2 | 6 | 20 | 10 | D64 | K+888R | C75 | A | 66260136218 | Universal grinding | 2 |
| K14A1 | 100 | 2 | 5 | 20 | 6 | D76 | K+1414N | C75 | A | 60157642932 | Universal grinding | 2 |
| | | | | | | D126 | K+888R | C75 | A | 66260113077 | | |
| 1K14A1 | 150 | 2.3 | 7 | 50 | 8 | D151 | K+920 | C100 | A | 66260129975 ¹⁾ | Flute grinding | 2 |
| 3K14A1 | 150 | 3.6 | 6 | 32 | 8 | D151 | K+920 | C100 | A | 66260130484 | Flute grinding | 2 |

| 14A1 cBN grinding wheels in resin bond | | | | | | | | | | | | |
|--|-----|---|---|----|---|-----------|-------|---------------|------|---------------------------|------------------------------|-------------|
| Shape | D | U | X | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K14A1 | 200 | 4 | 3 | 60 | 5 | B91 | KSSRY | V240 | H | 60157643410 ²⁾ | Surface and profile grinding | 2 |

¹⁾ Available while stocks last

²⁾ Weing grinding machines

All dimensions in mm

14A1

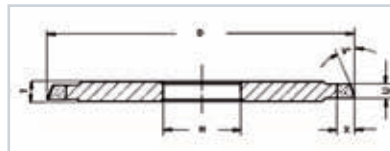
- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing
- Service
Glossary
Contact

14B1 Grinding wheels

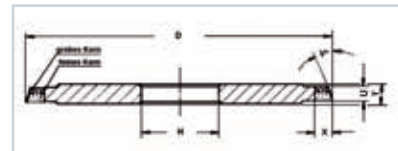
Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|--|
| K+921 | ↑ | More wear-resistant resin bond preferably wet grinding |
| K+1313RY | | Resin bond for mixed grinding and wet grinding |
| K+4821 | | Free-grinding CNC bond, e.g. for Cermet |

Top grinding



Top grinding (two Layer)



| 14B1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | | |
|--|-----|---|---|-------------------|----|-------|----|---|-----------|----------|---------------|------|---------------------------|--------------|-------------|--|
| Shape | D | U | X | U _{fine} | V° | Layer | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. | |
| 1K14B1 | 127 | 5 | 7 | 2,5 | 5 | 2L | 32 | 8 | D46 | K+4821 | C75 | H | 66260134416 | Top grinding | 2 | |
| | | | | | | | | | D107 | | C100 | | | | | |
| 1K14B1 | 127 | 5 | 7 | 2,5 | 15 | 2L | 32 | 8 | D54 | K+1313RY | C100 | A | 66260117412 | Top grinding | 2 | |
| | | | | | | | | | D126 | | C125 | | | | | |
| | | | | | | | | | D46 | K+4821 | C75 | A | 60157643587 | | | |
| | | | | | | | | | D107 | | C100 | | | | | |
| 2K14B1 | 127 | 5 | 7 | | 15 | | 32 | 8 | D54 | K+921 | C125 | A | 66260114938 ¹⁾ | Top grinding | 2 | |

¹⁾ Available while stocks last

All dimensions in mm

14B1

WINTER
Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder


Dressing

Service
Glossary
Contact

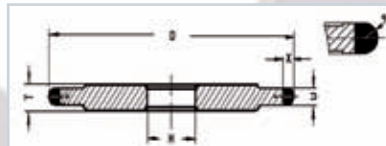
14F1 Grinding wheels / Special shape 700

Selection assistant for WINTER bond systems

|  Diamond grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|--|
| K+920 | ↑ | More wear-resistant resin bond also dry grinding |
| K+1313RY | | Resin bond for mixed grinding and wet grinding |
| K+1421R | | Standard resin bond for CNC applications |
| K+4821 | | Free-grinding CNC bond, e.g. for Cermet |
| K+888TY | | Universal resin bond for wet grinding |
| K+888R | | Universal resin bond for dry grinding |


|  cBN grinding wheels | Wear resistance | Recommendations for use |
|---|-----------------|---|
| ProCurve | ↑ | Universal bond for HSS saws (oil / emulsion coolant) |
| KSS920 | | More wear-resistant resin bond also dry grinding |
| KSSR | | Universal resin bond for wet grinding |
| KSSRY | | Universal resin bond for wet grinding |
| KSSJY | | Universal resin bond for wet grinding |
| KSS12N | | Standard resin bond for CNC applications |
| KSS007N | | Free-grinding resin bond for dry grinding and under oil |

Universal and Flute grinding



Surface and profile grinding



|  14F1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | |
|--|-----|---|---|-----|----|----|-----------|---------|---------------|------|---------------------------|--------------------|-------------|
| Shape | D | U | X | R | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| K14F1 | 100 | 4 | 5 | 2 | 20 | 6 | D107 | K+888R | C100 | H | 66260136216 | Universal grinding | 2 |
| 1K14F1 | 100 | 4 | 6 | 2 | 20 | 6 | D64 | K+1421R | C100 | H | 66260339416 | Flute grinding | 2 |
| K14F1 | 125 | 3 | 5 | 1.5 | 20 | 6 | D64 | K+1421R | C100 | H | 66260114821 | Flute grinding | 2 |
| 1K14F1 | 150 | 1 | 5 | 0.5 | 20 | 10 | D64 | K+888TY | C125 | A | 66260116538 | Flute grinding | 2 |
| K14F1 | 150 | 2 | 5 | 1 | 20 | 8 | D64 | K+888R | C100 | A | 66260348744 ²⁾ | Flute grinding | 2 |
| 1K14F1 | 150 | 3 | 7 | 1.5 | 20 | 10 | D126 | K+920 | C100 | A | 66260133404 | Flute grinding | 2 |

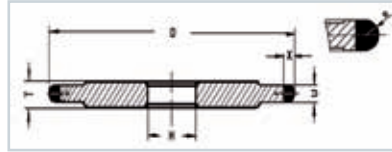
¹⁾ Available while stocks last

²⁾ Typically for Hertel SE Drill

³⁾ Weing grinding machines

All dimensions in mm

Universal and Flute grinding



Surface and profile grinding



14F1 Diamond grinding wheels in resin bond

| Shape | D | U | X | R | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|---|---|-----|----|----|-----------|----------|---------------|------|---------------------------|------------------------------|-------------|
| 17K14F1 | 200 | 2 | 7 | 1 | 20 | 10 | D64 | K+920 | C100 | E | 60157695294 | Flute grinding | 2 |
| 13K14F1 | 200 | 2 | 7 | 1 | 60 | 5 | D64 | K+4821 | C100 | A | 66260119140 ³⁾ | Surface and profile grinding | 2 |
| 4K14F1 | 200 | 3 | 7 | 1.5 | 20 | 10 | D126 | K+920 | C100 | E | 66260381129 | Flute grinding | 2 |
| | | | | | | | D151 | K+1313RY | C100 | E | 66260134511 | | |
| 3K14F1 | 200 | 4 | 6 | 2 | 60 | 5 | D151 | K+1313RY | C100 | H | 66260114210 | Surface and profile grinding | 2 |
| 9K14F1 | 200 | 4 | 7 | 2 | 60 | 5 | D151 | K+4821 | C100 | A | 66260127453 ³⁾ | Surface and profile grinding | 2 |
| 2K14F1 | 200 | 5 | 7 | 2.5 | 20 | 10 | D126 | K+920 | C100 | A | 66260136115 | Flute grinding | 2 |
| | | | | | | | D252 | K+920 | C100 | A | 66260132184 ¹⁾ | | |

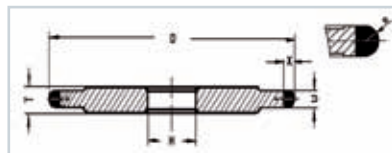
¹⁾ Available while stocks last

²⁾ Typically for Hertel SE Drill

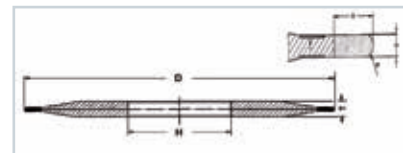
³⁾ Weing grinding machines

All dimensions in mm

Flute grinding



Surface and profile grinding



14F1 cBN grinding wheels in resin bond

| Shape | D | U | X | R | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|---|---|-----|----|----|-----------|------------|---------------|------|---------------------------|------------------------------|-------------|
| K14F1 | 100 | 3 | 5 | 1.5 | 20 | 6 | B107 | KSS12N | V240 | A | 66260340210 | Flute grinding | 2 |
| K14F1 | 100 | 4 | 5 | 2 | 20 | 6 | B107 | KSS12N | V240 | A | 66260116260 | Flute grinding | 2 |
| 1K14F1 | 100 | 4 | 5 | 2 | 20 | 10 | B151 | KSSJY-63 | V240 | H | 60157643640 ¹⁾ | Flute grinding | 2 |
| 5K14F1 | 200 | 2 | 5 | 1 | 60 | 6 | B126 | KSS920 | V180 | A | 60157642627 ³⁾ | Surface and profile grinding | 2 |
| 17K14F1 | 200 | 2 | 7 | 1 | 20 | 10 | B64 | KSS007N-63 | V180 | E | 60157695901 | Flute grinding | 2 |
| 13K14F1 | 200 | 2 | 7 | 1 | 60 | 5 | B126 | KSSRY | V180 | A | 66260119546 ³⁾ | Surface and profile grinding | 2 |

¹⁾ Available while stocks last

³⁾ Weing grinding machines

All dimensions in mm

14F1

WINTER Facts

Grinding

Cutting

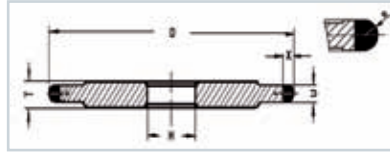
Filing

Lapping Polishing Micron powder

Dressing

Service Glossary Contact

Flute grinding



Surface and profile grinding



14F1 cBN grinding wheels in resin bond

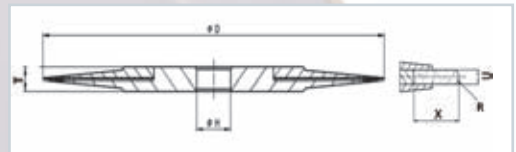
| Shape | D | U | X | R | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|--------|-----|---|---|-----|----|----|-----------|------------|---------------|------|---------------------------|------------------------------|-------------|
| K14F1 | 200 | 3 | 5 | 1.5 | 60 | 10 | B151 | KSSRY | V180 | A | 66260130748 ³⁾ | Surface and profile grinding | 2 |
| 4K14F1 | 200 | 3 | 7 | 1.5 | 20 | 10 | B181 | KSS007N-63 | V180 | E | 66260133528 | Flute grinding | 2 |
| 1K14F1 | 200 | 4 | 3 | 2 | 60 | 5 | B151 | KSSRY | V240 | H | 60157642904 ³⁾ | Surface and profile grinding | 2 |
| 2K14F1 | 200 | 5 | 7 | 2.5 | 20 | 10 | B181 | KSS007N-63 | V180 | A | 60157695651 | Flute grinding | 2 |

¹⁾ Available while stocks last

³⁾ Weing grinding machines

All dimensions in mm

Special shape 700

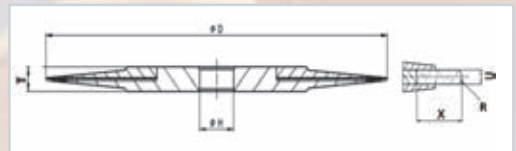


700 Diamond grinding wheels in resin bond

| Shape | D | U | X | R | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|-----|----|----|-----------|-------|---------------|------|--------------|------------------------------|-------------|
| 7K700 | 200 | 1 | 5 | 0.5 | 20 | 10 | D64 | K+920 | C75 | E | 60157678914 | Surface and profile grinding | 2 |
| 7K700 | 200 | 1 | 5 | 0.5 | 20 | 10 | D126 | K+920 | C75 | E | 60157678913 | Surface and profile grinding | 2 |

All dimensions in mm

Special shape 700



700 cBN grinding wheels in resin bond

| Shape | D | U | X | R | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|-----|----|----|-----------|------|---------------|------|--------------|------------------------------|-------------|
| 7K700 | 200 | 1 | 5 | 0.5 | 20 | 10 | B151 | KSSR | V180 | E | 60157678949 | Surface and profile grinding | 2 |

All dimensions in mm

WINTER Facts

Grinding

Cutting

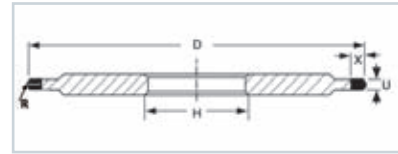
Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Special shape 700



700 cBN grinding wheels in resin bond

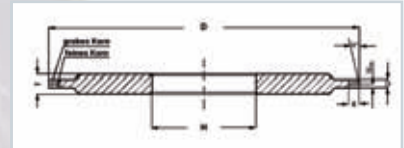
| Shape | D | U | X | R | H | Grit size | Bond | Concentration | Body | Order number | Comment | Application | Catalog No. |
|-------|-----|-----|------|------|----|-----------|----------|---------------|------|--------------|----------------|-------------------------|-------------|
| 1K700 | 200 | 1.3 | 6.5 | 0.65 | 32 | B107 | ProCurve | E | | 7958758236 | Oil / Emulsion | HSS circular saw blades | 2 |
| 2K700 | 200 | 1.6 | 7 | 0.8 | 32 | B107 | ProCurve | E | | 7958761766 | Oil / Emulsion | HSS circular saw blades | 2 |
| 3K700 | 200 | 2 | 8 | 1 | 32 | B107 | ProCurve | E | | 7958745748 | Oil / Emulsion | HSS circular saw blades | 2 |
| 2K700 | 200 | 2.5 | 8 | 1.25 | 32 | B107 | ProCurve | E | | 7958756148 | Oil / Emulsion | HSS circular saw blades | 2 |
| 5K700 | 200 | 3 | 10 | 1.5 | 32 | B107 | ProCurve | E | | 7958759735 | Oil / Emulsion | HSS circular saw blades | 2 |
| 3K700 | 200 | 3.5 | 10 | 1.75 | 32 | B107 | ProCurve | E | | 7958761779 | Oil / Emulsion | HSS circular saw blades | 2 |
| 1K700 | 200 | 4 | 12.5 | 2 | 32 | B107 | ProCurve | E | | 7958756329 | Oil / Emulsion | HSS circular saw blades | 2 |
| 1K700 | 200 | 5 | 15 | 2.5 | 32 | B107 | ProCurve | E | | 7958761780 | Oil / Emulsion | HSS circular saw blades | 2 |

All dimensions in mm

14M1 Grinding wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| K+921 | ↑ | More wear-resistant resin bond preferably wet grinding |
| K+1066 | | Resin bond for top grinding (resharpening, copes with body contact) |



| 14M1 Diamond grinding wheels in resin bond | | | | | | | | | | | | | | | |
|--|-----|---|---|-------------------|----|-------|----|----|-----------|--------|---------------|------|--------------|--------------|-------------|
| Shape | D | U | X | U _{fine} | V° | Layer | H | T | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| 1K14M1 | 150 | 5 | 8 | 2.5 | 8 | 2L | 32 | 10 | D46 | K+921 | C75 | A | 66260130887 | Top grinding | 2 |
| | | | | | | | | | D107 | | C100 | | | | |
| 1K14M1 | 200 | 5 | 8 | 2.0 | 8 | 2L | 32 | 10 | D20B | K+1066 | C75 | A | 66260379464 | Top grinding | 2 |
| | | | | | | | | | D91 | | C100 | | | | |
| 1K14M1 | 200 | 5 | 8 | 2.5 | 8 | 2L | 32 | 10 | D46 | K+921 | C75 | A | 66260375347 | Top grinding | 2 |
| | | | | | | | | | D107 | | C100 | | | | |

All dimensions in mm

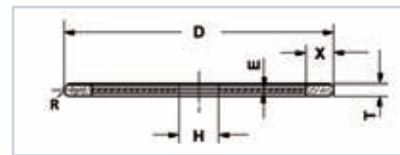
14M1

- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing
- Service
Glossary
Contact

34P Grinding wheels

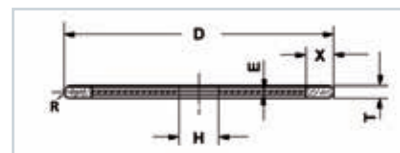
Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| BZ457 | ↑ | Standard metal bond for chip breaker flutes |
| K+888RY | | Universal resin bond for wet grinding |



| 34P Diamond grinding wheels in resin bond | | | | | | | | | | | | |
|---|-----|-----|---|----|-----|-----|-----------|---------|---------------|--------------|---------------------|-------------|
| Shape | D | T | X | H | E | R | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
| 1K34P | 125 | 0.8 | 5 | 32 | 0.6 | 0.4 | D151 | K+888RY | C75 | 66260383651 | Chip breaker flutes | 2 |

All dimensions in mm



| 34P Diamond grinding wheels in sintered metal bond | | | | | | | | | | | | |
|--|-----|-----|---|----|-----|------|-----------|-------|---------------|--------------|---------------------|-------------|
| Shape | D | T | X | H | E | R | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
| 1BZ34P | 125 | 0.5 | 5 | 32 | 0.4 | 0.25 | D126 | BZ457 | C135 | 66260388921 | Chip breaker flutes | 2 |

All dimensions in mm

Diamond and cBN cut-off wheels



→
WINTER
4501044276-1 / 66260383000
D126 BZ309 C90
150 x 0,60
V_{zul} = 80 m/s n_{zul} = 10186 1/min

Diamond cutting wheels are used for efficient cutting of hard, short-chipping and wear resistant materials. Different tool properties are determined by a combination of the bonding type, the type and concentration of the hardener and the grit size.

This chapter lists our standard range of cutting wheels. The tables are divided into two groups – diamond and cBN abrasive grit. Depending on the application, different bond compositions are distinguished within the group, i.e. synthetic resin, sintered metal, segmented sintered metal and galvanic metal. Further articles and additional information can be found in our Product Catalogues Nos. 1-5.

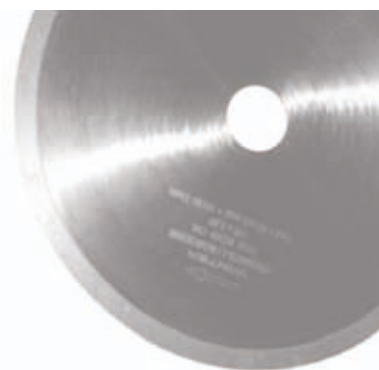
Information

Further information on applications and products can be found at www.winter-superabrasives.com.

84 Cut-off wheels

85 TAIR Cut-off wheels

Cut-off wheels



Generally speaking, diamond cutting wheels can be used to cut hard, short-chip materials such as glass, ceramics (fired and unfired), carbide, graphite, quartz, plastics, minerals, sapphire, silicon and magnetic materials.

Resin-bonded cutting wheels also perform exceptionally well, due to low cutting forces and low cutting temperatures. They permit fast separation, while keeping cut surfaces clean and keeping edges free from cracks. This is particularly important for thin-walled hollow structures.

CBN grinding wheels have been developed to supplement the diamond type. The specific properties of this grinding material make it possible, for instance, to work on high-performance high-speed steel, hardened steel and magnetic materials. Compromises can be achieved with galvanically bonded cutting layers.

European Standard EN 13236:2000 - common maximum operating speeds for cut-off wheels

| Core | | Abrasive section | Application mode | Grinding mode | Maximum operating speed in v_s in m/s according to bond type | | |
|-------|--|---|---|----------------------|--|------------------|---------------------|
| | | | | | Resin B | Metal M | Electro-plated G |
| Metal | metal blank, e.g. cast, rolled, forged | closed | mechanically and manually guided cut-off grinding | wet cut-off grinding | 63 | 80 | 80 |
| | | | | dry cut-off grinding | - | 80 | 80 |
| | | segmented | mechanically and manually guided cut-off grinding | wet cut-off grinding | - | 40 ¹⁾ | 50 ¹⁾ |
| | | | | dry cut-off grinding | - | 63 | 80 |
| | closed or segmented | manually guided cut-off grinding | wet and dry cut-off grinding | - | 63 ²⁾ | 80 | |
| | sintered | closed | mechanically and manually guided cut-off grinding | wet cut-off grinding | - | 63 | - |
| Resin | closed | mechanically and manually guided cut-off grinding | wet and dry cut-off grinding | 63 | - | - | |

¹⁾ For difficult to machine materials, like e.g. granite, diorite, quartzite, armoured concrete

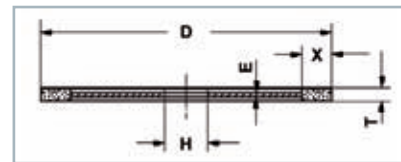
²⁾ The abrasive section must be welded or sintered to the core for cut-off wheels for free hand cutting with metal bond abrasive sections.

1A1R Cut-off wheels

Selection assistant for WINTER bond systems

| Diamond grinding wheels | Wear resistance | Recommendations for use |
|-------------------------|-----------------|---|
| G820 | ↑ | Standard galvanic metal bonds |
| BZ457A | | Wear-resistant sintered metal bond for laminated safety glass |
| BZ359 | | Sintered metal bonds for ceramics, quartz glass and minerals |
| BZ308 | | Sintered metal bonds for quartz, ceramics and silicon |
| BZ309 | | Sintered metal bonds for magnetic materials, optical glass and sapphire |
| K+4821 | | Special resin bond for the mechanical cutting of tungsten carbide |
| K+1313NY | | Resin bond for a combination of hard metal and steel |
| K+888RY | | Universal resin bond |
| K+777N | | Universal resin bond for fine cutting purposes |

| cBN grinding wheels | Recommendations for use |
|---------------------|-------------------------|
| KSSRY | Universal resin bond |



| 1A1R Diamond cut-off wheels in resin bond | | | | | | | | | | | | |
|---|-----|-----|---|-----|----|-----------|---------|---------------|------|--------------|--|-------------|
| Shape | D | T | X | E | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
| K1A1R | 100 | 1 | 5 | 0.8 | 20 | D91 | K+888RY | C38 | E | 66260387926 | for laminated glass | 3 |
| K1A1R | 100 | 1 | 5 | 0.8 | 20 | D151 | K+888RY | C50 | E | 69014185139 | for ceramics | 2 |
| | | | | | | | K+4821 | C100 | E | 69014185128 | for tungsten carbide | 2 |
| 2K1A1R | 125 | 0,6 | 5 | 0.6 | 32 | D151 | K+888RY | C75 | E | 66260387932 | for tungsten carbide 4 x 90° Ø6, reference circle Ø90 | 2 |
| K1A1R | 125 | 1 | 5 | 0.8 | 20 | D151 | K+4821 | C100 | E | 69014185129 | for tungsten carbide | 2 |
| K1A1R | 150 | 1 | 7 | 0.8 | 20 | D91 | K+888RY | C38 | E | 66260384283 | for laminated glass | 3 |
| K1A1R | 150 | 1 | 7 | 0.8 | 20 | D151 | K+4821 | C100 | E | 69014185130 | for tungsten carbide | 2 |
| 11K1A1R | 150 | 1 | 7 | 0.8 | 20 | D151 | K+4821 | C100 | E | 66260112766 | for tungsten carbide 3 x 120° Ø4,5, reference circle Ø33,5 | 2 |
| K1A1R | 150 | 1 | 7 | 0.8 | 32 | D151 | K+4821 | C100 | E | 69014185153 | for tungsten carbide | 2 |
| 2K1A1R | 175 | 1.2 | 7 | 1 | 30 | D181 | K+777N | C50 | E | 69014157827 | for quartz glass | 4 |

All dimensions in mm

1A1R

WINTER Facts

Grinding

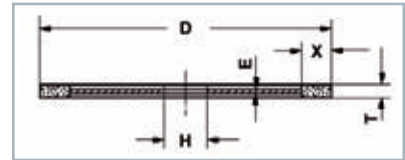
Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

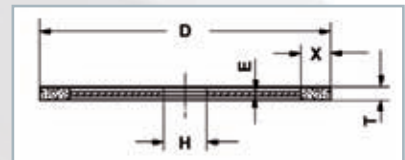
Service
Glossary
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1A1R Diamond cut-off wheels in resin bond

| Shape | D | T | X | E | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|-----|---|-----|----|-----------|---------|---------------|------|--------------|----------------------|-------------|
| K1A1R | 200 | 1.2 | 7 | 0.9 | 30 | D151 | K+4821 | C100 | E | 69014185154 | for tungsten carbide | 2 |
| K1A1R | 200 | 1.2 | 7 | 0.9 | 22 | D151 | K+4821 | C100 | E | 66260386423 | for tungsten carbide | 2 |
| K1A1R | 250 | 1.2 | 7 | 0.9 | 25 | D91 | K+888RY | C50 | E | 66260118203 | for ceramics | 2 |

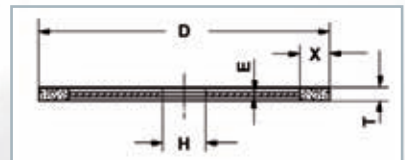
All dimensions in mm



1A1R Diamond electroplated cut-off wheels

| Shape | D | T | X | E | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|---------|-----|-----|----|-----|----|-----------|-------|---------------|------|--------------|---------------------------------------|-------------|
| BZ1A1R | 100 | 0.8 | 5 | 0.6 | 20 | D126 | BZ309 | C45 | E | 66260386131 | for magnetic materials, optical glass | 4 |
| BZ1A1R | 150 | 0.6 | 5 | 0.5 | 20 | D126 | BZ309 | C90 | E | 66260383000 | for sapphire | 4 |
| 1BZ1A1R | 150 | 0.7 | 10 | 0.5 | 20 | D91 | BZ359 | C23 | E | 66260386395 | for ceramics, quartz glass, minerals | 4 |
| BZ1A1R | 150 | 0.8 | 5 | 0.6 | 20 | D181 | BZ309 | C45 | E | 66260389371 | for magnetic materials, optical glass | 4 |
| BZ1A1R | 200 | 1 | 5 | 0.8 | 50 | D126 | BZ308 | C45 | E | 66260383078 | for quartz, ceramics, silicon | 4 |

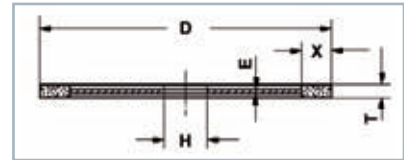
All dimensions in mm



1A1RSS Diamond cut-off wheels in sintered metal bond

| Shape | D | T | X | E | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|----------|-----|-----|----|-----|----|-----------|--------|---------------|------|--------------|---------------------|-------------|
| BZ1A1RSS | 350 | 3.2 | 10 | 2.2 | 50 | D126 | BZ457A | C16 | E | 69014143645 | for laminated glass | 3 |
| BZ1A1RSS | 400 | 3.2 | 10 | 2.2 | 60 | D126 | BZ457A | C16 | E | 60157673384 | for laminated glass | 3 |

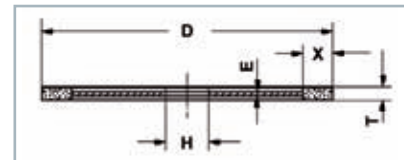
All dimensions in mm



1A1R Diamond cut-off wheels in sintered metal bond

| Shape | D | T | X | E | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|-----|---|-----|----|-----------|------|---------------|------|--------------|---|-------------|
| S1A1R | 100 | 1.1 | 1 | 0.7 | 20 | D181 | G820 | S33 | E | 69014185085 | for plastics, graphite, unknown ceramics (green), | 4 |

All dimensions in mm



1A1R cBN cut-off wheels in resin bond

| Shape | D | T | X | E | H | Grit size | Bond | Concentration | Body | Order number | Application | Catalog No. |
|-------|-----|---|---|-----|----|-----------|-------|---------------|------|--------------|-------------|-------------|
| K1A1R | 100 | 1 | 5 | 0.8 | 20 | B151 | KSSRY | V180 | E | 66260388124 | for HSS | 2 |
| K1A1R | 125 | 1 | 5 | 0.8 | 20 | B151 | KSSRY | V180 | E | 66260386108 | for HSS | 2 |
| K1A1R | 150 | 1 | 7 | 0.8 | 20 | B151 | KSSRY | V180 | E | 66260385838 | for HSS | 2 |

All dimensions in mm

Diamond files and saw rods



Diamond files are largely used for post-machining in tool and mould making.

When producing such tools, we guarantee optimal coordination of the galvanic bond, the type of hardener, the grit size and the surface geometry.

This chapter provides you with a listing of our standard range of files and saw wire. Further articles and additional details can be found in our Product Catalogue Nos. 1-5.

Information

Further information on applications and products can be found at www.winter-superabrasives.com.

90 Files

- 90 Riffle files for manual applications
- 91 Needle files for manual applications
- 92 Files for manual and machine use
- 93 Saw rods for manual and machine use

Files

Diamond files are characterised especially by their grip, tough edges and long life. We do not use boron nitride grits for our files, as their specific benefit of higher temperature resistance does not apply. Moreover, boron nitride is inferior to diamond in terms of hardness and wear resistance.


Files are available in four different grit sizes.

Selection criteria

- D181 for rough filing
- D126 for universal use
- D91 for finish filing
- D20B for special applications



Riffle files for manual applications











| Diamond files | | | | | | | |
|---|---------|-------------------------|-------------------------|--------------|-----------|--------------|-------------|
| Form 09E | Profile | Base body cross-section | Length of diamond layer | Total length | Grit size | Order number | Catalog No. |
|  | 15R | 4 x 2 | 25 | 155 | D126 | 66260110258 | 2 |

All dimensions in mm

Needle files for manual applications



Plastic screw-on handle

| Diamond files | | | | | | | | |
|---|--|-------------------------|-------------------------|--------------|---------|-----------|---------------------------|-------------|
| Form 09D | Profile | Base body cross-section | Length of diamond layer | Total length | Shaft Ø | Grit size | Order number | Catalog No. |
|  | Flat square 2112 | 5 x 1 | 70 | 140 | 3 | D91 | 66260134227 | 2 |
| | | | | | | D126 | 66260134228 | |
|  | Flat square with rounded corners 2112R | 5 x 1 | 70 | 140 | 3 | D91 | 66260134244 | 2 |
|  | Flat pointed 2122 | 5 x 1 | 70 | 140 | 3 | D91 | 66260110341 | 2 |
|  | Triangular 2132 | 3.5 | 70 | 140 | 3 | D20B | 66260114101 | 2 |
| | | | | | | D91 | 66260134230 | |
| | | | | | | D126 | 66260134231 | |
|  | Square 2142 | 2.5 | 70 | 140 | 3 | D91 | 66260134232 | 2 |
| | | | | | | D126 | 66260134233 | |
|  | Half-round 2152 | 5 x 2 | 70 | 140 | 3 | D91 | 66260110230 | 2 |
| | | | | | | D126 | 66260134235 | |
|  | Round 2162 | Ø 3 | 70 | 140 | 3 | D20B | 66260134294 | 2 |
| | | | | | | D91 | 60157644163 | |
| | | | | | | D126 | 66260134237 | |
|  | Blade 2172 | 5 x 1.5 | 70 | 140 | 3 | D91 | 66260134238 | 2 |
| | | | | | | D126 | 60157644103 | |
|  | Crossing file 2192 | 5 x 2 | 70 | 140 | 3 | D91 | 66260107652 | 2 |
|  | Cross section 2102T | 5 x 2 | 70 | 140 | 3 | D20B | 66260134293 | 2 |
| | | | | | | D91 | 66260100085 ¹⁾ | |
| | | | | | | D126 | 60157643993 ¹⁾ | |
| Screw-on handle | | | | | | | 66260391073 | 2 |

¹⁾Available while stocks last
All dimensions in mm

WINTER
Facts

Grinding

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Filing






Lapping
Polishing
Micron powder

Dressing

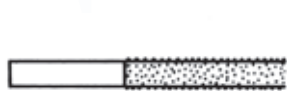
Service
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Files for manual and machine use

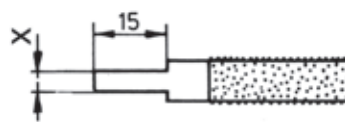


| Diamond files | | | | | | | | |
|---|---|-------------------------|-------------------------|--------------|-----------|-------------|---------------------------|-------------|
| Form 09B | Profile | Base body cross-section | Length of diamond layer | Total length | Design | Grit size | Order number | Catalog No. |
|  | Flat 7 | 4.5 x 2 | 80 | 150 | A | D91 | 66260110152 | 2 |
| | | | | | | D126 | 66260100260 | |
| | 13 | 9 x 3.2 | 80 | 150 | A | D91 | 66260100285 | 2 |
| | | | | | | D126 | 66260134250 | |
| | | | | | | D181 | 66260100100 | |
| | 16 | 11 x 4 | 120 | 200 | A | D91 | 66260110317 | 2 |
| | | | | | | D126 | 66260110225 | |
| | | | | | | D181 | 66260100333 | |
| |  | Square 25 | 5 | 80 | 125 | A | D91 | 60157644206 |
| 29 | | 8 | 80 | 150 | A | D126 | 60157644171 ¹⁾ | |
| 32 | | 10 | 120 | 200 | B/X = 6 | D126 | 60157644203 | |
|  | Triangular 45 | 8 | 80 | 150 | C/X = 3.5 | D91 | 66260110441 | 2 |
| | | | | | | D126 | 66260110458 | |
| 48 | 10 | 120 | 200 | C/X = 4.5 | D126 | 60157643782 | | |
|  | Round 76 | ∅ 6.3 | 80 | 150 | C/X = 4 | D126 | 60157643624 | 2 |
|  | Half-round 92 | 8 x 3 | 80 | 150 | A | D91 | 66260100395 | 2 |
| | | | | | | D126 | 66260110435 | |
| 96 | 10 x 5 | 120 | 200 | A | D126 | 66260110435 | | |

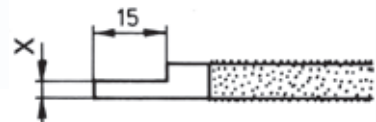
¹⁾ Available while stocks last
All dimensions in mm



Version A



Version B




Version C

Files for manual and machine use

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- Cutting
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Saw rods for manual and machine use



| Diamond saw rods | | | | | | | | |
|---|-----------|---------------|-------------------------|--------------|---------|-----------|--------------|-------------|
| Form 10E | Profile | Cross-section | Length of diamond layer | Total length | Shaft Ø | Grit size | Order number | Catalog No. |
|  | Round 701 | Ø 0.80 | 65 | 130 | 0.5 | D126 | 66260134284 | 2 |

Clamping zone free of diamonds both sides (20 / 45 mm)
All dimensions in mm



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Lapping, Polishing and Micron powder



Lapping and polishing compounds have a firm place in the tool industry. Their outstanding features are good performance and cost effectiveness.

Hand lappers are used directly on the machine for sharpening and breaking the cutting edges of hard metal tools.

The two diamond pastes, WINTER Diaplast® and WINTER Diaplast® Suspension, are ideal polishing compounds for laboratory and industrial applications.

Further articles and additional information can be found in our Product Catalogues Nos. 1-5.

Information

Further information on applications and products can be found at www.winter-superabrasives.com.

96 Lapping

96 Manual lapping tools

97 Polishing

97 Diaplast®

100 Micron powder

100 Micron powder type M

102 Micron powder type P

103 Micron powder type R

Lapping

Resin-bonded hand lappers are the preferred compounds for fine cutting jobs, e.g. for wood and metal milling cutters and small lathe tools.

Bronze-bonded lapping tools are more wear-resistant and particularly suitable for more robust applications such as large lathe tools and cutter heads.



Manual lapping tools



| Diamond lapping tools in resin bond | | | | | | | |
|-------------------------------------|----|---|---|-----------|-------|--------------|-------------|
| Shape | L | B | X | Grit size | Bond | Order number | Catalog No. |
| K11C | 30 | 9 | 2 | D7 | Resin | 60157644068 | 2 |
| | | | | D15 | Resin | 66260134295 | 2 |
| | | | | D46 | Resin | 66260110338 | 2 |
| | | | | D64 | Resin | 66260107646 | 2 |
| | | | | D91 | Resin | 60157644054 | 2 |

All dimensions in mm



| Diamond lapping tools in metal bond | | | | | | | |
|-------------------------------------|----|---|---|-----------|--------|--------------|-------------|
| Shape | L | B | X | Grit size | Bond | Order number | Catalog No. |
| BZ11C | 30 | 9 | 1 | D46 | Bronze | 66260110195 | 2 |
| | | | | D64 | Bronze | 60157644202 | 2 |
| | | | | D91 | Bronze | 60157644110 | 2 |
| | | | | D126 | Bronze | 66260134302 | 2 |

All dimensions in mm

Polishing

As well as offering bonded abrasives, WINTER has a large range of diamond pastes. Each diamond grit size requires a separate polishing disc with a polishing cloth. WINTER polishing cloths can be used on standard machines. Before starting to polish, slightly moisten the polishing cloth, which is bonded to the polishing disc, with WINTER Diaplastol, and evenly distribute the polish over the polishing cloth.



Diaplast®

Selection assistant for WINTER bond systems

| Diamond pastes | |
|------------------|--|
| Effizient | Impressive value for money. For fast material removal, short machining times, better surface quality and very good geometric accuracy. Application on special steels, stainless steels. |
| SS | For very fast material removal, extremely short machining times, top quality surface finish and geometric accuracy. Application on very hard material such as carbide and ceramics; materials with constituents of differing hardnesses; high-precision measuring and sensor surfaces. |
| N | For producing polished surfaces for metallographic, mineralogic and similar investigations. Applications on special steels, stainless steels |
| T | The most economical paste for standard use in production. Application on large areas, in tool and die making as well as surface machining of rollers made of hardened steel, carbide, hard cast iron etc. |
| E | Economy paste for universal use. Machining of mass-produced parts and repairs and for when paste is frequently changed. |

| Diamond pastes Effizient | | | | | |
|--------------------------|-----------------------|--------------------------|---------------------------|----------------------------|-------------|
| EFFIZIENT | Identification colour | Solubility | Order number for 5 gramme | Order number for 20 gramme | Catalog No. |
| D1 | Yellow | Soluble in water-alcohol | 66260329904 ¹⁾ | 66260329980 | 2 |
| | | Soluble in oil | 66260329990 ¹⁾ | 66260329991 | 2 |
| D3 | Green | Soluble in water-alcohol | 66260329981 ¹⁾ | 66260329982 | 2 |
| | | Soluble in oil | 66260329992 ¹⁾ | 66260329993 | 2 |
| D7 | Red | Soluble in water-alcohol | 66260329983 ¹⁾ | 66260329984 | 2 |
| | | Soluble in oil | 66260329994 ¹⁾ | 66260329995 | 2 |
| D15 | Blue | Soluble in water-alcohol | 66260329986 ¹⁾ | 66260329987 | 2 |
| | | Soluble in oil | 66260329997 | 66260329999 | 2 |
| D25 | Brown | Soluble in water-alcohol | 66260329988 ¹⁾ | 66260329989 | 2 |
| | | Soluble in oil | 69014117428 ¹⁾ | 69014117429 | 2 |

¹⁾ Available while stocks last

Diamond pastes TYP SS

| TYP SS Highest concentration | Identifica- tion colour | Solubility | Order number for 5 gramme | Order number for 10 gramme | Order number for 20 gramme | Catalog No. |
|---------------------------------|----------------------------|---|------------------------------|-------------------------------|-------------------------------|----------------|
| D0.25 | Silver | Soluble in water-alcohol (Soluble in oil on request) | 60157643984 | 60157643724 | 66260100076 | 2 |
| D0.7 | White | | 66260100265 | 66260100627 | 60157667492 | 2 |
| D1 | Yellow | | 66260110146 | 66260110232 | 60157644154 | 2 |
| D3 | Green | | 66260100287 | 60157644084 | 66260113334 | 2 |
| D7 | Red | | 66260110467 | 66260110535 | 66260110495 | 2 |
| D15 | Blue | | 66260110248 | 60157644016 | 66260116707 | 2 |
| D25 | Brown | | 60157644020 | 60157644176 | 66260114624 | 2 |
| D54 FEPA | Black | | 66260110601 | 60157643824 | 69014166621 | 2 |

Diamond pastes TYP N

| TYP N High concentration | Identifica- tion colour | Solubility | Order number for 5 gramme | Order number for 10 gramme | Order number for 20 gramme | Catalog No. |
|-----------------------------|----------------------------|---|------------------------------|-------------------------------|-------------------------------|----------------|
| D0.25 | Silver | Soluble in water-alcohol (Soluble in oil on request) | 66260112531 | - | 66260114891 | 2 |
| D0.7 | White | | 66260134316 | - | - | 2 |
| D1 | Yellow | | 60157643805 | 60157644162 | 60157643751 | 2 |
| D3 | Green | | 66260133498 | 60157643608 | 60157644170 | 2 |
| D7 | Red | | 66260133500 | 66260110340 | 66260100087 | 2 |
| D15 | Blue | | 66260110307 | 66260100292 | 60157643708 | 2 |
| D25 | Brown | | 66260110180 | 66260110143 | 60157644184 | 2 |
| D54 FEPA | Black | | 66260110461 | 66260100256 | 66260113661 | 2 |

Diamond pastes TYP T

| TYP T Medium concentration | Identifica- tion colour | Solubility | Order number for 5 gramme | Order number for 10 gramme | Catalog No. |
|-------------------------------|----------------------------|------------|------------------------------|-------------------------------|----------------|
| D1 | Yellow | universal | 66260100257 | - | 2 |
| D3 | Green | universal | 66260100365 | 66260110407 | 2 |
| D7 | Red | universal | 60157644173 | 66260164645 | 2 |
| D15 | Blue | universal | 60157643981 | 66260164646 | 2 |
| D25 | Brown | universal | 66260100098 | - | 2 |
| D54 FEPA | Black | universal | 60157643905 | - | 2 |

Diamond pastes TYP E

| TYP E Normal concentration | Identification colour | Solubility | Order number for 5 gramme | Catalog No. |
|-------------------------------|-----------------------|---|------------------------------|----------------|
| D1 | Yellow | Soluble in water-alcohol (Soluble in oil on request) | 66260110438 | 2 |
| D3 | Green | | 66260134307 | 2 |
| D7 | Red | | 66260134308 | 2 |
| D15 | Blue | | 66260134309 | 2 |
| D25 | Brown | | 60157644070 | 2 |
| D54 FEPA | Black | | 60157644187 | 2 |

Diamond-Suspension

| Suspension 100 ml | Identification colour | Solubility | Order number | Catalog No. |
|-------------------|-----------------------|---|--------------|----------------|
| D1 | Yellow | Soluble in water-alcohol (Soluble in oil on request) | 66260110642 | 2 |
| D3 | Green | | 66260100250 | 2 |
| D7 | Red | | 66260110667 | 2 |

Thinner

| Diaplastol | Contents | Solubility | Order number | Catalog No. |
|---------------|-----------|---|--------------|----------------|
| Spray bottle | 100ml | Soluble in water-alcohol (Soluble in oil on request) | 66260118433 | 2 |
| Refill bottle | 1 litre | | 66260195804 | 2 |
| Canister | 4.5 litre | | 66260195809 | 2 |

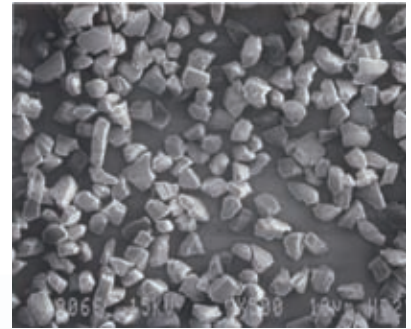
Cloths

| Polishing cloths | Application | Diameter [mm] | Order number | Catalog No. |
|----------------------|---------------------------------------|------------------|--------------|----------------|
| Polishing cloth soft | for diamond grit size D0.25 - D0.7 | 120 | 66260384527 | 2 |
| | | 200 | 66260195806 | 2 |
| | | 300 | 66260100068 | 2 |
| Polishing cloth 31 | for diamond grit size D1 - D3 | 120 | 66260387665 | 2 |
| | | 200 | 66260195796 | 2 |
| | | 300 | 66260381705 | 2 |
| Polishing cloth 1007 | for diamond grit size D7 - D54 | 200 | 66260386538 | 2 |
| | | 300 | 66260100054 | 2 |

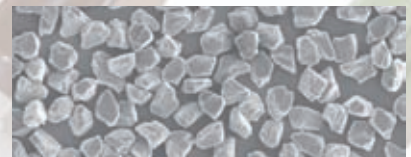
Micron powder

WINTER micro-point tools comprise synthetic diamond, natural diamond and cBN, each with their specific properties, geared towards different areas of industrial applications.

This chapter provides you with a list of all micro-point tools that are in stock. Further grit sizes and types can be found in our Product Catalogue No. 2.



Micron powder type M



| Micron powder type M | | | | | | |
|----------------------|-------------------|--------------------------------|--|----------------|--------------|-------------|
| Type | Hard material | Colour | Shape and surface | Grit size [µm] | Order number | Catalog No. |
| Type M | Synthetic diamond | Greenish-yellow to pale yellow | Monocrystalline, predominantly blocky, distinct cutting edges, flat cleavage planes, defined structure | M 0.0-0.1 | 130003651 | 2 |
| | | | | M 0-0.25 | 130003605 | 2 |
| | | | | M 0-0.50 | 130003280 | 2 |
| | | | | M 0.50-1 | 130003281 | 2 |
| | | | | M 0.5-2 | 130003282 | 2 |
| | | | | M 1.25-3 | 130003722 | 2 |
| | | | | M 1-3 | 130003283 | 2 |
| | | | | M 1-3.5 | 130003480 | 2 |
| | | | | M 2-4 | 130003353 | 2 |
| | | | | M 2-5 | 130003350 | 2 |
| | | | | M 3-5 | 130003565 | 2 |
| | | | | M 3-7 | 130003351 | 2 |
| | | | | M 4-8 | 130003352 | 2 |
| | | | | M 5-10 | 130003621 | 2 |
| M 6-10 | 130003629 | 2 | | | | |
| M 6-12 | 130003622 | 2 | | | | |

Micron powder type M

| Type | Hard material | Colour | Shape and surface | Grit size [µm] | Order number | Catalog No. |
|---------|-------------------|--------------------------------|--|----------------|--------------|-------------|
| Typ M | Synthetic diamond | Greenish-yellow to pale yellow | Monocrystalline, predominantly blocky, distinct cutting edges, flat cleavage planes, defined structure | M 8-12 | 130003354 | 2 |
| | | | | M 8-25 | 130003357 | 2 |
| | | | | M 10-15 | 130003623 | 2 |
| | | | | M 10-20 | 130003355 | 2 |
| | | | | M 15-20 | 130003767 | 2 |
| | | | | M 15-25 | 130003356 | 2 |
| | | | | M 20-25 | 130003768 | 2 |
| | | | | M 20-30 | 130003358 | 2 |
| | | | | M 25-30 | 130003769 | 2 |
| | | | | M 25-37 | 130003359 | 2 |
| | | | | M 30-60 | 130003817 | 2 |
| | | | | M 35-45 | 130003360 | 2 |
| | | | | M 40-60 | 130003361 | 2 |
| | | | | M 45-55 | 130003716 | 2 |
| M 50-70 | 130003630 | 2 | | | | |

WINTER
Facts

Grinding

Cutting

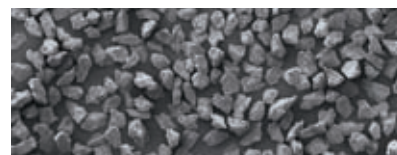
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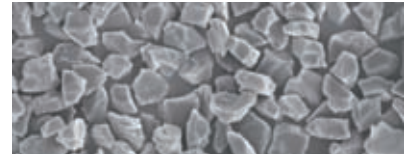
Micron powder type P



| Micron powder type P | | | | | | |
|----------------------|-------------------|--------------------|---|--------------------|--------------|-------------|
| Type | Hard material | Colour | Shape and surface | Grit size [µm] | Order number | Catalog No. |
| Type P | Synthetic diamond | Black to dark grey | Polycrystalline, blocky shapes, many cutting surfaces, no platelets, no needle-shaped particles | P SS 1-3 | 130008366 | 2 |
| | | | | P SS 2-4 | 130004614 | 2 |
| | | | | P MYPOLEX 0.0-0.25 | 130003860 | 2 |
| | | | | P MYPOLEX 0-0.5 | 130003284 | 2 |
| | | | | P MYPOLEX 0-1 | 130003285 | 2 |
| | | | | P MYPOLEX 1-2 | 130003286 | 2 |
| | | | | P MYPOLEX 1-3 | 130003287 | 2 |
| | | | | P MYPOLEX 2-4 | 130003530 | 2 |
| | | | | P MYPOLEX 2-5 | 130003288 | 2 |
| | | | | P MYPOLEX 3-7 | 130003289 | 2 |
| | | | | P MYPOLEX 5-10 | 130003290 | 2 |
| | | | | P MYPOLEX 10-20 | 130003291 | 2 |
| | | | | P MYPOLEX 20-30 | 130003292 | 2 |
| | | | | P MYPOLEX 22-36 | 130003690 | 2 |
| | | | | P MYPOLEX 25-37 | 130003293 | 2 |

Micron powder type P

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Contact



Micron powder type R

| Micron powder type R | | | | | | |
|----------------------|-------------------|---------------|--|----------------|--------------|-------------|
| Type | Hard material | Colour | Shape and surface | Grit size [µm] | Order number | Catalog No. |
| Type R | Synthetic diamond | Greenish-grey | Monocrystalline, irregular, blocky, many cutting edges, fragile structure This type of grit is also available with metal coating. Its designation is then RC. | R 0-0.50 | 130003588 | 2 |
| | | | | R 0.50-1.00 | 130003589 | 2 |
| | | | | R 0.5-2 | 130003554 | 2 |
| | | | | R 1-3 | 130003571 | 2 |
| | | | | R 2-4 | 130003529 | 2 |
| | | | | R 2-5 | 130003262 | 2 |
| | | | | R 3-6 | 130003593 | 2 |
| | | | | R 3-7 | 130003263 | 2 |
| | | | | R 4-7 | 130003598 | 2 |
| | | | | R 4-8 | 130003580 | 2 |
| | | | | R 5-10 | 130003264 | 2 |
| | | | | R 6-12 | 130003591 | 2 |
| | | | | R 8-15 | 130003265 | 2 |
| | | | | R 8-25 | 130003268 | 2 |
| | | | | R 10-20 | 130003266 | 2 |
| | | | | R 15-25 | 130003267 | 2 |
| | | | | R 20-30 | 130003269 | 2 |
| | | | | R 25-37 | 130003270 | 2 |
| R 35-45 | 130003514 | 2 | | | | |
| R 40-60 | 130003204 | 2 | | | | |
| R 60-80 | 130008113 | 2 | | | | |

Dressing tools



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WHITEP

SG /IP-111-014

26-18C082024 F-89 2004

The dressing of grinding wheels is indispensable for high-quality results in grinding.

However, dressing tools are just as diverse as the different machining tasks.

Our standard range covers all the standard tools that are used for dressing materials. Further articles and additional information can be found in our Product Catalogues Nos. 1-5.

Information

Further information on applications and products can be found at www.winter-superabrasives.com

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Rotary CNC dressing discs

| Dressing disc | Typ | Manufacture | Bond | Grit distribution | Grit density |
|---|-----|------------------|---------------|---------------------------|-----------------------|
|  | SG | Positive process | Electroplated | Statistical | Maximum |
|  | TS | Reverse process | Infiltrated | Controlled or statistical | Controlled or maximum |
|  | CVD | Reverse process | Infiltrated | Controlled | Controlled |
|  | DDS | Positive process | Sintered | Controlled | Controlled |

SG dressing discs

Positive electroplated SG dressing discs have been established in the market for many years. They are characterized by a single layer of diamonds arranged radially and therefore have a constant effective dressing width b_d . Versions are available in either steel or bronze bodies.

Applications:

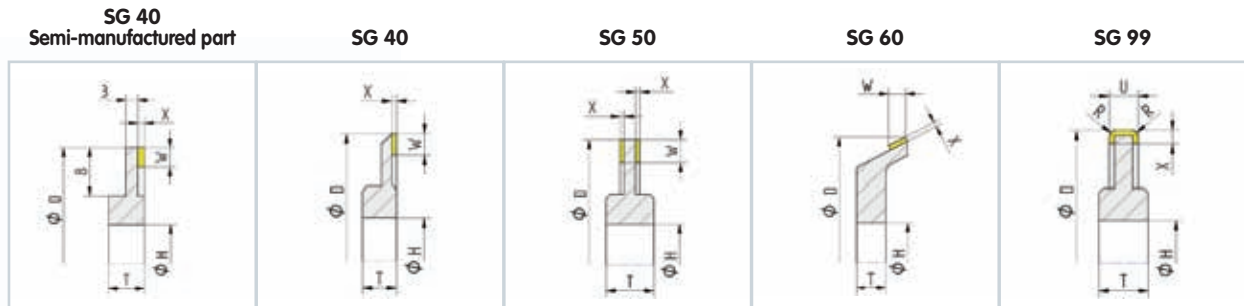
- Dressing vitrified bonded cBN grinding wheels
- Dressing all conventional grinding wheels

SG dressing discs

- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing**
- Service
Glossary
Contact

Advantages:

- Statistical diamond distribution gives maximum diamond concentration
- Exceptional running truth accuracy achieved through the finish of the diamond coating
- Constant diamond layer widths due to single-layer of diamond particles
- Minimum radius R = 0.10 mm depending on diamond grit
- Wide variety of versions can be supplied for all dressing applications and machines
- Standard dressing discs can be supplied from stock
- Max. outer diameter 340 mm, H3 bore



| SG Diamond dressing discs | | | | | | | | | | | | | |
|------------------------------|-------------|-------|-----|----|-------|----|----------------|-----------|--------|---------------------------|--------------|---|-------------|
| Shape | Design Code | D | X | W | T | H | Bore tolerance | Grit size | Body | Order number | Machine | Comment | Catalog No. |
| SG 40 Semi-manufactured part | 302SG71P | 100 | 0.6 | 5 | 20 | 25 | H6 | D602 | Bronze | 00310337534 ²⁾ | Universal | Adaptation of the body (e.g. bores 40, 52, 56 etc.) | 5 |
| | 310SG71P | 120 | 0.6 | 5 | 20 | 25 | H6 | D602 | Bronze | 00310337535 ²⁾ | | | |
| | 305SG71P | 150 | 0.6 | 5 | 20 | 25 | H6 | D602 | Bronze | 00310337536 ²⁾ | | | |
| SG 40 | 5SG71P | 110 | 0.4 | 5 | 10.5 | 75 | H3 | D426 | Steel | 66260136400 | Junker | | 5 |
| | 2SG71P | 110 | 0.4 | 5 | 10 | 75 | H3 | D426 | Bronze | 66260372485 | | | |
| | SG71P | 110 | 0.8 | 5 | 10.85 | 75 | H3 | D852 | Bronze | 66260129200 | | | |
| SG 40 | 306SG71P | 120 | 0.4 | 5 | 19 | 52 | H3 | D426 | Steel | 66260347760 | e.g. Landis | Case-hardened bore | 5 |
| SG 40 | 1SG71P | 130 | 0.6 | 10 | 12 | 50 | H3 | D602 | Steel | 66260116525 | e.g. Schaudt | | 5 |
| | 1SG71P | 140 | 0.6 | 5 | 12 | 50 | H3 | D602 | Bronze | 66260334649 | | | |
| SG 40 | 302SG71P | 140 | 0.6 | 5 | 12 | 50 | H3 | D602 | Steel | 69014159716 | e.g. Schaudt | Hardened body | 5 |
| SG 40 | 303SG71P | 150 | 0.4 | 5 | 19 | 52 | H3 | D426 | Steel | 66260355740 | e.g. Landis | Case-hardened bore | 5 |
| SG 50 | SG71P | 150 | 1.2 | 10 | 50 | 56 | H3 | D602 | Steel | 66260132775 | e.g. Naxos | Case-hardened bore | 5 |
| SG 60 | SG71P | 110.8 | 0.8 | 8 | 10 | 75 | H3 | D852 | Steel | 66260127188 | e.g. Junker | | 5 |

| Shape | Design Code | D | U | W | T | H | Bore tolerance | Grit size | Body | Order number | Machine | Comment | Catalog No. |
|-------|-------------|-----|---|---|----|----|----------------|-----------|-------|--------------|--------------|------------------------------|-------------|
| SG 99 | SG71P | 173 | 3 | 3 | 16 | 50 | H3 | D602 | Steel | 66260131884 | e.g. Schaudt | R = 0.3 ±3° ¹⁾ | 5 |

¹⁾ This refers to the conicity of the outer diameter

²⁾ Delivery: 2 weeks for adapting the bore, body width and fastening holes if necessary

All dimensions in mm

TS dressing discs

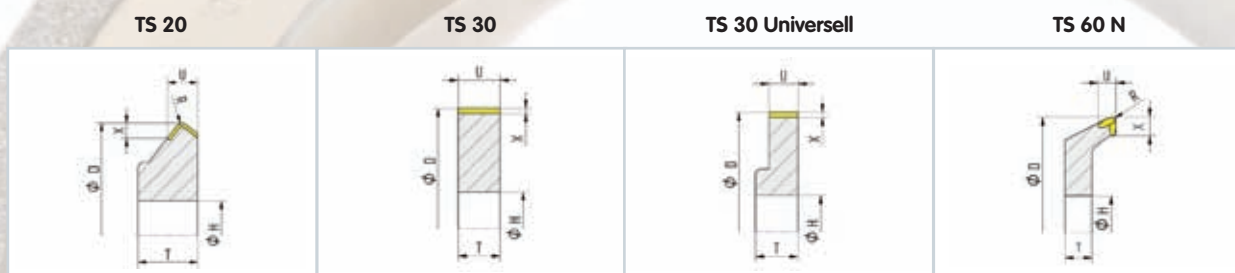
Infiltrated dressing discs are characterized by high wear resistance and consist of a single-layer diamond coating. Edge reinforcements can be used to increase the wear resistance.

Applications:

→ Dressing all conventional grinding wheels

Advantages:

- Both random and controlled diamond concentration
- Extremely high accuracy as the diamond coating is ground
- Individually selected diamonds reinforce small radii
- Radii of less than $R = 0.4$ mm have needle diamonds
- Minimum radius $R = 0.1$ mm for an internal angle of 30°
- Minimum coating thickness B 2 mm with minimum edge radius $R = 0.2$ mm
- Max. outer diameter 340 mm, H3 bore



| TS diamond dressing discs | | | | | | | | | | | | | |
|---------------------------|-------------|-----|----|-----|----|----|----------------|-----------|-------|--------------|------------------|---|-------------|
| Shape | Design Code | D | U | X | T | H | Bore tolerance | Grit size | Body | Order number | Machine | Comment | Catalog No. |
| TS 30 Universell | 2TS71P | 85 | 10 | 0.8 | 13 | 15 | H3 | D1001 | Steel | 66260381629 | Universal | Cylindrical statistical chamfer $1 \times 20^\circ$ | 5 |
| TS 60 N | TS71P | 100 | 3 | 3 | 11 | 40 | H3 | Nadeln | Steel | 69014181275 | e.g. Klingelberg | $R = 0.5$ | 5 |

All dimensions in mm

CVD dressing discs

Infiltrated versions of CNC dressing discs, with PCD, CVD or MCD rods are particularly suitable for dressing very small radii. The design enables the dressing discs to be reworked a number of times.

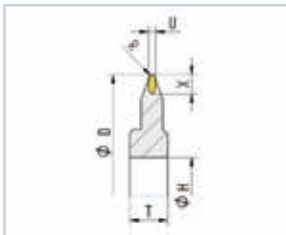
Applications:

→ CVD or MCD for dressing grinding wheels with sintered corundum (TG/SG/XG etc.).

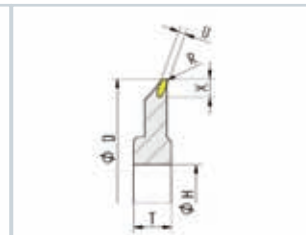
Advantages:

- Controlled concentration
- Extremely high accuracy as the diamond coating is ground
- Can be reprofiled many times
- Minimum radius with an internal angle:
 - R = 0.05 mm for a minimum angle of 35°
 - R = 0.10 mm for a minimum angle of 25°
- Minimum layer thickness and corner radius for cylindrical version:
 - B = 0.5 mm
 - R = 0.12 mm
- Max. outer diameter 340 mm, H3 bore

TS 10 N



TS 20 N



| TS N CVD dressing discs | | | | | | | | | | | | | |
|-------------------------|-------------|-----|------|-----|----|----|----------------|------|-------|--------------|-------------|------------------|-------------|
| Shape | Design Code | D | U | X | T | H | Bore tolerance | Grit | Body | Order number | Machine | Comment | Catalog No. |
| TS 10 N | YTS71P | 100 | 0.71 | 1.5 | 12 | 40 | H3 | CVD | Steel | 60157698362 | e.g. Studer | R = 0.10 ↗40° | 5 |
| TS 20 N | YTS71P | 100 | 0.67 | 1.5 | 12 | 40 | H3 | CVD | Steel | 60157698367 | e.g. Studer | R = 0.25 ↗40° | 5 |
| | YTS71P | 100 | 1.07 | 1.5 | 12 | 40 | H3 | CVD | Steel | 60157698368 | | R = 0.50 ↗40° | |
| | YTS71P | 120 | 0.67 | 1.5 | 12 | 40 | H3 | CVD | Steel | 60157698370 | | R = 0.25 ↗40° | |
| | YTS71P | 120 | 1.07 | 1.5 | 12 | 40 | H3 | CVD | Steel | 60157698369 | | R = 0.50 ↗40° | |

All dimensions in mm

DDS dressing discs

The WINTER DDS (Diamond Dressing System) dressing disc enables high-precision CNC dressing of vitrified bonded diamond and cBN grinding wheels. It has a **constant profile bearing ratio thanks to patented diamond distribution and concentration** and consists of a patterned single layer of sintered diamonds that is clamped into a twopiece body.

This type of construction gives it extreme flexibility during the dressing of a variety of different profiles in a single working pass. This requires a grinding machine with a CNC dressing spindle and a contact detection system.

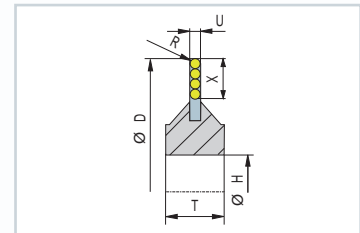
Applications:

→ Dressing vitrified bonded diamond grinding wheels and cBN grinding wheels directly on the production machine

Advantages:

- Controlled concentration of diamonds
- Extremely high accuracy as the diamond layer is ground
- Free standing diamond layer, so dressing of concave and convex profiles is possible
- Constant layer width
- Dressing of vitrified bonded diamond grinding wheels
- Diameters from 90 mm – 210 mm
- Layer widths from 0.8 mm – 1.2 mm
- Radii depending on layer width 0.4 mm – 0.6 mm

DS 10
DS 10 Semi-manufactured part



| DDS dressing discs | | | | | | | | | | | | | |
|------------------------------|-------------|-----|---|---|----|----|----------------|-----------|-------|---------------------------|-------------|---------------------------------|-------------|
| Shape | Design Code | D | U | X | T | H | Bore tolerance | Grit size | Body | Order number | Machine | Comment | Catalog No. |
| DS 10 | 300DS71P | 120 | 1 | 4 | 15 | 40 | H5 | D1001 | Steel | 69014194133 | e.g. Studer | Cylindrical | 5 |
| DS 10 Semi-manufactured part | 15DS71P | 120 | 1 | 4 | 15 | 25 | H5 | D1001 | Steel | 00310395606 ¹⁾ | Universell | Suitable adaptation of the body | 5 |
| | 3DS71P | 150 | 1 | 4 | 15 | 25 | H5 | D1001 | Steel | 60157684272 | | | |

¹⁾ Delivery: 2 weeks for adapting the bore, body width and fastening holes if necessary

All dimensions in mm

Checklist

for dressing discs

Customer: _____

Customer no.: _____

Machine:
Machine type: _____

Maximum acceptable dressing disc diameter (mm): _____

Current dressing tool: _____

Dressing unit:
Arbor diameter (mm): _____

Arbor length (mm): _____

Workpiece:
Workpiece drawing: _____

Surface finish desired: _____

Grinding allowance (mm / Ø): _____

Grinding wheel:
Specification: _____

Dimensions: _____

Parameters:
Profile or straight dressing: _____

Grinding wheel circumferential speed (m/s)
or speed (rpm): _____

Circumferential speed of dressing disc (m/s)
or speed (rpm): _____

Counter-directional (GGL) / uni-directional
dressing (GL) _____

Radial infeed per dressing pass (a_{ed}): _____

Axial dressing feed (f_{ad}): _____

SAINT-GOBAIN Diamantwerkzeuge GmbH
Schützenwall 13-17, D-22844 Norderstedt, Phone: +49 40 5258-0, Fax +49 40 5258-215
www.winter-superabrasives.com

Blade Dresser

Diamond blades are universal tools for the dressing of profiles and straight dressing operations. This is because they perform extremely consistently throughout their lifetime. The tools contain natural or synthetic diamonds and come as needle or grit blades.

Diamond Fliesen® Ti-Tan & Furioso



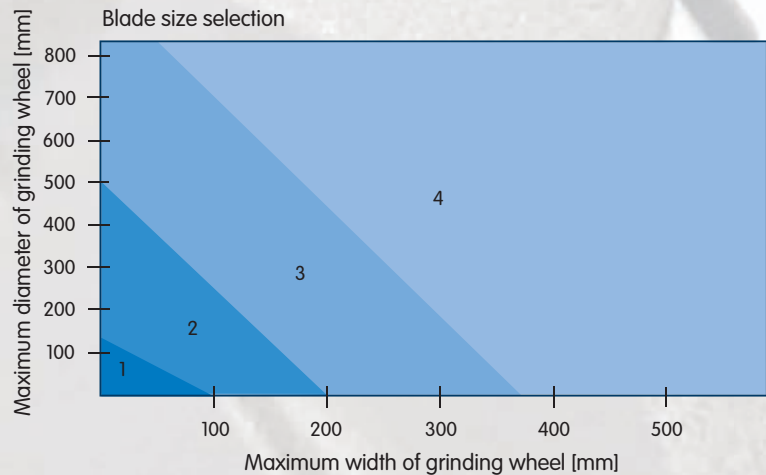
- Ti-Tan has been developed for Altos, Altos IPX, sintered and extruded aluminas.
- Furioso has been developed for Quantum, SG, TG, XG, ES and special aluminas.

Selection criteria

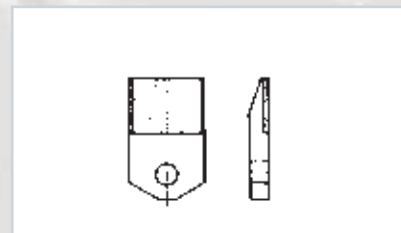
We have made it easy for you to select the most Diamond Fliesen®:

- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best blade tool from the stock programme

Further specifications can be found in our product catalog No. 5



FBS and FAS

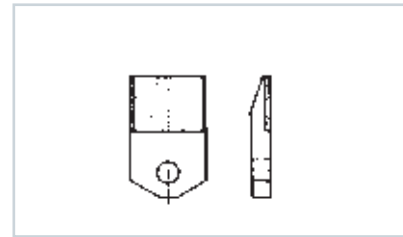


| Diamond Fliesen® Ti-Tan | | | | | |
|-------------------------|------------|---------------------------------|----------------|---------------------------|-------------|
| Shape | Blade size | Grinding wheel grit size [Mesh] | Specification | Order number | Catalog No. |
| FBS | 2 | 80-120 | FBS 90 Ti-Tan | 69014122974 ¹⁾ | 5 |
| | | 54-80 | FBS 115 Ti-Tan | 69014122975 ¹⁾ | 5 |

¹⁾ For Altos, Altos IPX, sintered and extruded aluminas

All dimensions in mm

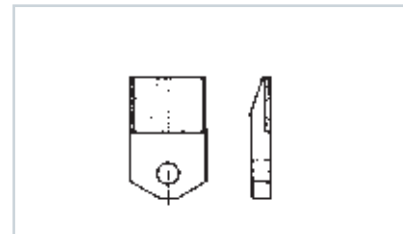
FBS and FAS



| Diamond Fliesen® Ti-Tan | | | | | |
|--------------------------------|------------|---------------------------------|----------------|---------------------------|-------------|
| Shape | Blade size | Grinding wheel grit size [Mesh] | Specification | Order number | Catalog No. |
| FAS | 3 | 80-120 | FAS 90 Ti-Tan | 69014122983 ¹⁾ | 5 |
| | | 54-80 | FAS 115 Ti-Tan | 69014122987 ¹⁾ | 5 |

¹⁾ For Altos, Altos IPX, sintered and extruded aluminas
All dimensions in mm

FBS and FAS



| Diamond Fliesen® Furioso | | | | | |
|---------------------------------|------------|---------------------------------|-----------------|---------------------------|-------------|
| Shape | Blade size | Grinding wheel grit size [Mesh] | Specification | Order number | Catalog No. |
| FBS | 2 | 80-120 | FBS 90 Furioso | 69014122946 ²⁾ | 5 |
| | | 54-80 | FBS 115 Furioso | 69014122947 ²⁾ | 5 |
| FAS | 3 | 80-120 | FAS 90 Furioso | 60157693885 ²⁾ | 5 |
| | | 54-80 | FAS 115 Furioso | 60157690579 ²⁾ | 5 |

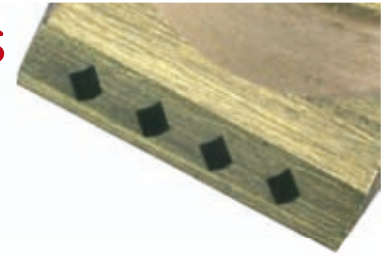
²⁾ For Quantum, Vortex, SG, TG, XG, ES, special aluminas
All dimensions in mm

Explanation of the specification

| Designation | Width | Effective length | Total length |
|-------------|-------|------------------|--------------|
| 2 | FBS | 10 | 15 |
| 3 | FAS | 20 | 15 |

| Designation | FEPA |
|-------------|-------|
| 90 | D711 |
| 115 | D1001 |

D25 MCD needle blade dressers



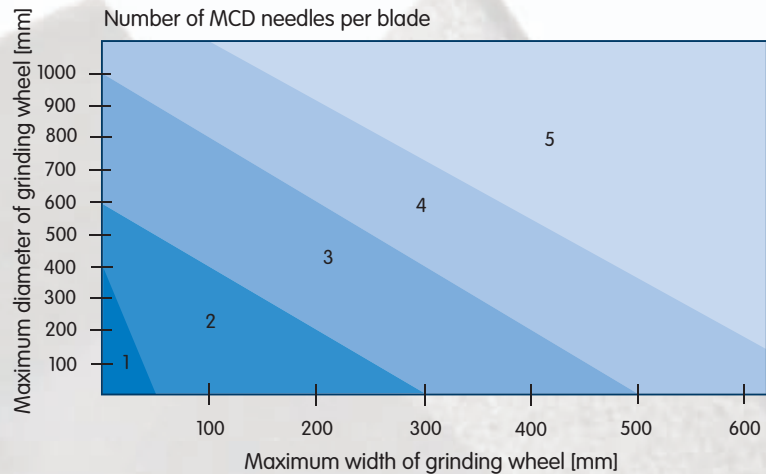
Diamond blades are preferred when dressing hard grinding wheels for profile dressing and in sintered corundum and silicon carbide grinding wheels. The version we recommend for straight dressing purposes is a centrally arranged hardener, whereas for angular dressing we recommend an off-centre (OC) arrangement.

Selection criteria

We have made it easy for you to select the most suitable blade dresser:

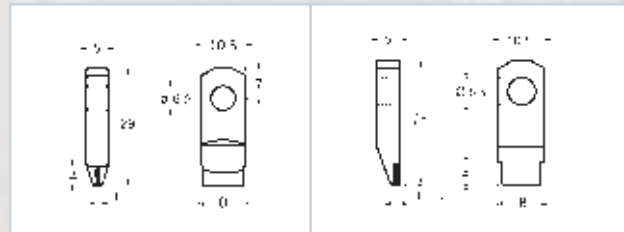
- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best blade tool from the stock programme

Further specifications can be found in our product catalog No. 5



centred version

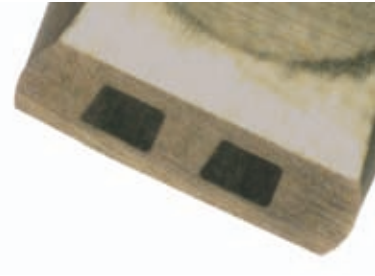
off-centred version, OC



| D25 MCD needle blade dressers | | | | | | | |
|-------------------------------|-------------------|---------------------------------|--|---------------------------|----------------------|---|-------------|
| Shape | Number of needles | Grit size Grinding wheel [Mesh] | Designation | Effective cutting width T | Width at tip B | Order number | Catalog No. |
| centred version | 2 | 80-120 60 | 2565 / 2 2585 / 2 | 0.8 1.1 | 6.0 6.0 | 66260139870 66260134397 | 5 |
| | 3 | 80-120 60 | 2565 / 3 2585 / 3 | 0.8 1.1 | 8.0 8.0 | 66260138695 66260139398 | 5 |
| | 4 | 80-120 60 46 | 2565 / 4 2585 / 4 25115 / 4 | 0.8 1.1 1.5 | 10.0 10.0 10.0 | 66260137996 66260392047 66260138202 | 5 |
| off-centred version, OC | 2 | 80-120 60 | 2565 - OC / 2 2585 - OC / 2 | 0.8 1.1 | 6.0 6.0 | 66260344134 66260138314 | 5 |
| | 3 | 80-120 | 2565 - OC / 3 | 0.8 | 8.0 | 66260135912 | 5 |
| | 4 | 80-120 60 46 | 2565 - OC / 4 2585 - OC / 4 25115 - OC / 4 | 0.8 1.1 1.5 | 10.0 10.0 10.0 | 66260392033 66260137616 66260137319 | 5 |

All dimensions in mm

D30 CVD needle blade dressers



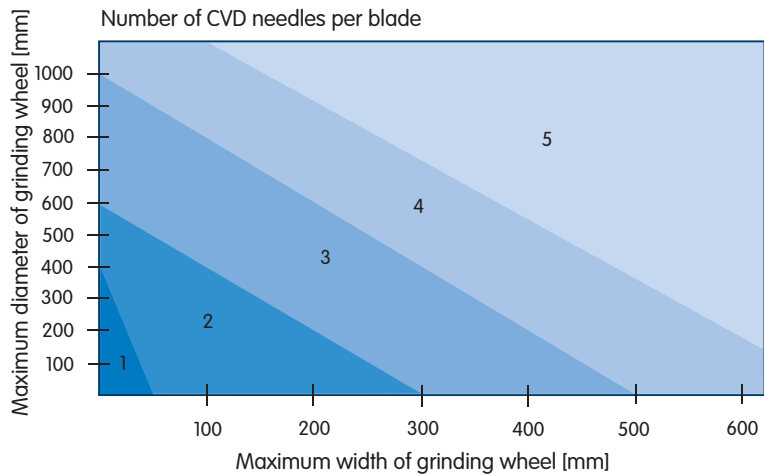
Because of its centrally arranged hardener, the blade is used for highly precise straight dressing of corundum, pure corundum and sintered corundum grinding wheels.

Selection criteria

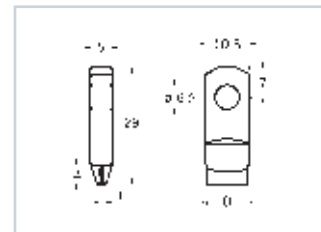
We have made it easy for you to select the most suitable blade dresser:

- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best blade tool from the stock programme

Further specifications can be found in our product catalog No. 5



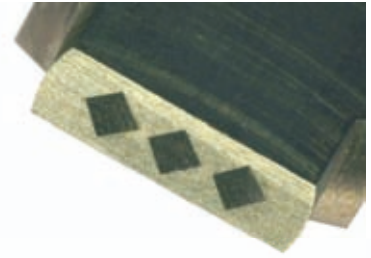
centred version



| D30 CVD needle blade dressers | | | | | | | |
|-------------------------------|-------------------|---------------------------------|-------------|-----------------------------|----------------|--------------|-------------|
| Shape | Number of needles | Grit size Grinding wheel [Mesh] | Designation | Effective cutting width T | Width at tip B | Order number | Catalog No. |
| centred version | 2 | 150-240 | 3044 / 2 | 0.4 | 4.0 | 66260137455 | 5 |
| | | 80-120 | 3064 / 2 | 0.6 | 4.0 | 66260139158 | |
| | | 60 | 3084 / 2 | 0.8 | 5.0 | 66260136762 | |
| | | 46 | 30124 / 2 | 1.2 | 6.0 | 66260196365 | |
| | 3 | 150-240 | 3044 / 3 | 0.4 | 5.0 | 66260139756 | 5 |
| | | 80-120 | 3064 / 3 | 0.6 | 6.0 | 66260391992 | |
| | | 60 | 3084 / 3 | 0.8 | 7.0 | 66260139163 | |
| | 4 | 150-240 | 3044 / 4 | 0.4 | 6.0 | 66260195857 | 5 |
| | | 80-120 | 3064 / 4 | 0.6 | 8.0 | 66260138561 | |
| | | 60 | 3084 / 4 | 0.8 | 9.0 | 66260139464 | |
| | | 46 | 30124 / 4 | 1.2 | 10.0 | 66260137467 | |

All dimensions in mm

D35 CVD needle blade dressers



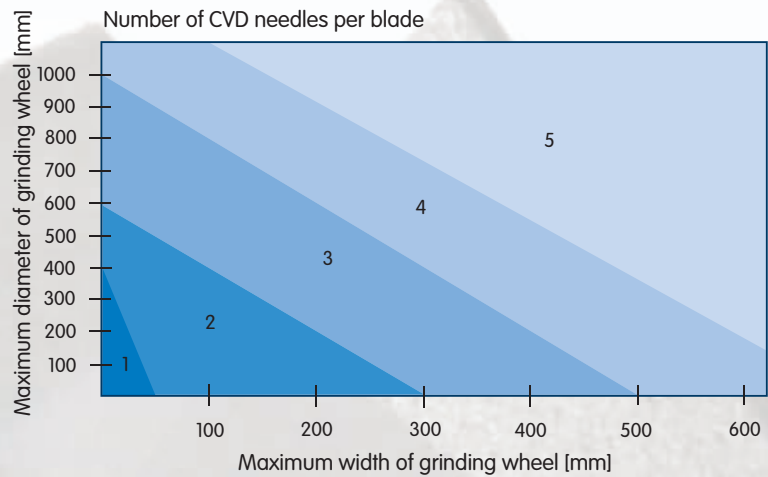
A blade with off-centre hardener is used for the angular dressing of all corundum, pure corundum and sintered corundum grinding wheels.

Selection criteria

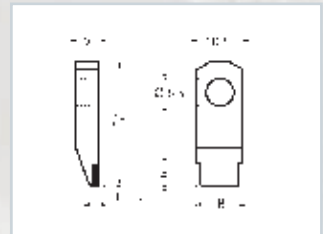
We have made it easy for you to select the most suitable blade dresser:

- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best blade tool from the stock programme

Further specifications can be found in our product catalog No. 5



off-centred version, OC



| D35 CVD needle blade dressers | | | | | | | |
|-------------------------------|-------------------|---------------------------------|----------------|---------------------------|----------------|--------------|-------------|
| Shape | Number of needles | Grit size Grinding wheel [Mesh] | Designation | Effective cutting width T | Width at tip B | Order number | Catalog No. |
| off-centred version, OC | 2 | 60 | 3584 - OC / 2 | 1.1 | 5.0 | 66260337491 | 5 |
| | 3 | 80-120 | 3564 - OC / 3 | 0.8 | 6.0 | 66260337624 | 5 |
| | | 60 | 3584 - OC / 3 | 1.1 | 7.0 | 66260337292 | |
| 46 | | 35124 - OC / 3 | 1.5 | 8.0 | 66260337195 | | |
| 4 | 80-120 | 3564 - OC / 4 | 3564 - OC / 4 | 0.8 | 8.0 | 66260195223 | 5 |
| | 60 | 3584 - OC / 4 | 3584 - OC / 4 | 1.1 | 9.0 | 66260336093 | |
| | 46 | 35124 - OC / 4 | 35124 - OC / 4 | 1.5 | 10.0 | 66260336196 | |

All dimensions in mm

D35 CVD needle blade dressers

- WINTER Facts
- Grinding
- Cutting
- Filing
- Lapping
Polishing
Micron powder
- Dressing
- Service
Glossary
Contact

Needle blade dressers with natural diamond



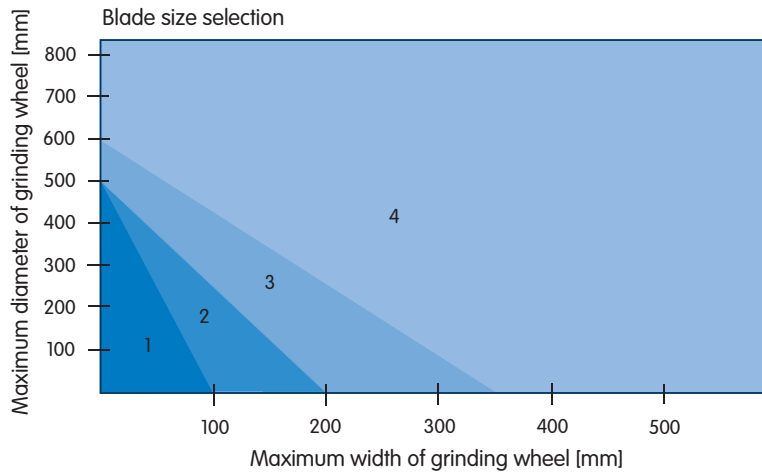
Selected natural needles, positioned manually in a specific arrangement, warrant a long service life of the blade. It is suitable for the angular, straight and profile dressing of all corundum, pure corundum and sintered corundum grinding wheels.

Selection criteria

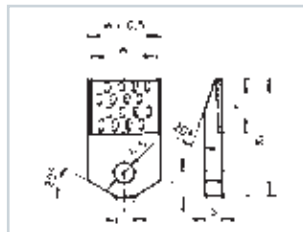
We have made it easy for you to select the most suitable blade dresser:

- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best blade tool from the stock programme

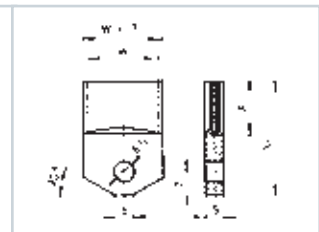
Further specifications can be found in our product catalog No. 5



Standard range



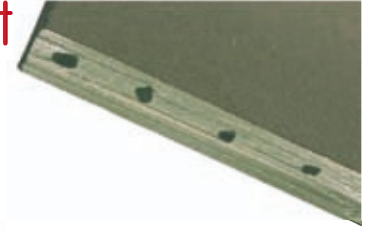
Special designs



| Needle blade dressers with natural diamond | | | | | | | | | |
|--|------------|---------------|----|----|----------------|-------|-----------------|--------------|-------------|
| Shape | Blade size | Specification | W | X | X ₁ | Bond | Size of needles | Order number | Catalog No. |
| Standard range | 1 | FD180 | 10 | 12 | 28 | T645E | N1000 | 69014185757 | 5 |
| | 2 | FB180 | 10 | 15 | 33 | T645E | N1100 | 69014185754 | 5 |
| | 3 | FC180 | 20 | 10 | 28 | T645E | N1100 | 69014185756 | 5 |
| | 4 | FA180 | 20 | 15 | 33 | T645E | N1100 | 69014185755 | 5 |
| Special designs | 2 | 9TFB180 | 10 | 15 | 33 | T645J | N800 | 69014185798 | 5 |
| | 4 | 8TFA180 | 20 | 15 | 33 | T645J | N900 | 66260387342 | 5 |

All dimensions in mm

Standard blade with diamond grit



A universal blade for the straight and profile dressing of simple contours in corundum and sintered corundum grinding wheels. It retains its relatively constant surface quality throughout its entire lifetime.

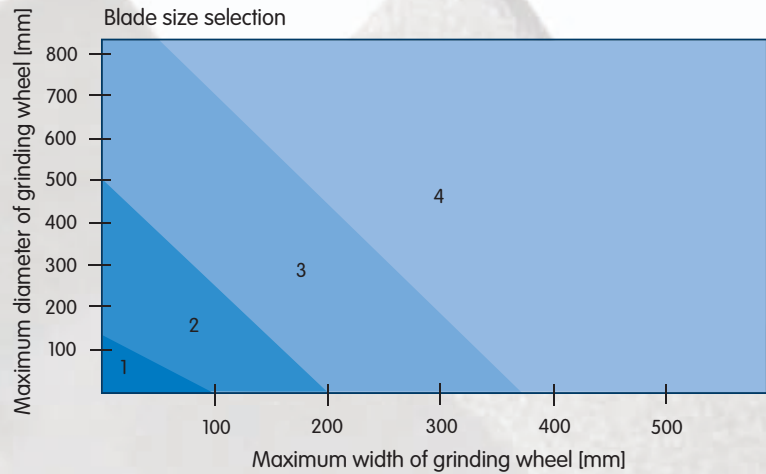
For large grinding wheels and sets of grinding wheels we recommend inserting two tools or using double tools.

Selection criteria

We have made it easy for you to select the most suitable blade dresser:

- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best blade tool from the stock programme

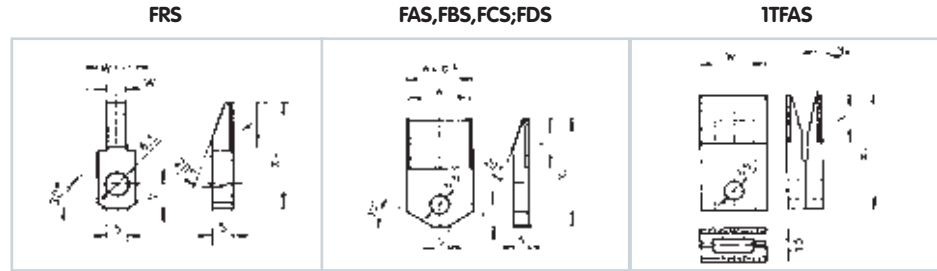
Further specifications can be found in our product catalog No. 5



Explanation of the specification

| Designation | | Width | Effective length | Total length |
|-------------|-------|-------|------------------|--------------|
| 1 | FRS | 5 | 12 | 28 |
| 2 | FBS | 10 | 15 | 33 |
| 2 | FDS | 10 | 12 | 28 |
| 3 | FAS | 20 | 15 | 33 |
| 3 | FCS | 20 | 10 | 28 |
| 4 | 1TFAS | 20 | 15 | 35 |

| Designation | FEPA |
|-------------|-------|
| 75 | D501 |
| 90 | D711 |
| 115 | D1001 |
| 140 | D1181 |



| Standard blade with diamond grit for alumina grinding wheels, including sintered aluminas (AL ₂ O ₃) | | | | | | | | | | |
|---|------------|--------------------------------|---------------|----|----|----------------|-----------------|--------------|-------|-------------|
| Shape | Blade size | Grit size Grinding wheel Mesh] | Specification | W | X | X ₁ | Grit size Blade | Order number | Bond | Catalog No. |
| FRS | 1 | 80-120 | FRS 90 | 5 | 12 | 28 | D711 | 66260114636 | T645E | 5 |
| FBS | 2 | 120-180 | FBS 75 | 10 | 15 | 33 | D501 | 66260387135 | T645E | 5 |
| | | 80-120 | FBS 90 | 10 | 15 | 33 | D711 | 69014185726 | T645E | 5 |
| | | 54-80 | FBS 115 | 10 | 15 | 33 | D1001 | 69014185727 | T645E | 5 |
| | | 36-54 | FBS 140 | 10 | 15 | 33 | D1181 | 69014185728 | T645E | 5 |
| FDS | 2 | 120-180 | FDS 75 | 10 | 12 | 28 | D501 | 69014185747 | T645E | 5 |
| | | 80-120 | FDS 90 | 10 | 12 | 28 | D711 | 69014185735 | T645E | 5 |
| | | 54-80 | FDS 115 | 10 | 12 | 28 | D1001 | 69014185736 | T645E | 5 |
| | | 36-54 | FDS 140 | 10 | 12 | 28 | D1181 | 69014185737 | T645E | 5 |
| FAS | 3 | 120-180 | FAS 75 | 20 | 15 | 33 | D501 | 66260384327 | T645E | 5 |
| | | 80-120 | FAS 90 | 20 | 15 | 33 | D711 | 69014185720 | T645E | 5 |
| | | 54-80 | FAS 115 | 20 | 15 | 33 | D1001 | 69014185721 | T645E | 5 |
| | | 36-54 | FAS 140 | 20 | 15 | 33 | D1181 | 69014185722 | T645E | 5 |
| FCS | 3 | 120-180 | FCS 75 | 20 | 10 | 28 | D501 | 69014185746 | T645E | 5 |
| | | 80-120 | FCS 90 | 20 | 10 | 28 | D711 | 69014185732 | T645E | 5 |
| | | 54-80 | FCS 115 | 20 | 10 | 28 | D1001 | 69014185718 | T645E | 5 |
| | | 36-54 | FCS 140 | 20 | 10 | 28 | D1181 | 69014185716 | T645E | 5 |
| ITFAS | 4 | 54-80 | IT FAS 115 | 20 | 15 | 35 | D1001 | 66260388162 | T645E | 5 |

All dimensions in mm

Standard blades with diamond grit

WINTER
Facts

Grinding

Cutting

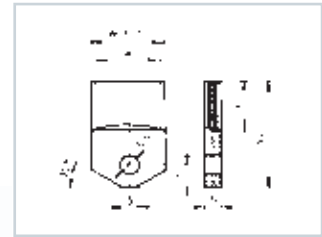
Feilen

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

FAS,FBS,FCS,FDS



Standard blade with diamond grit for silicon carbide (SiC) grinding wheels

| Shape | Blade size | Grit size Grinding wheel Mesh] | Specification | W | X | X ₁ | Grit size Blade | Order number | Bond | Catalog No. |
|-------|------------|--------------------------------|---------------|----|----|----------------|-----------------|--------------|-------|-------------|
| FBS | 2 | 120-180 | FBS 75 | 10 | 15 | 33 | D501 | 69014185749 | H770J | 5 |
| | | 80-120 | FBS 90 | 10 | 15 | 33 | D711 | 69014185729 | H770J | 5 |
| | | 54-80 | FBS 115 | 10 | 15 | 33 | D1001 | 69014185730 | H770J | 5 |
| | | 36-54 | FBS 140 | 10 | 15 | 33 | D1181 | 66260384396 | H770J | 5 |
| FDS | 2 | 120-180 | FDS 75 | 10 | 12 | 28 | D501 | 66260387692 | H770J | 5 |
| | | 80-120 | FDS 90 | 10 | 12 | 28 | D711 | 69014185738 | H770J | 5 |
| | | 54-80 | FDS 115 | 10 | 12 | 28 | D1001 | 66260387592 | H770J | 5 |
| | | 36-54 | FDS 140 | 10 | 12 | 28 | D1181 | 66260387481 | H770J | 5 |
| FAS | 3 | 120-180 | FAS 75 | 20 | 15 | 33 | D501 | 69014185748 | H770J | 5 |
| | | 80-120 | FAS 90 | 20 | 15 | 33 | D711 | 69014185723 | H770J | 5 |
| | | 54-80 | FAS 115 | 20 | 15 | 33 | D1001 | 69014185724 | H770J | 5 |
| | | 36-54 | FAS 140 | 20 | 15 | 33 | D1181 | 69014185725 | H770J | 5 |
| FCS | 3 | 120-180 | FCS 75 | 20 | 10 | 28 | D501 | 66260385384 | H770J | 5 |
| | | 80-120 | FCS 90 | 20 | 10 | 28 | D711 | 66260384227 | H770J | 5 |
| | | 54-80 | FCS 115 | 20 | 10 | 28 | D1001 | 69014185734 | H770J | 5 |
| | | 36-54 | FCS 140 | 20 | 10 | 28 | D1181 | 66260387133 | H770J | 5 |

All dimensions in mm

Standard blades with diamond grit

WINTER Facts

Grinding

Cutting

Filing

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Toolholders for Diamond Fliesen®

The variably adjustable angle of the flexible swivelling holder allows optimal positioning of the grinding wheel simply by clamping it into place.



| Tool holder | Shank | Order number | Clamping length | Catalog No. |
|--------------------------------|-------|--------------|-----------------|-------------|
| Swivel holder for single blade | MK1 | 66260196356 | 40 | 5 |

Single and multi-point dressers

Single point dressers with natural diamond

Single point dressers are used for straight dressing and for dressing grinding wheels with simple profiles. Diamonds have a number of working points, depending on the grade. Repositioning the diamonds enables these to be activated in turn.



Quality recommendation

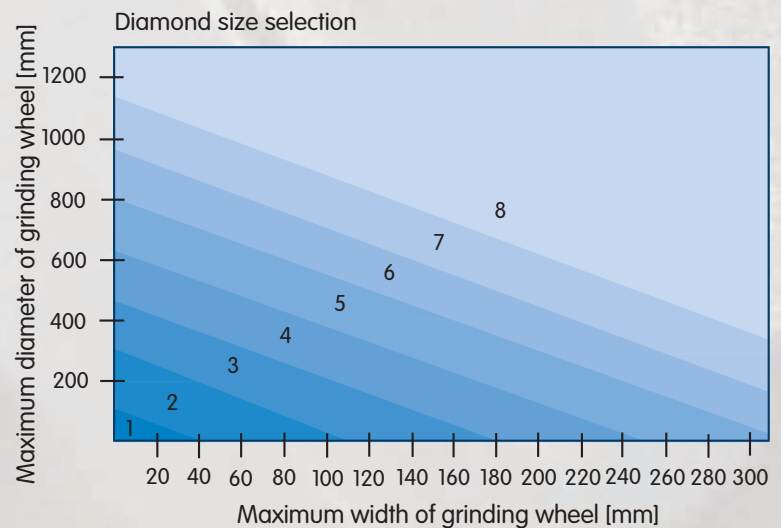
| Diamond | Description |
|----------|---|
| Diacar | Good industrial grade, at least 3–5 working points, regular octahedron, virtually no inclusions, no cracks. |
| Vatom | Standard grade, at least 2-3 working points, limited irregular shape, few inclusions, no cracks. |
| Industry | Simple industrial grade, at least 1 working point |
| Basic | Basic grade with one working point |

Selection criteria

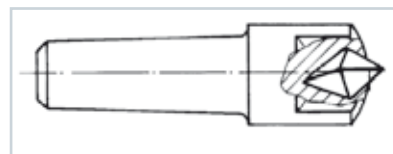
We have made it easy for you to select the most suitable dresser:

- Simply choose the appropriate blade size from the diagram according to the width and diameter of your grinding wheel.
- Then choose the best dressing tool from the stock programme

Further specifications can be found in our product catalog No. 5



| Recommended diamond size [ct] | | | |
|-------------------------------|-------------|---|-------------|
| 1 | 0.15...0.35 | 5 | 0.60...1.25 |
| 2 | 0.25...0.50 | 6 | 0.70...1.50 |
| 3 | 0.35...0.75 | 7 | 0.85...1.75 |
| 4 | 0.50...1.00 | 8 | 1.00...2.00 |



| Single point dresser | | | | | | | |
|----------------------|---------------------------|------------------|------------------------|--------------|----------------|--------------|-------------|
| Type | Specification | Grade of diamond | Shape – Overall length | Diamond [ct] | Working points | Order number | Catalog No. |
| LEA | LEA-1-Diacar-MK1-40 | Diacar | MK1 x 40 | 1.00 | 4 | 66260195848 | 5 |
| | LEA-1-Vatom-MK1-40 | Vatom | MK1 x 40 | 1.00 | 3 | 66260382005 | 5 |
| | LEA-1-Standard-MK0-25.5 | Industry | MK0 x 25.5 | 1.00 | 2 | 66260385415 | 5 |
| | LEA-1-Standard-MK1-40 | Industry | MK1 x 40 | 1.00 | 2 | 66260389207 | 5 |
| | LEA-0.5-Standard-Z8-30 | Industry | Ø 8 x 30 | 0.50 | 2 | 66260386391 | 5 |
| | LEA-0.5-Standard-MK0-25.5 | Industry | MK0 x 25.5 | 0.50 | 2 | 66260384683 | 5 |
| | LEA-0.5-Standard-MK1-40 | Industry | MK1 x 40 | 0.50 | 2 | 66260386875 | 5 |
| | LEA-0.33-Standard-MK1-40 | Industry | MK1 x 40 | 0.33 | 2 | 66260387542 | 5 |
| LEW | LEW-0,25-MK0-25.5 | Basic | MK0 x 25.5 | 0.25 | 1 | 66260342633 | 5 |
| | LEW-0.1-MK1-40 | Basic | MK1 x 40 | 0.10 | 1 | 66260386731 | 5 |
| | LEW-0.1-Z8-90 | Basic | Ø 8 x 90 | 0.10 | 1 | 66260386964 | 5 |
| | LEW-0.1-MK0-25.5 | Basic | MK0 x 25.5 | 0.10 | 1 | 66260340393 | 5 |
| | LEW-0.1-Z8-30 | Basic | Ø 8 x 30 | 0.10 | 1 | 66260389256 | 5 |

All dimensions in mm

Single point dressers with natural diamond

WINTER
Facts

Grinding

Cutting

Feilen

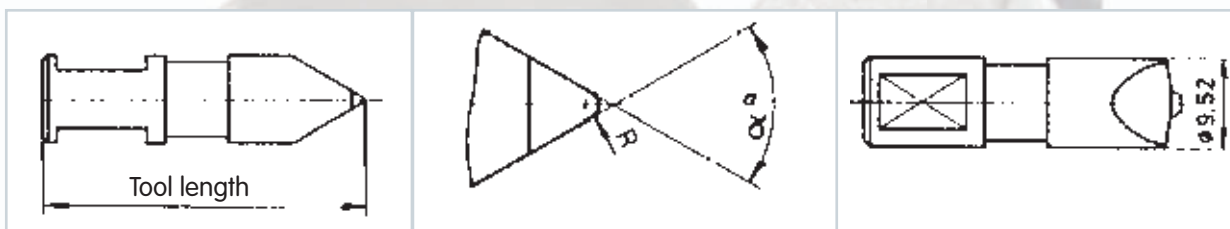
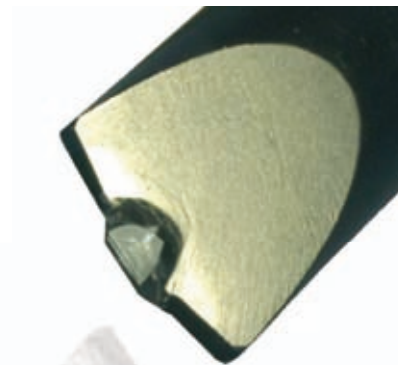
Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Profile diamond, ground

Profile diamonds are fit for all dressing device (Diaform, Schaudt and Fortuna). These tools are exceptionally economical as their angles and radii can be re-ground. Please note that the number of possible regrinding operations depends on the shape and size of the diamond.



| Profile diamond | | | | | |
|-----------------|--------------------------|------------------|------|--------------|-------------|
| Typ | Designation α / R | Dimensions D x L | ct | Order number | Catalog No. |
| L | 40/125L | 9.52 x 45.5 | 0.25 | 66260340672 | 5 |
| | 40/250L | | 0.25 | 66260351876 | 5 |
| | 40/125L | | 0.33 | 66260389254 | 5 |
| | 40/250L | | 0.33 | 66260339381 | 5 |
| | 60/250L | | 0.33 | 66260340002 | 5 |
| | 30/125L | | 0.50 | 66260339047 | 5 |
| | 40/500L | | 0.50 | 66260339689 | 5 |
| | 60/500L | | 0.50 | 66260336405 | 5 |

All dimensions in mm

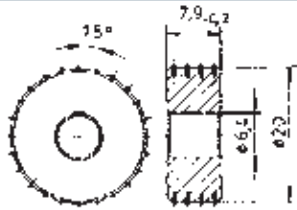


Rondist rotatable tools with diamond or CVD

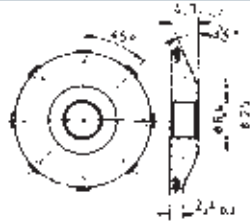
Rondist rotatable tools are used for profiling and straight dressing purposes. A multi-point dressing tool has the cost-effectiveness and functional features of a single-point dressing tool. The individual diamonds can be used up one after another.



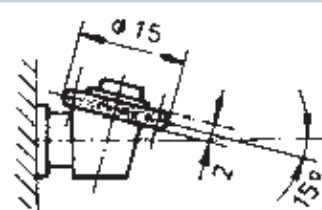
Type RO2096



Type RO1008



Type RO15/5



| Rondist | | | | | | | |
|---------|------------------|---------------|-----------------------|--|------------|--------------|-------------|
| Typ. | Grinding wheels | | Diamond specification | Quantity of hard material per rotatable tool | | Order number | Catalog No. |
| | Grit size [Mesh] | Diameter [mm] | | Size Weight | Number | | |
| RO2096 | 46-80 | < 600 | Diamond needles | 2 ct | 96 | 69014185803 | 5 |
| RO5096 | 36-60 | > 600 | Diamond needles | 5 ct | 96 | 66260390774 | 5 |
| RO1008 | 46-100 | ≤ 1000 | Triangular diamonds | 1.30 ct | 8 | 69014185801 | 5 |
| RO1008 | 46-100 | ≤ 1000 | Triangular CVD | Length of sides = 3.5 Depth = 1.0 | 8 | 66260354350 | 5 |
| RO15/5 | 60-120 | 5-40 | Diamond grit D501 | 0.65 ct | Multilayer | 66260389341 | 5 |

All dimensions in mm

Igel® multi-point dressers

Dressing circumferential grinding wheels and grinding wheels for surface grinding, Igel® tools are simple to handle. Their main benefit is that they can be used under high dressing feed rates.

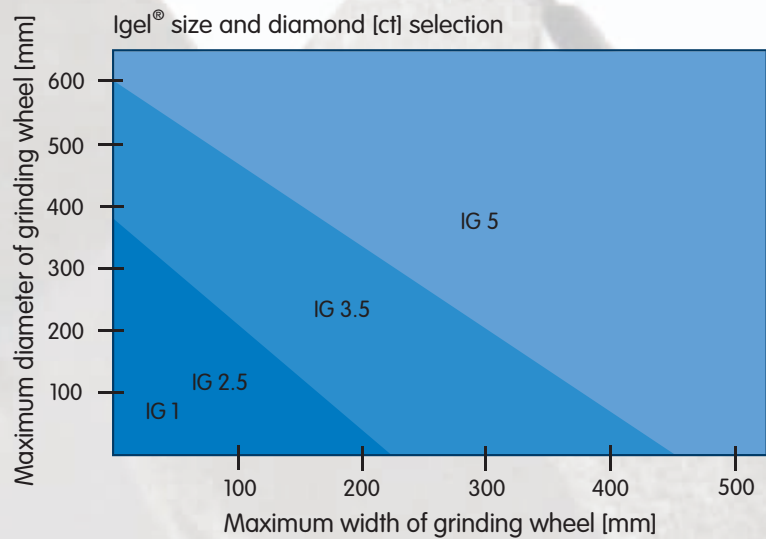


Selection criteria

We have made it easy for you to select the most suitable dresser:

- Simply choose the appropriate diamond size and content from the diagram for the Igel®
- Then choose the best Igel® from the stock programme

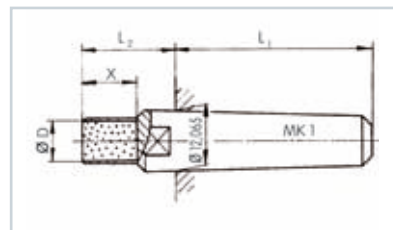
Further specifications can be found in our product catalog No. 5



| Igel® | Dimensions of diamond section (diameter Ø and length X) | Diamond [ct] |
|--------|---|--------------|
| IG 1 | 8 x 4 | 1 |
| IG 2.5 | 8 x 11 | 2.5 |
| IG 3.5 | 8 x 11 | 3.5 |
| IG 5 | 11 x 11 | 5 |

Bond for all alumina grinding wheels, including sintered alumina

| Igel® | Grinding wheel grit size | Grit size of Igel® | Bond |
|----------------------------|--------------------------|--------------------|------|
| IG 1, IG 2.5, IG 3.5, IG 5 | 60 - 80 | D711 | H710 |
| | 46 - 60 | D1001 | H710 |
| | 36 - 46 | D2240 | H710 |



| Igel® multi-point dressers | | | | | |
|---------------------------------|-------------------------------------|-----------|-----|--------------|-------------|
| Specification | Dimensions Diameter D × Length X | Diamond | | Order number | Catalog No. |
| | | Grit size | ct | | |
| HIG1-8-4-MK1-40*D1001 H710 | 8 × 4 | D1001 | 1,0 | 66260195955 | 5 |
| HIG2.5-8-11-MK1-40*D711 H710 | 8 × 11 | D711 | 2.5 | 66260387566 | 5 |
| HIG2.5-8-11-MK0-25.5*D1001 H710 | 8 × 11 | D1001 | 2.5 | 66260383700 | 5 |
| HIG2.5-8-11-MK1-40*D1001 H710 | 8 × 11 | D1001 | 2.5 | 66260195957 | 5 |
| HIG2.5-8-11-MK1-40*D2240 H710 | 8 × 11 | D2240 | 2.5 | 66260385203 | 5 |
| HIG3.5-8-11-MK0-25.5*D711 H710 | 8 × 11 | D711 | 3.5 | 66260389441 | 5 |
| HIG3.5-8-11-MK1-40*D711 H710 | 8 × 11 | D711 | 3.5 | 66260195960 | 5 |
| HIG5-11-11-MK1-40*D711 H710 | 11 × 11 | D711 | 5.0 | 66260195972 | 5 |
| HIG5-11-11-MK1-40*D1001 H710 | 11 × 11 | D1001 | 5.0 | 66260195959 | 5 |
| HIG5-11-11-MK1-40*D2240 H710 | 11 × 11 | D2240 | 5.0 | 66260195953 | 5 |

All dimensions in mm

WINTER
Facts

Grinding

Cutting

Feilen

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

pro-dress® multi-point dressers

The pro-dress® tool is used for the straight dressing of grinding wheels for flat and circumferential grinding, using fine and extra-fine grit sizes. Because of its low dressing strength, it is ideally suited for external cylindrical grinding and for fine surfaces.

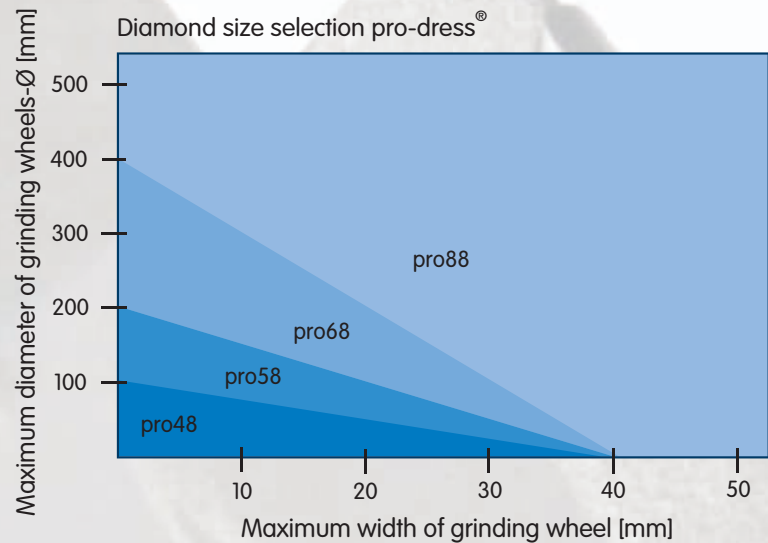


Selection criteria

We have made it easy for you to select the most suitable dresser:

- Simply choose the appropriate diamond size and content from the diagram for the pro-dress®
- Then choose the best pro-dress® from the stock programme

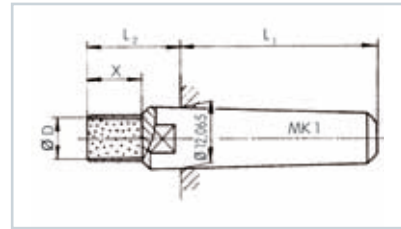
Further specifications can be found in our product catalog No. 5



| pro-dress® | Dimensions of diamond tip (diameter D and length X) | Diamond [ct] |
|------------|---|--------------|
| pro48 | 4 x 8 | 0.6 |
| pro58 | 5 x 8 | 1 |
| pro68 | 6 x 8 | 1.3 |
| pro88 | 8 x 8 | 2.4 |

For alumina grinding wheels

| pro-dress® | Grinding wheel grit size | Grit size pro-dress® | Bond |
|----------------------------|--------------------------|----------------------|------|
| pro48, pro58, pro68, pro88 | 120 - 180 | D213 | H760 |
| | 100 - 120 | D301 | H760 |
| | 80 - 100 | D426 | H710 |



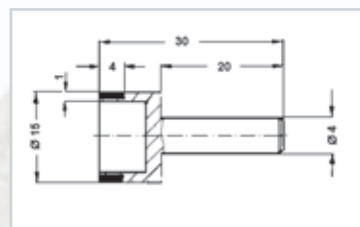
pro-dress® multi-point dressers

| Specification | Dimensions Diameter D x Length X | Diamond | | Order number | Catalog No. |
|-------------------------------|-------------------------------------|-----------|-----|--------------|-------------|
| | | Grit size | ct | | |
| HPRO48-4-8-Z6-24*D301 H760 | 4 x 8 | D301 | 0.6 | 66260384896 | 5 |
| HPRO58-5-8-Z6-25*D426 H710 | 5 x 8 | D426 | 1 | 66260196226 | 5 |
| HPRO68-6-8-MK0-25.5*D213 H760 | 6 x 8 | D213 | 1.3 | 66260196258 | 5 |

All dimensions in mm

Dressing pins

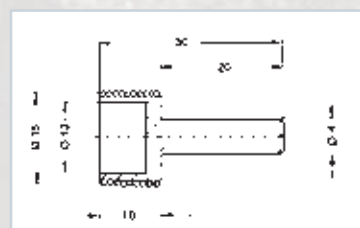
Dressers are especially suited for small ceramically bonded CBN grinding wheels.



Diamond dressing pins in sintered metal bond

| Shape | D | T | X | S | L | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|--------|----|---|---|---|----|-----------|----------|---------------|--------------|-------------|-------------|
| 4BZ07B | 15 | 4 | 1 | 4 | 30 | D301 | BZ 387.1 | C135 | 66260100343 | ID grinding | 5 |

All dimensions in mm



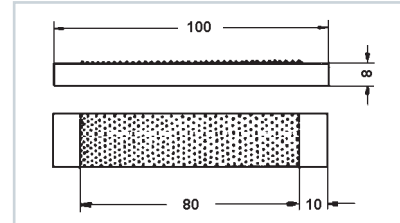
Diamond electroplated dressing pins

| Shape | D | T | X | S | L | Grit size | Bond | Concentration | Order number | Application | Catalog No. |
|--------|----|----|---|---|----|-----------|------|---------------|--------------|-------------|-------------|
| 50S07B | 15 | 10 | 4 | 4 | 30 | D426 | G825 | S33 | 60157644198 | ID grinding | 5 |

All dimensions in mm

WINTER dressing block

For dressing resin-bonded diamond and CBN grinding wheels.



| Diamond dressing block | | | | |
|---|---------------|---------------|--------------|-------------|
| Application | Shape | Specification | Order number | Catalog No. |
| For dressing resin bond diamond and cBN grinding wheels on surface grinders. If used with coolant, subsequent sharpening with WA150GV sharpening stone or WINTER stone No. 2 is required. | 1S09H-80-20-8 | D301 / S11 | 66260134287 | 5 |

All dimensions in mm

WINTER dressing device

Winter dressing wheels are only used for dry dressing.
Where required, further sharpening can be done, using a WINTER stone soaked in water.



Diamond dressing wheels for WINTER dressing device

| Replacement grinding wheels | for grit size | Order number | Catalog No. |
|-----------------------------|---|--------------|-------------|
| 39C60-MV | D64 - D126 | 66253051624 | 5 |
| 39C802-IV | ≤ D64 | 66253052726 | 5 |
| Accessories | 1 set consisting of: 3 clutch segments, 3 springs and 3 screws | 66260274670 | 5 |

Cleaning and sharpening stones



| Cleaning and sharpening stones | WINTER SAINT-GOBAIN | Order number | Catalog No. |
|----------------------------------|--|--------------|-------------|
| WINTER stone No. 1AW (100x20x20) | White corundum, vitrified bonded, 360 mesh, sharpening of resin bonded grinding wheels, grit size < D46 | 66260395639 | 5 |
| WINTER stone No. 2 (100x24x13) | White corundum, vitrified bonded, 180 mesh, sharpening of resin bonded and metal bonded grinding and cutting wheels, grit size ≥ D46 | 66260195816 | 5 |
| WINTER stone No. 3 (100x40x15) | Silicon carbide, rubber-bonded, 80 mesh, cleaning and sharpening of electro-plated and vitrified bonded grinding wheels and pins | 66260195817 | 5 |
| WINTER stone No. 3A (80x15x10) | see WINTER stone No. 3 | 66260389357 | 5 |
| WINTER stone No. 3B (100x50x25) | see WINTER stone No. 3 | 66260386167 | 5 |
| WINTER stone No. 4 (90x70x20) | Ruby alumina, vitrified bonded, 60 mesh, sharpening of metal bonded grinding wheels, grit size ≥ D251 | 60157642665 | 5 |
| WINTER stone No. 5 (100x50x25) | see WINTER stone No. 2 | 66260389054 | 5 |

| Cleaning and sharpening stones | flexOvit | Order number | Catalog No. |
|--------------------------------|--|--------------|-------------|
| Stone WA150GV (25x25x150) | Cleaning and sharpening of vitrified and resin bonded grinding wheels ≥ D54, recommended for sharpening Q-Flute ² | 69936621643 | 5 |
| Stone WA220GV (25x25x150) | Cleaning and sharpening of vitrified and resin bonded grinding wheels | 69936621630 | 5 |
| Stone WA320GV (25x25x150) | Cleaning and sharpening of vitrified and resin bonded grinding wheels ≤ D46 | 69936651380 | 5 |

Cleaning and sharpening stones

WINTER
Facts

Grinding

Cutting

Feilen

Lapping
Polishing
Micron powder

Dressing

Service
Glossary
Contact

Manual dressing tools

These robust tools allow the dressing of blunted and clogged conventional ceramic grinding wheels. They thus create a very good topography for grinding purposes and increase the profile accuracy of the grinding wheel.



Type Igel-P

Type Igel T

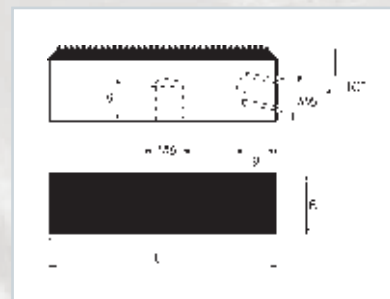


Igel multigrit manual dressing tools with natural diamond in a sintered metal bond

| Igel Typ | Segment dimensions | | Design | Diamond content [ct] | Order number | Comment | Catalog No. |
|----------|--------------------|---|----------|----------------------|--------------|-----------------|-------------|
| | L | B | | | | | |
| Igel-P | 25 | 7 | seitlich | 1,3 | 66260134089 | lateral design | 5 |
| Igel-T | 25 | 7 | gerade | 1,3 | 66260133388 | straight design | 5 |

All dimensions in mm

The versions have a fixed handle. They are suitable for all alumina grinding wheels.



D20 manual dressing tool with natural diamond in an electroplated bond

| Typ | Segment dimensions | | Design | | Diamond content [ct] | Order number | Catalog No. |
|------|--------------------|----|---------|----------|----------------------|--------------|-------------|
| | L | B | lateral | straight | | | |
| 2001 | 45 | 12 | x | x | 5 | 66260139141 | 5 |
| 2002 | 20 | 12 | x | x | 2,2 | 66260195353 | 5 |

All dimensions in mm

The 2001 and 2002 versions are principally for particularly hard grinding wheels such as SiC, supplied also with an M6 thread handle to be screwed in at the side or the end

Checklist

for stationary dressing tools

Company / Customer No.: _____

1. Workpiece

- 1.1 Drawing of workpiece _____
- 1.2. Workpiece material _____
- 1.3. Surface finish required _____ $R_{a'}$ $R_{p'}$ R_z

2. Machine

- 2.1 Manufacturer _____
- 2.2 Model/type _____
- 2.3 Grinding process Angular plunge grinding Straight plunge grinding:
- 2.4 Cooling lubricant _____

3. Grinding wheel

- 3.1 Dimensions _____ mm
- 3.2. Specification _____
- 3.3 Manufacturer _____

4. Diamond dresser in use

- 4.1 Designation _____
- 4.2 Dimensions _____ mm
- 4.3. Specification _____

5. Dressing process

- 5.1 Straight dressing Circumferential On the face
- 5.2 Copy dressing / profile dressing _____

6. Current dressing insert data

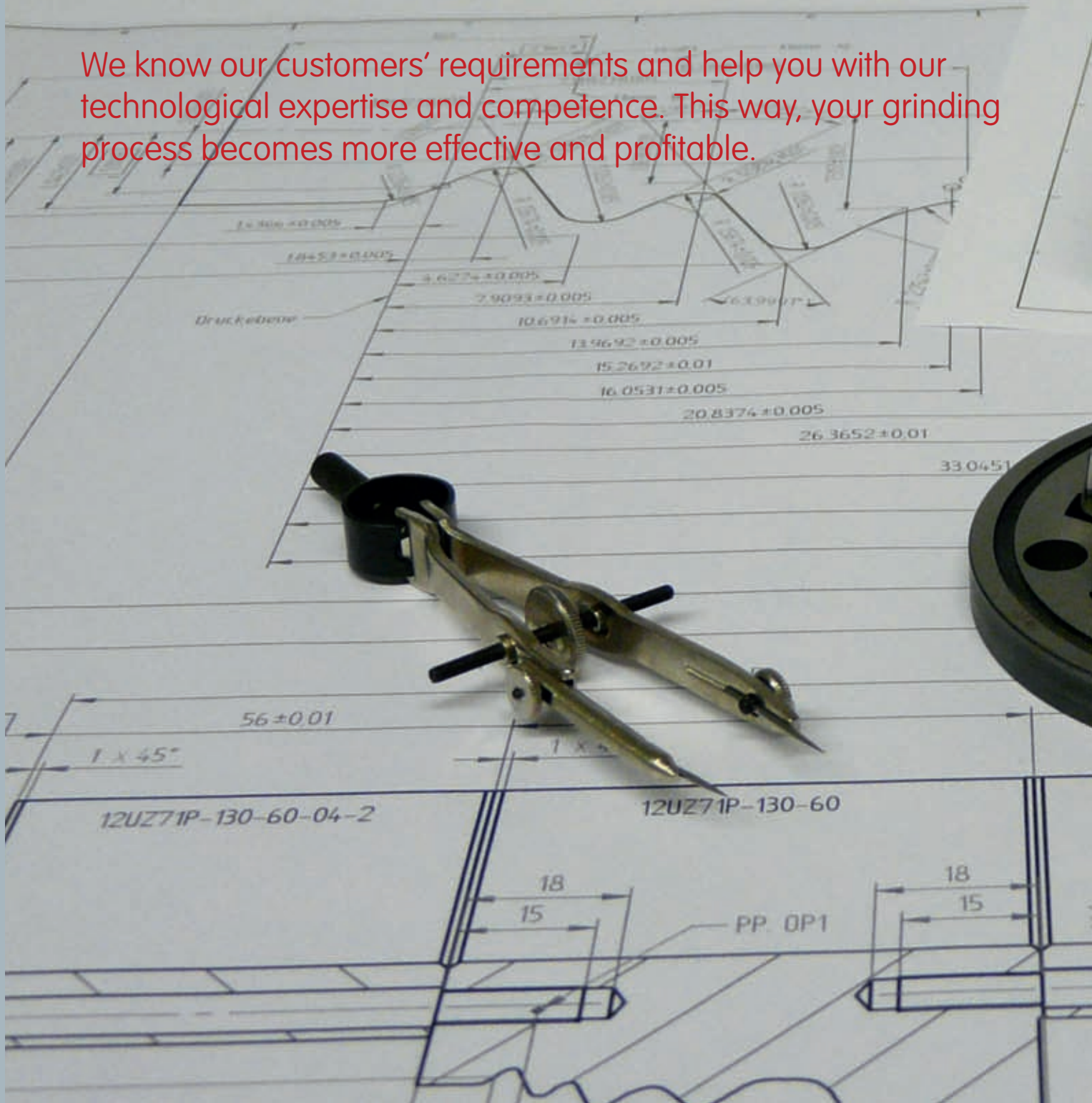
- 6.1 Grinding wheel cutting speed during dressing $v_{sd} =$ _____ m/s
- 6.2. Dressing infeed/stroke $a_{ed} =$ _____ mm
- 6.2. Dressing infeed/stroke $f_{od} =$ _____ mm
7. Requirement or problem $vf_{od} =$ _____ mm/min

SAINT-GOBAIN Diamantwerkzeuge GmbH
Schützenwall 13-17, D-22844 Norderstedt, Phone: +49 40 5258-0, Fax +49 40 5258-215
www.winter-superabrasives.com

Compendium

The WINTER brand represents over 160 years of heritage and grinding experience. Many companies worldwide involved in industrial production benefit from this expertise.

We know our customers' requirements and help you with our technological expertise and competence. This way, your grinding process becomes more effective and profitable.





138 Service

In addition to design and production of grinding tools, WINTER offers you a multitude of services.

140 Glossary

Compiled for you: this little reference guide explains terms around grinding: bonds, roughness, material removal rates, etc.

150 Index

This catalogue-spanning index helps you to easily find the right information for your application and the corresponding grinding tools.

159 Contact

Who to ask first?

Who is my nearest contact person?

Where can I get quick and easy help?

Service

Competition is keen, and cost pressures are acute. To improve productivity and technical capability, you need a supplier who co-operates efficiently. WINTER not only provides high performance grinding tools but can also assist in analysing your processes, to identify the best solution, and then to implement it together with you.

Advice

Our field service engineers and customer service team are here to help, and can offer advice on all WINTER products and grinding processes. Together with product management and our application engineering team, customised solutions will be found which meet your needs.

Product Development

WINTER, as the grinding industry's technology leader, invests heavily in Research and Development. Basic research supports new customer-specific product and application developments at our global Technology Centres. Our EGTC (European Grinding Technology Centre) with the R&D Department in Norderstedt, closely co-operate with our Research and Technology Centres in the USA, France and China.

Process Optimisation

At our EGTC (European Grinding Technology Centre), we can evaluate your grinding processes using sophisticated sensing and measurement systems which you may not have access to. So we can demonstrate improvements to your process without interrupting your production. On your factory floor, our application and development engineers continue to support you. Our dedicated specialists are expert in the field of complex grinding systems, and can advise on new production strategies with the help of innovative process diagnostic technology. The result for customers is a fine-tuned production process, and optimised day-to-day operations.

Training and Continuing Education

We offer regular seminars on current issues and developments at our European Grinding Technology Centre (EGTC) in Norderstedt. Economic and advanced production processes are reviewed with top-class experts from different parts of the industry. We invite internal and external consultants on specific subjects to comment on the technological state-of-the-art and development trends.

Ask your field salesman for the latest calendar of scheduled seminars and get yourself registered.

Specific training programmes can also be arranged according to your individual requirements.

Just contact us - we will gladly make an offer that meets your needs.

WINTER offers seminars on topics such as:

- Tool Grinding Technology Forum (expert panel discussion)
- Grinding (basic training)
- Grinding fluids (focused technology review)
- Dressing technology (focused review)



Field Instrumentation System (FIS)

Optimise your production process

Have us make a **FIS process analysis** and optimise your production process: field instrumentation system is a portable system to monitor and measure your grinding process. Exact and comparable data is obtained and can contribute to increase your performance:

- Process optimisation, reduction of cycle time
- Prolongation of tool life time
- Machine and process studies
- Analytical determination and benchmarking

Give it a try!



MDress - Mobile Dressing Unit

For better grinding results

Almost every CNC grinding machine can be upgraded by MDress, the mobile rotary diamond dressing unit. Using MDress ensures highly precise reconditioning of grinding wheel profiles. The grinding wheel achieves its ultimate axial and radial running truth directly on the main spindle. Our customers are enabled to test, for example, vitrified bonded grinding wheels, on the CNC grinding machine and obtain a more economic grinding result.

Our application engineers will give you support, to demonstrate an optimised dressing process with the MDress dressing system on your machine at your premises.

Just contact us



RFID – Radio Frequency Identification

This technology makes it possible to transfer stored data from the grinding wheel to the grinding machine. The advantages are

The increased level of transparency

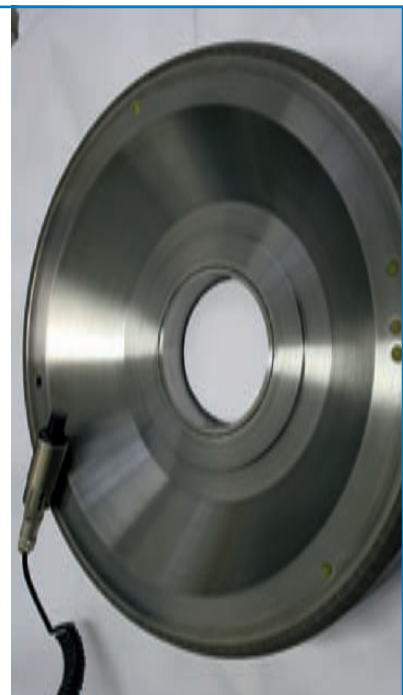
- Integrated tool-life monitoring
- Automated scanning and storage of tool use

Shorter set-up times

- Direct access to grinding wheel data by the machine control system
- Elimination of operator error in manual recording and entry of data

Improved profitability

- Reduced machine downtime by automatic data transfer between machine and grinding wheel



Glossary

For your reference: a short explanation of grinding terms

Bonds

To meet the challenges of the wide diversity of grinding applications, it is inevitable that a wide range of bond systems is required. Bonds are categorised according to the fundamental material type used, and many variations exist within each type.

Resin Bond Systems

These are based on either phenolic or polyimide resins, usually together with added fillers, as well as the abrasive grains. Resin bonds are at the lower end of the hardness scale, and are used in a wide range of applications due to their fast and cool grinding behaviour.

Sintered Metal Bonds

Most metal bonds are based on bronze, although harder systems may be based on steel or even hardmetal. Sintered bronze bonds are relatively soft and at their softest can overlap the hardest resin bonds. Steel and hardmetal bonds are more wear resistant, so therefore act harder and grip the abrasive grains more strongly, leading to longer tool life, although the abrasive can sometimes appear blunt.

Metal bonded grinding wheels generally grind more slowly, in most applications acting harder, and more grinding heat is developed than in resin bonded wheels. However, metal bonds can also readily dissipate heat, which also impacts the grinding process. Metal bonds are ideal for grinding wheels with sharp edge profiles, and for machining abrasive materials that would otherwise wear the bond. Furthermore, metal bonds are shock-resistant, and are suitable for very aggressive operating conditions. Metal bonds are mostly used in wet grinding. Special variants are crushable, brittle metal bonds that can be dressed on the machine in a special crushing process. These bonds are especially useful in creep feed grinding.

Electroplated Bonds

In this bond system, the metal bond is deposited electrolytically onto a bronze or steel body. The grit is tenaciously anchored by the bond, and grain tips can protrude from the bond layer by 30 - 50 % of the grain diameter. This leads to a grinding layer with a very high material-removal-rate capability. However, only the outermost grain layer acts in this way, which is why these tools are mainly designed in single-layer versions. Such single layer bond systems are suitable for profiled wheel bodies of all kinds; profile accuracy is dependent on the grit size specified.

Vitrified Bonds

Vitrified bonds are based on fusible glasses combined with fillers and the abrasive grains. While resin and metal bonds are generally fully dense, vitrified bonds are usually produced with a defined porosity, and are available in different hardness levels. This variation in porosity and hardness is analogous to the vitrified bonds of conventional grinding wheels. The main features of vitrified bonds are:

- Good dressability and profileability
- Free-cutting due to the porosity and self sharpening behaviour
- Fluid availability, due to porosity, in the grinding zone allows cool grinding at low grinding forces
- High cutting speeds and material removal rates are possible.

Concentration

According to the WINTER system, the concentration value defines the volume fraction of diamond or cBN in the abrasive layer as follows:

| Diamond | | | cBN | | |
|---------------|-------------------------|-----------|---------------|-------------------------|-----------|
| Concentration | Carat / cm ³ | Volume % | Concentration | Carat / cm ³ | Volume % |
| C50 | 2.2 | 12.5 | V120 | 2.09 | 12 |
| C75 | 3.3 | 18.75 | V180 | 3.13 | 18 |
| C100 | 4.4 | 25 | V240 | 4.18 | 24 |
| C125 | 5.5 | 31.25 | V300 | 5.22 | 30 |

These definitions are not applicable for single layer electroplated tools.

Conditioning

Conditioning of a grinding wheel consists of dressing and cleaning:

| Dressing | | Cleaning |
|---|---|-----------------------------------|
| Profiling | Sharpening | |
| Influences macrostructure | Influences microstructure | Influences microstructure |
| Produces concentricity and grinding wheel profile | Generates topography and grain exposure by eroding the bond | Removes chips from chip space |
| Need: Shape or re-shape the wheel surface | Need: Create grit protrusion | Need: No change in the surface |

Cubic Boron Nitride (cBN)

Boron nitride is found in two structural modifications: Cubic boron nitride (cBN) has the zinc-blende crystal structure equivalent to diamond, and has a hardness just a little below that of diamond. The graphite-like hexagonal modification of boron nitride (hBN) is soft and is used as a lubricant.

Compared to diamond, cBN has technological and economic advantages when grinding materials having a chemical affinity to carbon, such as steels and ferrous alloys. Applications for cBN are becoming increasingly economic, and cBN grinding of workpieces with hardness as low as 50 HRC have been demonstrated.

Diamond

Diamond is one of the three carbon modifications (the others are graphite and the fullerenes) and, with a Moh's hardness of 10, diamond is the hardest material known. The grinding (Rosiwal) hardness is 140 times higher than that of alumina. Because of its hardness and wear resistance, diamond is used for grinding hard, brittle and short-chipping materials. Examples are tungsten carbide, glass, ceramics, quartz, semiconductor materials, graphite and wear-resistant thermal spray alloys as well as hard-facing alloys, plastics with glass fiber reinforcement, and other difficult to machine materials. Both natural and synthetic diamonds are used in industrial applications.

- **Natural diamond:** these diamonds were created in the earth's mantle under high pressure and temperature (1200 - 1400°C). Both single crystals (octahedrons, triangles...) and crushed grit (boart) are used in industrial diamond tools
- **Synthetic diamond:** synthetic diamond grits are formed in presses in a very high pressure/high temperature (HP/HT) process, at up to 60000 bar and 1500°C, using a variety of solvent/catalyst materials which help to convert graphite into diamond.
- **MCD:** large synthetic diamonds that are produced in a HP/HT process similar to synthetic diamond grit.
- **PCD:** polycrystalline diamond pieces formed by sintering micronized diamond particles together with a binder under HP/HT conditions.
- **CVD:** these diamonds are manufactured by gas phase deposition (methane, hydrogen) at low pressure using a vacuum system.

Direction of Rotation Indicator

Resin and metal bond diamond and cBN grinding wheels always show an indicator for the direction of rotation. At the end of the production chain of a multilayer grinding wheel is the profiling and sharpening process. In the sharpening process, a bond tail is formed behind each of the active abrasive grains. This bond tail supports the grain and prevents the grain from untimely fracture. If the wheel is mounted the wrong way round, this bond tail would precede the grains during cutting, which would lead to lower chip-space, increased grinding pressure, and early grain fracture. Therefore, it is important to adhere to the rotational direction shown by the indication arrow or to re-sharpen the grinding wheel before use, if you chose to change the direction of rotation.

Dressing = Truing + Sharpening

It is necessary to distinguish between the key wheel preparation steps of truing, sharpening and cleaning of the grinding wheel surface.

Dressing describes the processes of truing and sharpening a grinding wheel. When grinding with conventional alumina or silicon carbide wheels, „dressing“ is the combined process of truing and sharpening. However, for superabrasive grinding wheels containing either diamond or cBN abrasives in a resin or metal bond, after truing, a separate sharpening step is usually required to remove some of the bond material and expose the grains. In addition, the grinding wheel surface must be cleaned (Dressing + Cleaning = Reconditioning) periodically. The dressing interval depends upon the grinding process parameters being used, and the type of workpiece material being ground.

Grinding wheel truing generates the correct geometric shape, develops the necessary concentricity, and also removes any surface contamination. In so doing, worn blunted grains are either removed or resharpened, and fresh grains are exposed. To achieve optimum results, dressing tools, dressing parameters and dressing strategy must be finely tuned to the grinding wheel and grinding process. Therefore, different tools and methods are used, such as either alumina-based or SiC sharpening stones, SiC grinding wheels, the WINTER brake-dressing device, CNC rotary dressers, diamond dressing sticks, rotary profile dressers, etc.

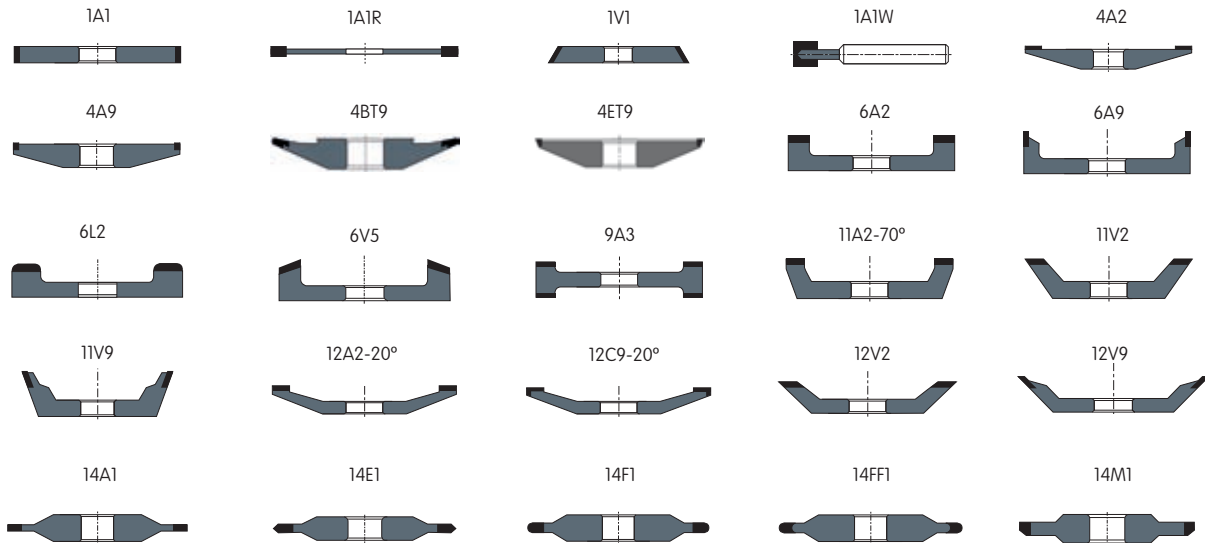
Our engineers can offer advice to help you chose the best method for your application.

FEPA

The Federation of European Producers of Abrasives (FEPA) is a non-profit European organisation which publishes safety guidelines and standards for conventional and superabrasive (diamond and cBN) grinding tools as well as loose abrasive grain (see grit sizes). It also provides standards for the most common grinding wheel shapes and dimensions.

FEPA-Shapes

These drawings show the most important grinding wheel geometries:



Grinding

According to DIN 8589, grinding is defined as material removal using geometrically undefined cutting edges. All grinding wheels with either diamond or cubic boron nitride (cBN) are grinding tools according to DIN 8589. The “cutting edges” are composed of the diamond or cBN grit.

Grinding Ratio (G-Ratio)

The grinding-ratio is calculated as a ratio of the ground workpiece volume V_w to the wheel wear volume V_s .

Grinding Wheel Bodies

The body of a grinding wheel provides the static and dynamic stiffness to the tool. Dependent on the kind of grinding layer, it may consist of aluminium, filled resin, brass, steel or ceramics. The body significantly influences the vibration behaviour and the thermal conductivity of the grinding wheel; the following table shows examples for superabrasive grinding wheel bodies.

| Body material type | Label | Vibration Absorption | Heat Transmission | Mechanical Stiffness |
|---------------------------------|--------|----------------------|-------------------|---|
| Resin with metal fillers | H | medium | sufficient | good |
| Resin with non-metallic fillers | B or D | good | bad | satisfactory (not sufficient with thin-walled bodies) |
| Aluminium | A | bad | good | very good |
| Steel | E | bad | satisfactory | very good |
| Copper | C | bad | very good | very good |
| Composite material | CFK | good | bad | good |

Grit Sizes

The sieve-sizes for diamond and cBN range according to FEPA standards (also ISO 6106) and are shown in the following table. As abrasives always contain a range of grit sizes, the values given for average grit sizes and particles per carat are approximations. D-prefix indicates diamond, while B-prefix refers to cBN.

| FEPA grit size D or B | Standard [Mesh] | Average Grit Size [μm] | Particles per ct |
|-----------------------|-----------------|-------------------------------------|------------------|
| 1181 | 16/18 | 1100 | 60 |
| 1001 | 18/20 | 930 | 100 |
| 851 | 20/25 | 780 | 160 |
| 711 | 25/30 | 660 | 270 |
| 601 | 30/35 | 555 | 450 |
| 501 | 35/40 | 465 | 760 |
| 426 | 40/45 | 395 | 1200 |
| 356 | 45/50 | 330 | 2100 |
| 301 | 50/60 | 280 | 3500 |
| 251 | 60/70 | 233 | 6000 |
| 213 | 70/80 | 197 | 10000 |
| 181 | 80/100 | 167 | 16000 |
| 151 | 100/120 | 140 | 28000 |
| 126 | 120/140 | 118 | 46000 |
| 107 | 140/170 | 99 | 80000 |
| 91 | 170/200 | 83 | 135000 |
| 76 | 200/230 | 72 | 200000 |
| 64 | 230/270 | 63 | 300000 |
| 54 | 270/325 | 55 | 460000 |
| 46 | 325/400 | 47 | 750000 |
| 39 | 400/500 | 38 | 1400000 |
| 33 | 500/600 | 33 | 2100000 |

WINTER has its own classification for fine and microgrit sizes. FEPA standards are similar (M 63...M1.0).

| WINTER diamond classification | Grit size [μm] |
|-------------------------------|-----------------------------|
| D 25 | 40 - 60 |
| D 20 C | 34 - 45 |
| D 20 B | 25 - 37 |
| D 20 A | 20 - 30 |
| D 15 | 8 - 25 |
| D 15 C | 15 - 25 |

| WINTER diamond classification | Grit size [µm] |
|-------------------------------|----------------|
| D 15 B | 10 - 20 |
| D 15 A | 8 - 15 |
| D 10 | 6 - 10 |
| D 7 | 5 - 10 |
| D 5 | 3 - 7 |
| D 3 | 2 - 5 |
| D 1 | 0,5 - 2 |
| D 0,7 | 0 - 1 |
| D 0.25 | 0 - 0.5 |

Hardness of Abrasives

The hardness value of a material is generally influenced by the method of measurement. Different measuring methods and equipment result in different scales and units which cannot easily be compared. Thus several scales exist, for example:

Moh's hardness: abrasion behaviour (measure of scratch resistance)

Rosiwal hardness: stock removal behaviour (measure of resistance to stock removal)

Vicker's Microhardness: indentation behaviour (resistance to penetration)

In the following table, different hardness values for abrasives are given and compared to some reference materials:

| Material | Moh's Hardness | Rosiwal Hardness | Vickers Microhardness (HV) |
|-----------------|----------------|------------------|----------------------------|
| Diamond | 10 | 140,000 | 10.000 |
| cBN | 9.9 | | 9.000 |
| Silicon carbide | 9.6 | | 2.600 |
| Corundum | 9 | 1.000 | 2.060 |
| Quarz | 7 | 120 | 1.120 |
| Manganese | 5 | 6.5 | 540 |
| Gypsum | 2 | 1.25 | 36 |
| Talc | 1 | 0.03 | 2.6 |

Diamond's stock removal resistance (Rosiwal hardness) is 140 times higher than corundum (alumina), even though its penetration hardness (Vickers) is only 5 times higher.

Material Removal Rate

The material removal rate, MRR or Q_w , is expressed in mm^3/s and defines the volume of workpiece material ground per unit time (second).

The specific material removal rate, MRR' or Q'_w , refers to the removal rate per millimetre of wheel contact width and is expressed in units of $[\text{mm}^3/(\text{s} \cdot \text{mm})]$.

Parameters influencing Grinding Results

The table shows some correlations between process variables and the grinding results.

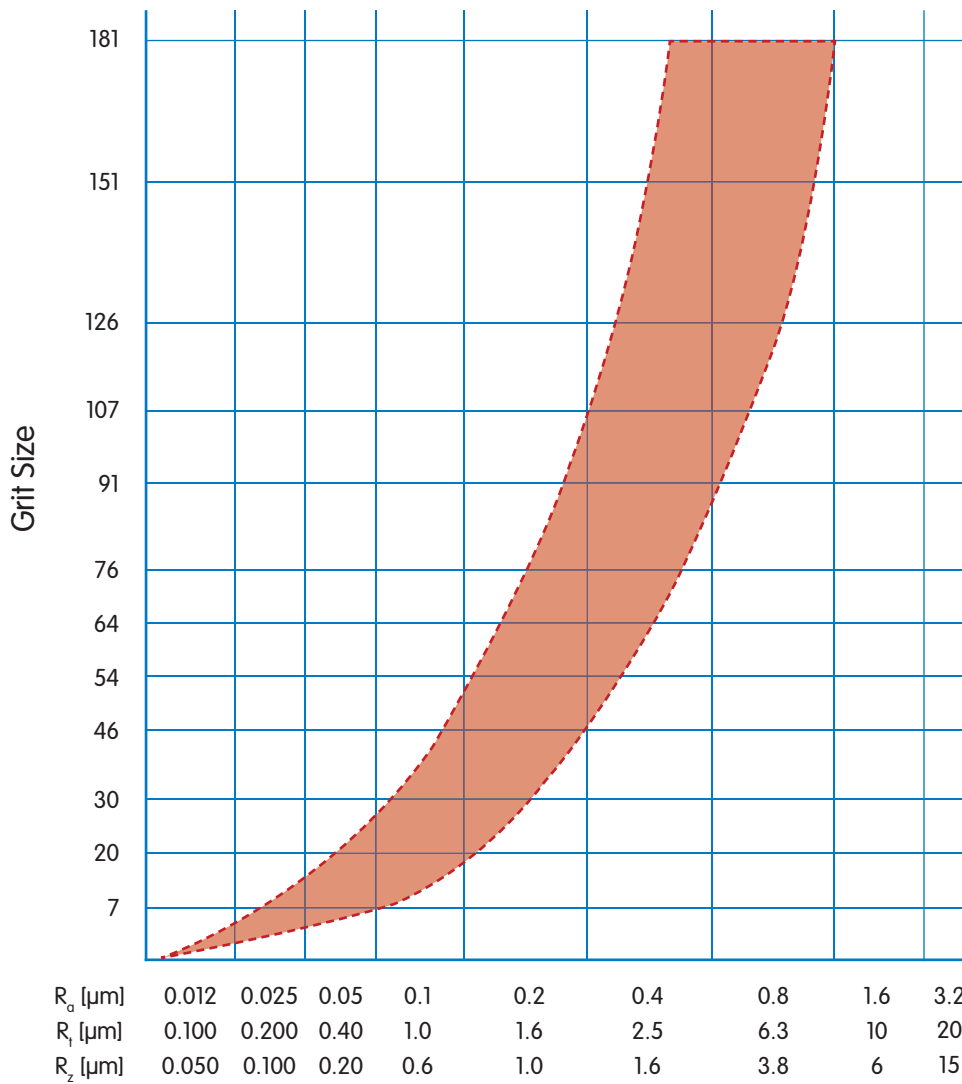
| Influencing Parameters | | Appraisal criterion | | | | |
|-----------------------------------|--|-----------------------------------|------------------------------------|-------------------------------------|---|--|
| | | Cutting Force F $F = f(\dots)$ | Grinding Ratio G $G = f(\dots)$ | Roughness R_a $R_a = f(\dots)$ | Temperature ϑ $\vartheta = f(\dots)$ | |
| Machine- and Operation Parameters | Cutting Speed v_c (m/s) | | | | | |
| | Material Removal Rate Q_w (mm^3/s) | | | | | |
| | Coolant (Oil Content) | | | | | |
| Grinding Wheel | Grit Size (μm) | | | | | |
| | Concentration (Carat/cm^3) | | | | | |

Roughness

The surface roughness of a ground workpiece is influenced by many diverse parameters:

- Grit size of abrasive grain
- Concentration of abrasive grain
- Specification of bond system
- Type and hardness of work piece
- Grinding process
- Grinding parameters
- Dressing parameters

A general and qualitative correlation between grit size and surface roughness is shown below:



Specification

The specification is the general description of the grinding tool and contains all relevant information concerning the product's features. In general, the specification always contains the following details:

Example:

| | | | | | |
|-------|-------------|-----------|--------|---------------|---------------|
| 11V9 | 100-2-10-20 | D126 | K+888R | C75 | A |
| Shape | Dimension | Grit Size | Bond | Concentration | Body Material |

Furthermore, the specification can contain additional information regarding drawing index, production method, structure, and other details.

Superabrasives

Diamond and cubic boron nitride are the hardest materials existing in industry today, according to the current state of knowledge. The levels of hardness of diamond and cBN are significantly higher than those of conventional abrasives like alumina (corundum) and silicon carbide (see hardness).

Wear effects on diamond and cBN

The hardness of an abrasive grit type alone is not sufficient to determine the grinding tool's grinding behaviour. Diamond and cBN grains can wear in many ways, causing different effects.

Primarily, there are two main types of wear.

Mechanical wear:

Abrasion, micro-chipping of cutting edges, grit macrofracture, and breakout of grain from the bond.

Chemical and thermal wear

Carbon diffusion, graphitization, oxidation, and reaction with grinding fluids.

Diamond not only reacts with iron (above a certain threshold temperature), but also with chromium, vanadium and tungsten. cBN does not show chemical reaction with iron or other metals.

Therefore, cBN has proven to give better tool performance when machining, for example, high speed steel, although it is not as hard as diamond.

An outward sign of the occurrence of thermo-chemical wear is the rapid appearance of wear flats on the grains, when no grain chipping from mechanical wear is present.

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Their fathers work in our product management and our manufacturing

Contact

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For your inquiries please ask your sales engineer:

WINTER
SAINT-GOBAIN

Saint-Gobain Diamantwerkzeuge GmbH
Schützenwall 13-17
DE-22844 Norderstedt

Telefon: +49 - (0)40 - 52 58 0
Fax: +49 - (0)40 - 52 58 215
E-Mail: info.winter@saint-gobain.com

www.winter-superabrasives.com

SAINT-GOBAIN ABRASIVES N.V.
BLVD INDUSTRIEL / INDUSTRIELAAN, 129
1070 BRUXELLES / BRUSSEL
BELGIUM
TEL: +32 2 267 21 00
FAX: +32 2 267 84 24

SAINT-GOBAIN ABRASIVES, S.R.O.
VINOHRADSKÁ 184
130 52 PRAHA 3
CZECH REPUBLIC
TEL: +420 267 132 026
FAX: +420 267 132 021-2

SAINT-GOBAIN ABRASIVES A/S
ROBERT JACOBSENS VEJ 62 A
2300 KØBENHAVN S
DENMARK
TEL: +45 467 552 44
FAX: +45 467 550 60

SAINT-GOBAIN ABRASIFS
OFFICE NO. 2106 FORTUNE TOWER
CLUSTER C, JUMEIRA LAKE TOWERS
P.O. BOX 643706
DUBAI, U.A.E
UNITED ARAB EMIRATES
TEL: +971 4 43 15 154
FAX: +971 4 43 15 434

SAINT-GOBAIN ABRASIFS
RUE DE L'AMBASSADEUR - B.P.8
78 702 CONFLANS CEDEX
FRANCE
TEL: +33 (0)1 34 90 40 00
FAX: +33 (0)1 39 19 89 56

SAINT-GOBAIN
DIAMANTWERKZEUGE GMBH
SCHÜTZENWALL 13-17
22844 NORDERSTEDT
GERMANY
TEL: +49 40 5258-0
FAX: +49 40 5258-215

SAINT-GOBAIN ABRASIVES KFT
BÁNYALÉG U. 60/B
1225 BUDAPEST
HUNGARY
TEL: +36 1 371 22 50
FAX: +36 1 371 22 55

SAINT-GOBAIN ABRASIVI S.P.A
VIA PER CESANO BOSCONI 4
20094 CORSICO MILANO
ITALY
TEL: +39 024 4851
FAX: +39 024 478 266

SAINT-GOBAIN ABRASIVES S.A.
190 RUE J.F. KENNEDY
4930 BASCHARAGE
GRAND DUCHE DE LUXEMBOURG
TEL: +352 50 40 11
FAX: +352 50 16 33
NO. VERT (FRANCE) 0800 906 903

SAINT-GOBAIN ABRASIFS, S.A.
2 ALLÉE DES FIGUIERS
AÏN SEBAË - CASABLANCA
MOROCCO
TEL: +212 22 66 57 31
FAX: +212 22 35 09 65

SAINT-GOBAIN ABRASIVES BV
GROENLOSEWEG 28
7151 HW EIBERGEN
THE NETHERLANDS
TEL: +31 545 466466
FAX: +31 545 474605

SAINT-GOBAIN ABRASIVES AS
BRØBEKKVEIEN 84
0582 OSLO
NORWAY
TEL: +47 63 87 06 00
FAX: +47 63 87 06 01

SAINT-GOBAIN ABRASIVES SP.Z
UL. TORUNSKA 239/241
62-600 KOŁO
POLAND
TEL: +48 63 26 17 100
FAX: +48 63 27 20 401

SAINT-GOBAIN ABRASIVOS, L. DA
ZONA INDUSTRIAL DA MAIA
I-SECTOR VIII , NO. 122
APARTADO 6050
4476 - 908 MAIA
PORTUGAL
TEL: +351 229 437 940
FAX: +351 229 437 949

SAINT-GOBAIN ABRASIVI SRL
PARC INDUSTRIAL HOLROM
DRUM CAREI NR. 11
447355 VETIS JUD. SATU-MARE
ROMANIA
TEL: +40 261 450 009
FAX: +40 261 750 010

SAINT-GOBAIN ABRASIVES
58, F. ENGELS STR., BUILDING 2,
105082 MOSCOW
RUSSIA
TEL: +74959373223
FAX: +74959373224

SAINT-GOBAIN ABRASIVOS, S.A.
CTRA. DE GUIPÚZCOA, KM. 7,5
31195 BERRIOPLANO (NAVARRA)
SPAIN
TEL: +34 948 306 000
FAX: +34 948 306 042

SAINT-GOBAIN ABRASIVES AB
NORRA MALMVÄGEN 76
S-19162 SOLLENTUNA
SWEDEN
TEL: +46 8 580 881 00
FAX: +46 8 580 881 01

SAINT GOBAIN INOVATIF MALZEMELER
VE ASINDIRICI SAN. TIC. A.S.
ANSIZCA KÖYÜ ANSIZCA İÇ KISIM
SANAYI SOK.NO:284
35171 KEMALPASA-İZMİR
TURKEY
TEL: +90 216 217 1250
FAX: +90 216 442 4074

SAINT-GOBAIN ABRASIVES LTD.
DOXEY ROAD
STAFFORD
ST16 1EA
UNITED KINGDOM
TEL: +44 1785 222 000
FAX: +44 1785 213 487

www.winter-superabrasives.com

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SAINT-GOBAIN
DIAMANTWERKZEUGE GmbH
SCHÜTZENWALL 13-17
D-22844 NORDERSTEDT
GERMANY
Tel: +49 40 5258-0
Fax: +49 40 5258-215