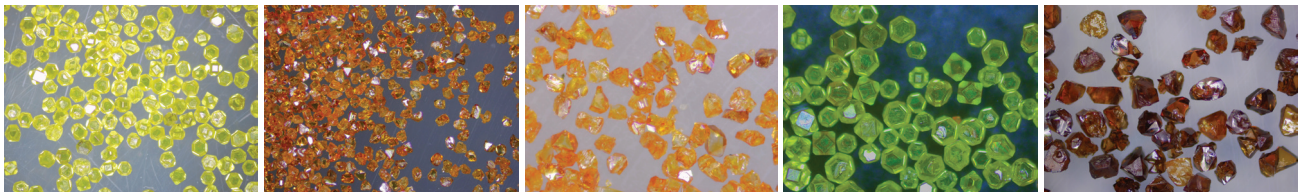
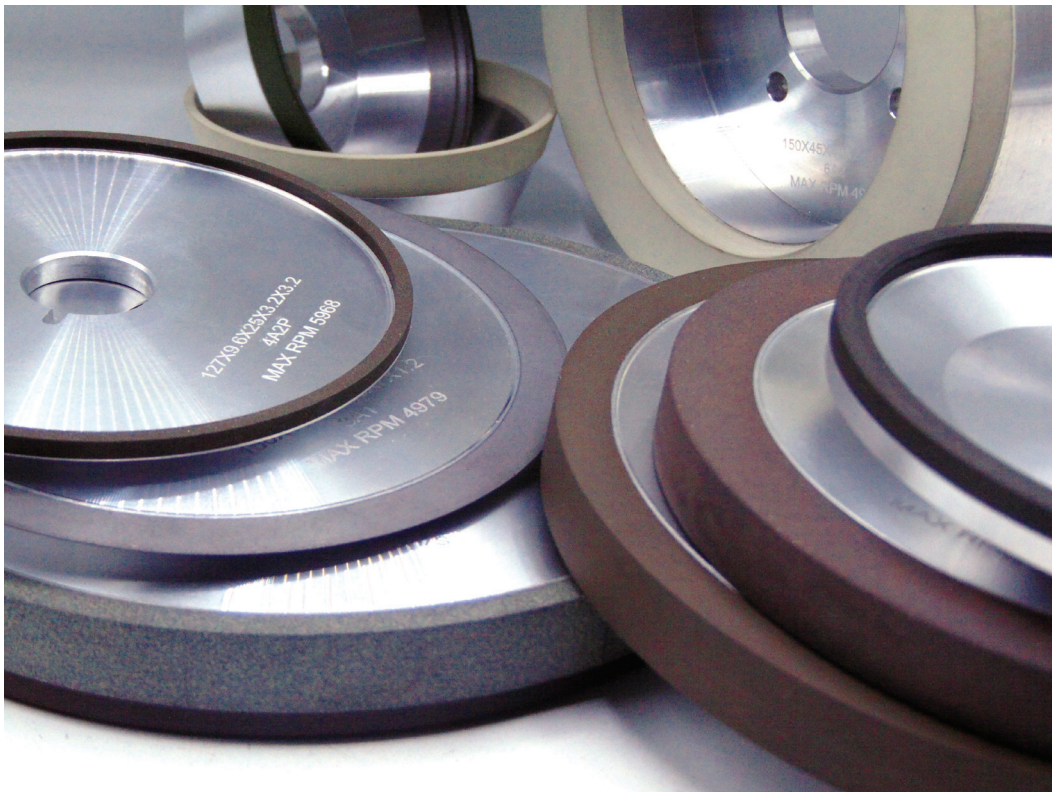


**SL.Carborundum<sup>TM</sup>**

Catalogue



## *Efficient Grinding Solutions*





## Company Profile

### Our Factory

SL.Carborundum (Thailand) Co., L.td. is a specialized company in Thailand that primarily manufactures abrasive products. Since our establishment in 1973, we have provided wide range of grinding wheels which use in many applications and industries, such as cylindrical grinding, internal grinding, surface grinding, roller grinding, etc.

Our grinding wheels are manufactured under the ISO 9001:2015 standard and comply with ANSI, JIS, and FEPA standards. With experience of ATC abrasive consultant, Mr. Carlos Rocha, who have worked with Carborundum for more than 13 years, we have achieved fast growth in technical and business development. Our competitive edge tied with our sincerity and enthusiasm, which results in the continuous effort to boost the standard of our products and services to benefits our customers

### ISO Policy

SL. Carborundum (Thailand) Co., L.td. is the manufacturer of Bonded Abrasive. We commit to produce good quality and safety product under international standard. Including continual improving for customer's highest satisfaction.

### Our Products

- Abrasive Grinding Wheel
- Super Abrasive :Diamond & CBN Wheel
- Metal Working Fluid : Coolant & Lubricant
- Dressing Stone
- Sharpening Stone
- Rubber Tapping Stone
- Rice Polishing Stone
- Diamond Rice Whitening Wheels



**Vision : The First choice of High performance of Grinding solution**



## How to order

### 1. General Information

#### 1.1 Diamond and CBN Grinding wheels

Diamond and CBN are defined as super hard materials due to their extremely hardness that surpasses the traditional abrasive materials like alumina oxide or silicon carbide.

Diamond and CBN Wheels are widely used in high effective grinding processes and offer substantially benefits over traditional wheels.

The main advantage of Diamond and CBN wheels:

- Very long tool life and profile stability
- Short grinding times and Short handling times
- Lack of thermal damage to the workpiece
- Ensure appropriate workpiece quality

#### 1.2 Diamond applications

Diamond is the hardest abrasive material in the world. Its hardness, wear and thermal resistance made the diamond the most appropriate abrasive to machining such materials as:

- Hard metal
- Tungsten Carbide
- Glass, Quartz
- Ceramic materials of all kinds, Ceramic magnetic materials
- Polycrystalline diamond and CBN blanks

#### 1.3 CBN applications

CBN is the second hard material after diamond. CBN is produced similarly to the diamond by high pressure and high temperature synthesis. Due to their chemical features and considerable lower wear, CBN tools are used for grinding such hard-to-process steels as:

- Hardened high-speed steel (HSS)
- High alloyed steels with at least 55 HRC
- Chill castings, Iron-based powder coatings
- Soft steels in certain applications
- Stellite





## How to order

### 1.4 CDX applications

CDX is a special superabrasive material with the performance between diamond and CBN. It is mainly used to grind the compound of hard material (like Tungsten Carbide) and Ferrous material (like HSS)

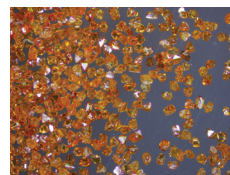
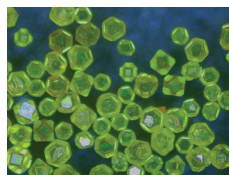
## 2. Truing and Dressing

Truing and Dressing are necessary for keeping your superabrasive grinding wheel in ultimate working condition. Truing gives the grinding wheel its geometrical accuracy and makes it run true while dressing opens up the grinding wheel, and exposing the abrasive grit by clearing away bond material from around the cutting edges.

Truing and dressing operations should be performed only after assembling and balancing the grind wheel on the spindle. White Fused Alumina is often used for dressing diamond and CBN grinding wheels.



### Diamond Powder





## How to order

### 3. Diamond and CBN grit size

The chosen grit size affects the performance of the wheel, determining the stock removal rate and surface finishing that can be achieved. Coarser grit size enables higher material removal rate and rougher surface finishing, while a fine grit size is used for attaining a smoother surface finishing

#### Standard Diamond and CBN grades

- Please refer to below chart 01 and 02.

#### Superabrasive grit size and Workpiece surface finish

- Surface finish is affected by a number of variables, including machine type and condition, type of material, coolant, wheel speed and bond system. Please refer to below chart 03.

As such, this chart should only be used as general guideline.

Chart 01

| FEPA             | ANSI             |
|------------------|------------------|
| Grit Designation | US Standard Mesh |
| D/B 251          | 60/70            |
| D/B 231          | 70/80            |
| D/B 181          | 80/100           |
| D/B 151          | 100/120          |
| D/B 126          | 120/140          |
| D/B 107          | 140/170          |
| D/B 91           | 170/200          |
| D/B 76           | 200/230          |
| D/B 64           | 230/270          |
| D/B 54           | 270/325          |
| D/B 46           | 325/400          |
| D/B 40           | 400/500          |
| D/B 30           | 500/600          |
| D/B 25           | 800              |
| D/B 20           | 1000             |
| D/B 15           | 1200             |
| D/B 10           | 1600             |

Chart 02

| Grain Size (um) | ANSI US Standard Micron |
|-----------------|-------------------------|
| 50              | 400                     |
| 45              | 500                     |
| 35              | 600                     |
| 30              | 700                     |
| 25              | 800                     |
| 20              | 1000                    |
| 17              | 1100                    |
| 15              | 1200                    |
| 12.5            | 1400                    |
| 11              | 1500                    |
| 10              | 1600                    |
| 9               | 1800                    |
| 7.5             | 2200                    |
| 6               | 3000                    |
| 5               | 5000                    |
| 4               | 6000                    |
| 3               | 8000                    |
| 2.5             | 10000                   |
| 2               | 12000                   |
| 1               | 14000                   |
| 0.5             | 18000                   |

Chart 03

| Grit Size (mesh) | RA (um)      |
|------------------|--------------|
| 80               | 0.55 - 0.75  |
| 100              | 0.40 - 0.55  |
| 120              | 0.35 - 0.40  |
| 150              | 0.30 - 0.35  |
| 180              | 0.25 - 0.30  |
| 220              | 0.22 - 0.25  |
| 240              | 0.18 - 0.22  |
| 320              | 0.17 - 0.18  |
| 400              | 0.14 - 0.18  |
| 500              | 0.14 - 0.15  |
| 600              | 0.12 - 0.15  |
| 800              | 0.07 - 0.12  |
| 1200             | 0.05 - 0.10  |
| 1500             | 0.025 - 0.05 |

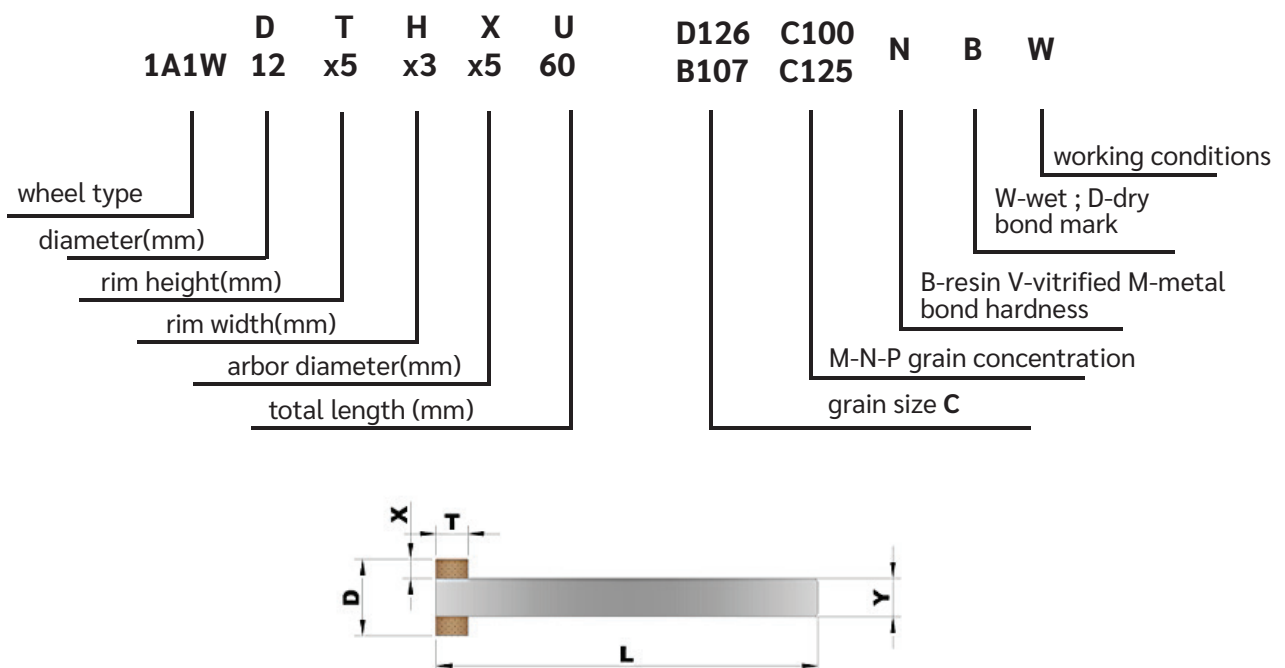
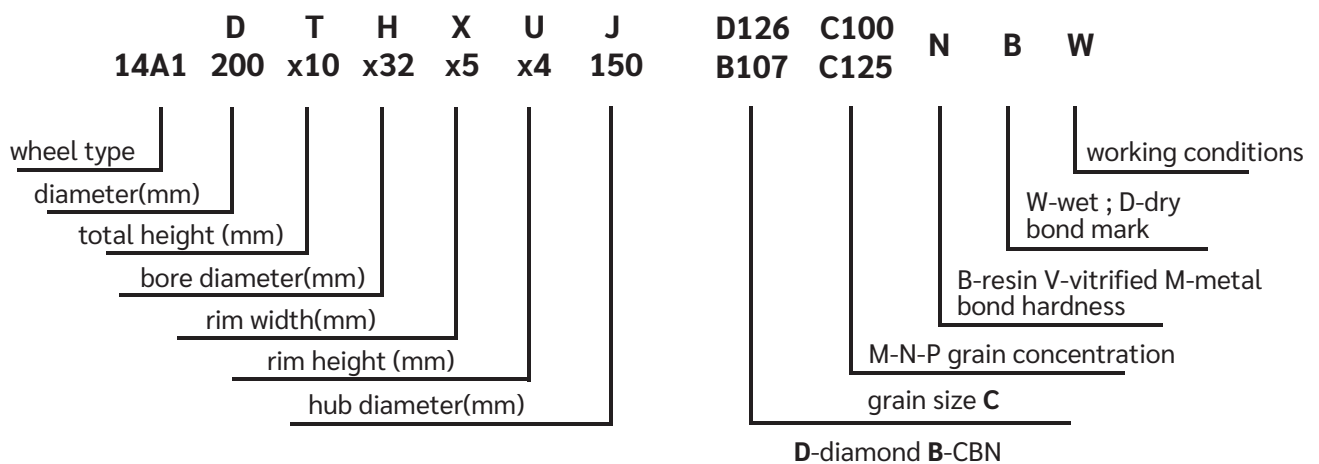


## How to order

The schedule of wheel ordering is as follows:

- Wheel shape, dimensions of abrasive layer, wheel body dimensions and the bore must be defined in order to avoid misunderstanding;
- Depending on grinding performance, type of superabrasives, concentration and grain size must be defined.
- Working conditions (wet or dry grinding) have to be determined.
- If ordering the grinding wheel, it is also advisable to characterize the kind of material to be ground, type of grinder and other criteria that could affect the grinding result.

Example below shows how to order:





## Diamond/CBN Wheels

### 1. Resin Bond Diamond/CBN grinding wheels

The Resin Bond Diamond/CBN grinding wheels feature of good self-sharpening, sharp cutting edges, high efficiency, low roughness of workpiece surface, less heat generating and no burning.

The Resin Bond Diamond grinding wheels: for grinding tungsten carbide, ceramic, magnetic, silicon materials, thermal spraying alloy materials etc. The Resin Bond CBN grinding wheels: for machining High speed steels, stainless steels, superalloys, hard cast iron and cast iron etc.

#### 1.1 Woodworking

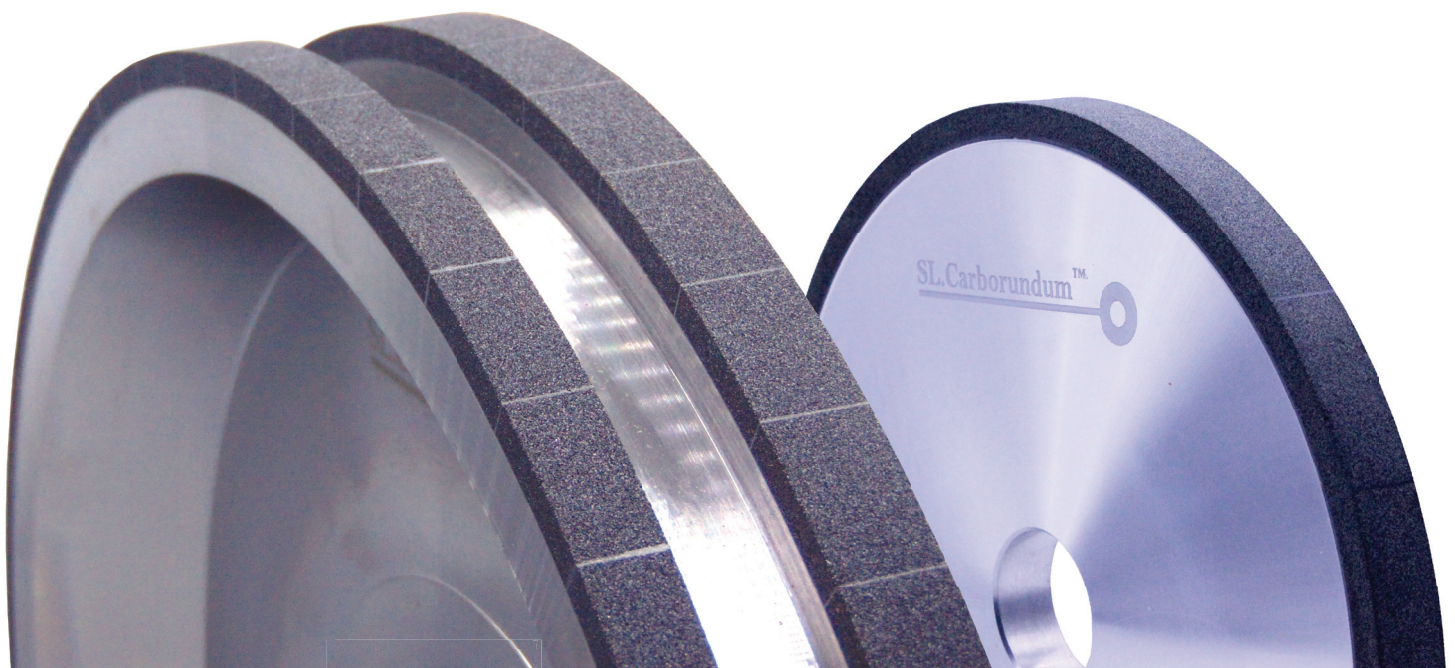
For Woodworking Industry, Resin bonded Diamond and CBN Wheels offer the best choice.

The applications include standard sharpening and CNC production grinding. With more than 40 years experiences, E-Grind has developed the premium bonds for this application. We provide both standard specs and Custom made wheels.

- Resin Bond Diamond wheels are to grind Tungsten Carbide tipped tools and saws.
- Resin Bond CBN wheels are to grind the circular saws and band saws made from HSS, tool steel and Stellite type material
- CDX wheels are to grind the tool made from the combination of Carbide and hardened Tool steel our special designed diamond wheels provide efficient grinding on these two different materials simultaneously.

As per applications, there are below types for your choice:

- > Top grinding
- > Face grinding
- > Side grinding
- > Cup wheel
- > Profile wheel
- > Cold saw wheel
- > Weinig wheel

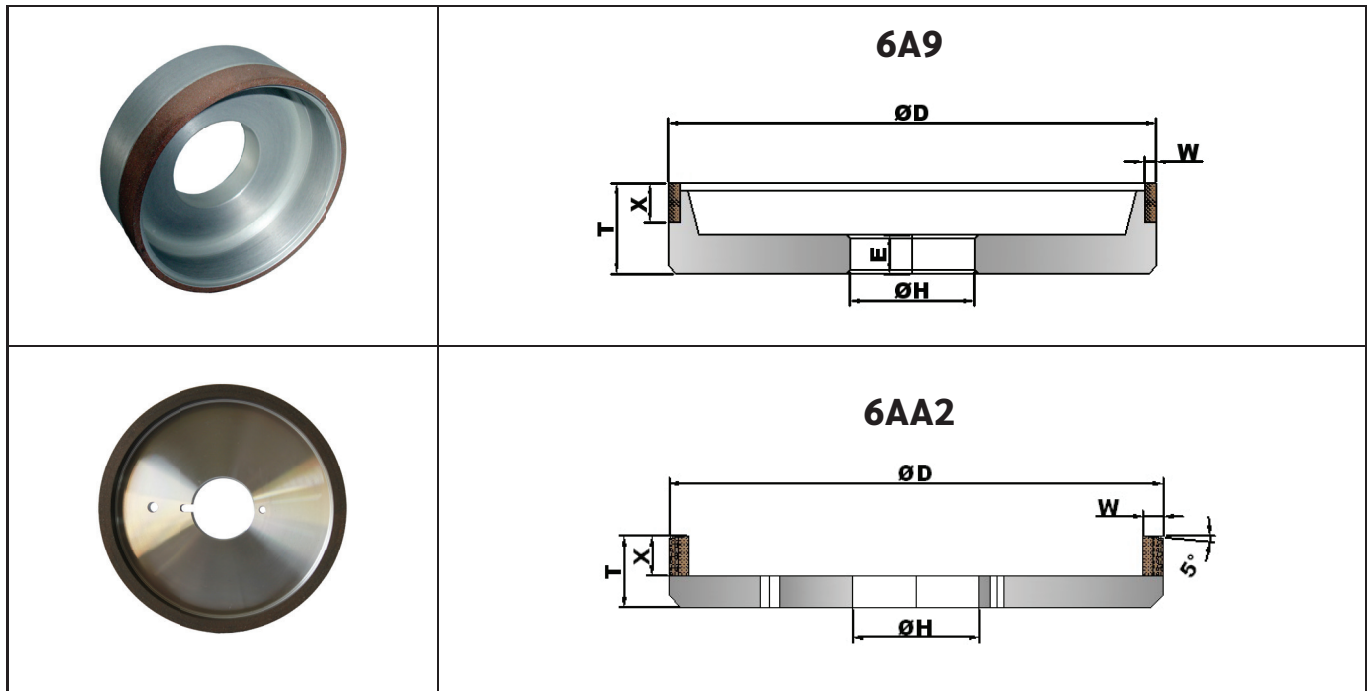




## > Top grinding

We provide the wheel with multiple grits for top grinding application, which ensures one grinding process to complete both roughing and finishing operations. It is a prerequisite to optimize true running and maximum the productivity of circular saws.

Machines suitable: Akemat, Vollmer, Utma&Walter



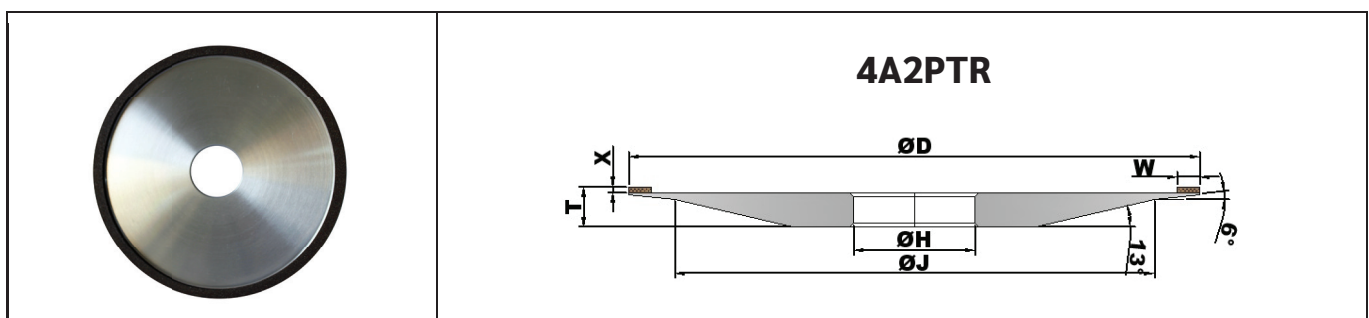
## > Face Grinding

Our wheels for Face Grinding optimizes the cutting performance of the saw and guarantees a long service life. We can provide the ultra thin wheel to grind circular saw with more than 100 teeth. The thinnest wheel available is 0.03".

Wheel body available: Bakelite, Aluminum

### Facing wheel with Bakelite core

Bakelite body features flexibility when grinding, which ensures the long using life and grinding quality. We provide this type of wheel with the abrasive section of minimum 0.019" thick, to grind the saw with teeth space of 0.039",





|  |                             |
|--|-----------------------------|
|  | <p><b>12V9</b></p>          |
|  | <p><b>12V2</b></p>          |
|  | <p><b>12A2 Bakelite</b></p> |

## > Side Grinding

We provide the best wheel for side grinding application, ensuring one grinding process to complete rough and finishing grinding operations simultaneously. It is a prerequisite for an optimized surface quality.

**Machine: akemat,utma &walter**

|  |                   |
|--|-------------------|
|  | <p><b>AKE</b></p> |
|  | <p><b>3A1</b></p> |
|  | <p><b>1A1</b></p> |



## > Cup Wheels

Core: Aluminum or Powdered Aluminum

|  |                                |
|--|--------------------------------|
|  | <p><b>11V9</b> 60° and 70°</p> |
|  | <p><b>6A2</b></p>              |

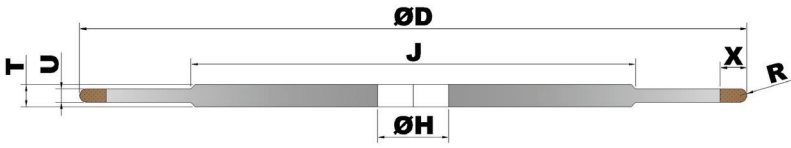
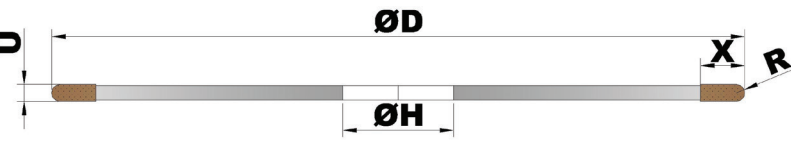
## > Profile Wheel

Our Diamond and CBN profile wheels offer aggressive material removal rates combined with superior finish. Available for all manual and CNC profile grinders using synthetic or oil coolant.

- Machines: Weinig, UT.MA, Schneeberger, Walter, Wadkin, Foley, SCMI, United, Tigra, Andi, Nielson
- Applications: Diamond for carbide or inlaid carbide/steel (Bak-Pak); CBN for HSS, Jonalloy, or Stellite

|  |                     |
|--|---------------------|
|  | <p><b>14A1R</b></p> |
|  | <p><b>1A1R</b></p>  |

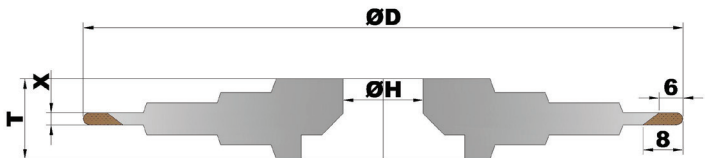
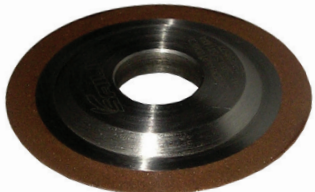
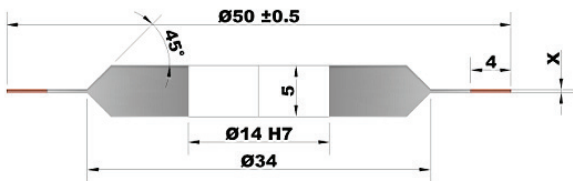


|                                                                                   |                                                                                                       |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|  | <p><b>14A1</b></p>  |
|  | <p><b>1F1R</b></p>  |

### > Cold Saw Wheel

E-Grind provides premium grade of Cold Saw Wheel for tooth-form grinding with the best edge stability.

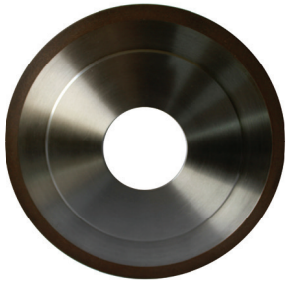
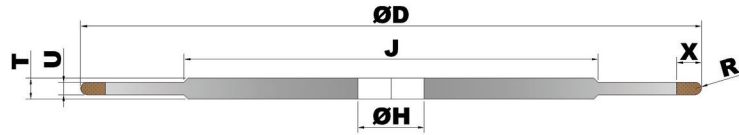
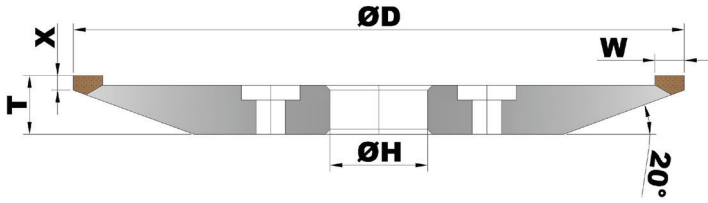
For Automatic saw blade grinding machines, like Tempo ECT and Lorach CNC

|                                                                                     |                                                                                                                          |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>14F1</b></p>                   |
|  | <p><b>14F1R</b></p>                  |
|  | <p><b>14A1 FOR CHIP BREAKER</b></p>  |



## > Weinig Wheel

E-Grind researched and developed the wheel specially for Weinig Rondamat machine. Our Weinig wheels are with high cutting efficiency and long using life.

|                                                                                    |                                                                                                        |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|   | <p><b>14F1</b></p>   |
|  | <p><b>4E9P</b></p>  |

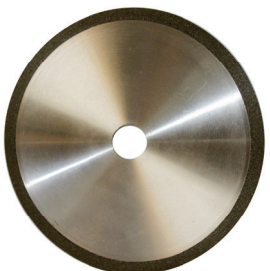
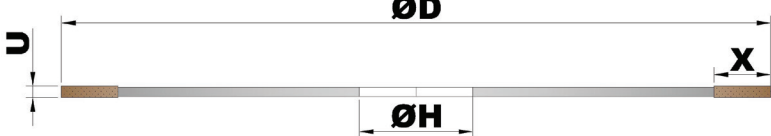
## 1.2 CUT - OFF

**Diamond Cut-Off Blades** are for cutting tungsten carbide, alloys, quartz ,ceramics, glass, carbon fiber composites and fiber glass etc.

**CBN Cut-Off Blades** are for cutting HSS, Hardened Steel and other ferrous material.

### Our Cut-Off blades have the following advantages:

- high cutting speed
- Free cutting action
- Steel core
- Highly durable
- OD=4" - 16"; Thickness=0.019" - 0.059"
- Bonds available for both Wet cut and Dry Cut
- Continuous uniformity and performance over time

|                                                                                     |                                                                                                         |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  | <p><b>1A1R</b></p>  |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|



### 1.3 Tool Grinding

E-Grind provides the best performance tool grinding wheels for various processing demands such as Milling cutters, drills and carbide insert etc.

#### > The wheels for CNC Grinder

Tool Grinding wheels are manufactured with the newest available technology and used on CNC Grindings for the Fluting, Gashing and Clearance Angles of Tungsten Carbide, HSS, Stainless drills, mills and reamers. Two series of Bond system are available: Polyimide and Hybrid.

**Machines:** Walter, Anca, Ewag, Schutte, Schneeberger, Makino, TG-5, Stuer, Strausak, Cincinnati, Griffo, Huffman, Jungner

#### Availability:

**Polyimide bond grinding wheel:** For small stock removal and provides perfect finishing when sharpening carbide tools. Polyimide is the high-performance duroplastic resin. Compared to phenolic resin, it features much better performance in temperature durability (more than 300 degree Celsius) and flowability. Polyimide grinding wheel provides high cutting efficiency, excellent profile stability and easily being dressed. It is widely used for fresh tool manufacturing and re-sharpening process in Milling & Drilling operations. It offers good finishing and high price-to-performance ratio.

**Hybrid bond grinding Wheel (New):** For large stock removal and high feed speed, low machine power. E-Grind has newly developed Hybrid wheels, which ensure higher material removal without compromising the surface finish, while ensuring considerable reduction in cycle times. These wheels can be used for both new tool manufacturing and re-sharpening on CNC Tool and Cutter Grinders.

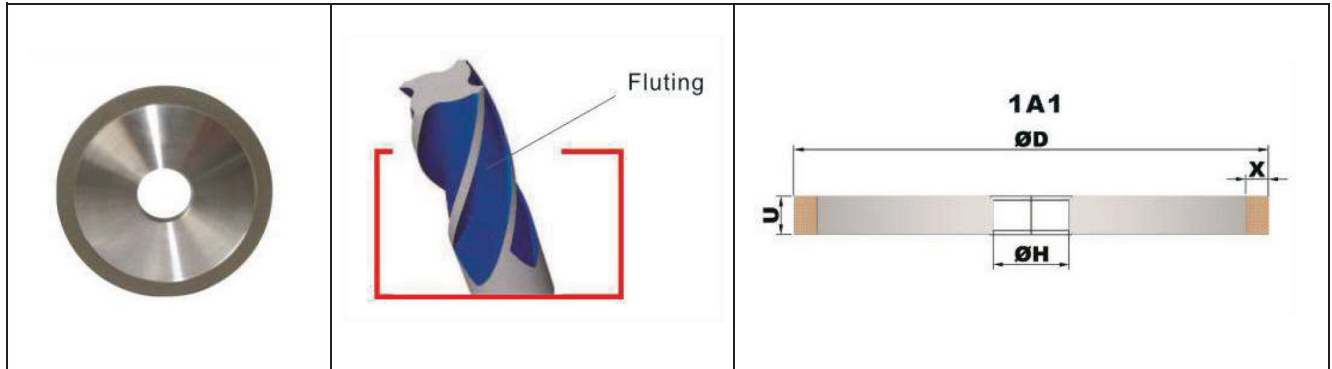
#### Hybrid wheels can provide the following benefits:

- Extremely high stock removal rates
- Maximum cutting ability
- Easy dressing
- Higher productivity
- Shorter process time during flute grinding
- Low grinding forces
- High process stability
- Quiet and even grinding process
- Best tool quality

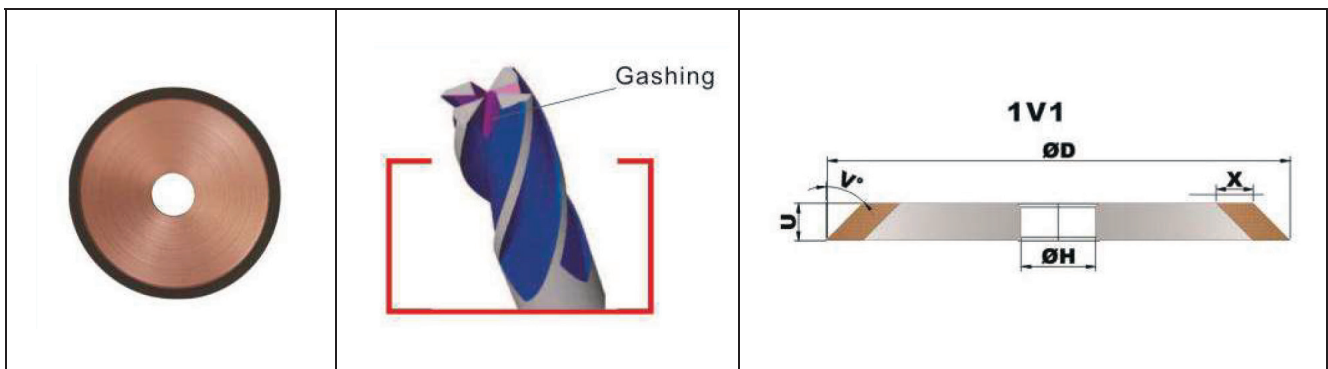




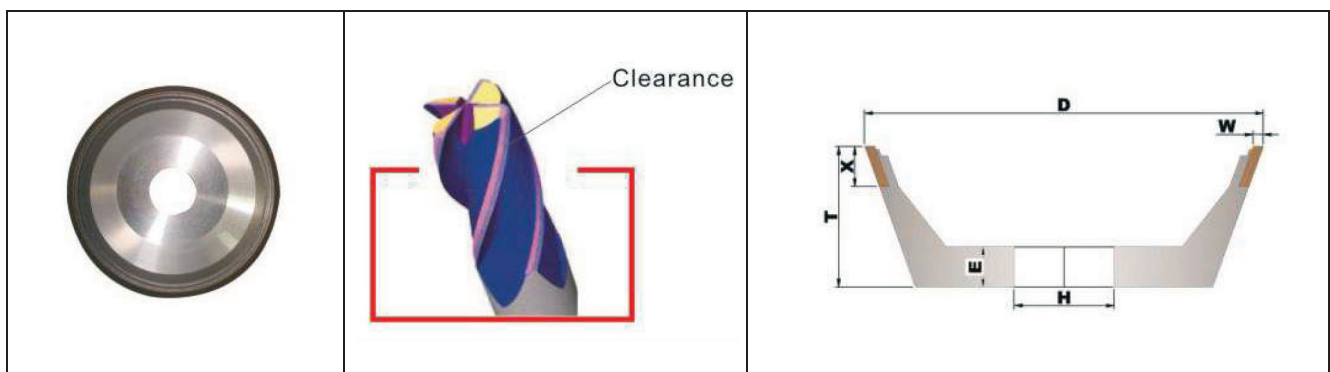
Hybrid diamond and CBN wheels are used for Fluting, Clearance & Gashing grinding operations. Our **Fluting wheels** have shown excellent grinding performance in flute grinding with high stock removal capacity (almost 4mm to 6mm per cutting) combined with a minimum of wheel wear.



Our **Gashing wheels** are very efficient in the gashing operation with very high stock removal capacity and high profile consistency.



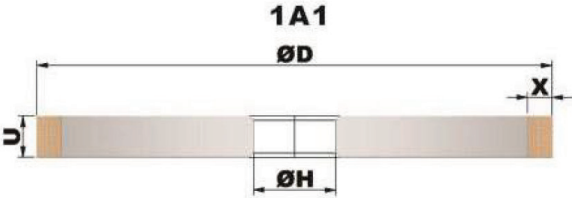
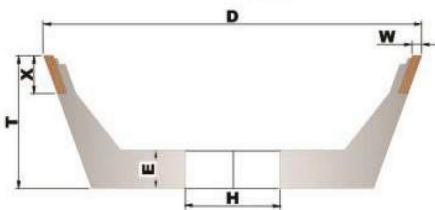
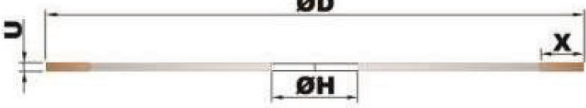
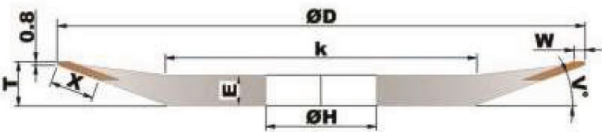
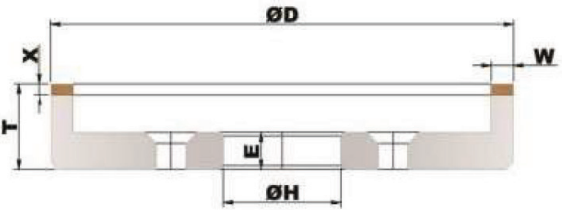
Our **Clearance wheels** are optimized for clearance and relief grinding showing high stock removal capacity combined with high profile consistency and excellent surface finish.





## > Tool Room

In order to meet various demands from customers, E-Grind has developed more than 10 bonds for Tool Room application. These wheels are for Wet grinding and Dry grinding. The available specs are 1A1, 1A1R, 11V9, 12V9, 6A2 etc. We offer the fast delivery and most competitive pricing.

|                                                                                     |                                                                                                         |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|    | <p><b>1A1</b></p>     |
|    | <p><b>11V9</b></p>    |
|  | <p><b>1A1R</b></p>  |
|  | <p><b>12V9</b></p>  |
|  | <p><b>6A2C</b></p>  |

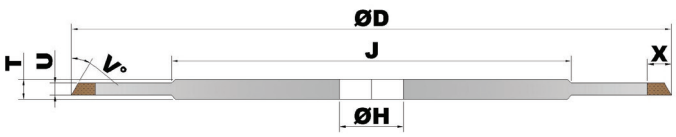
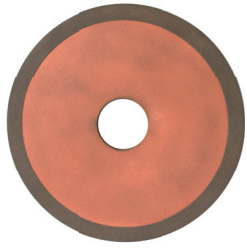
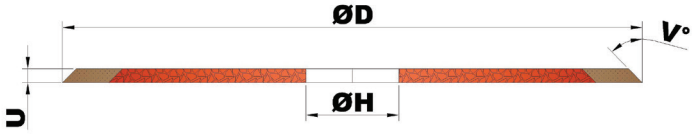


## > Burr Grinding

E-Grind developed three series of Burr Wheels to meet different needs for Burr processing. These wheels are suitable for both Manual and CNC machines. Our Burr wheels features perfect working efficiency, good edge maintenance and very long dressing circle. These three series include:

- Phenol bond with Copper filler
- Polyimide Bond
- Hybrid Bond

**Cores available: Copper Core and Steel Core.**

|                                                                                    |                                                                                                        |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|   | <p><b>14V1</b></p>   |
|  | <p><b>1V1</b></p>  |

## 1.4 Die&Tooling

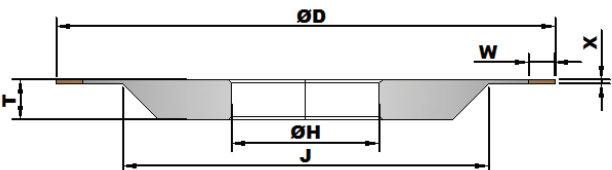
E-Grind has developed wheels especially for precision grinding applications in the electronic molds industry. E-Grind's product is suitable for slotting and grooving Carbide & HSS, profiles and other precision surface grinding.

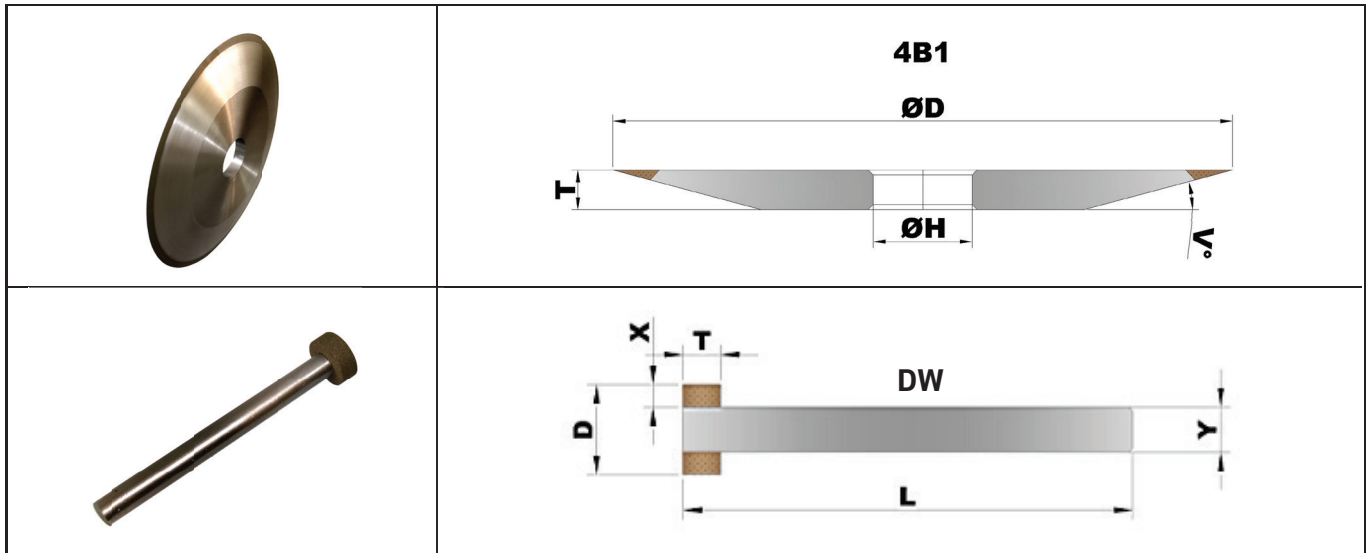
### > PG grinding wheel

E-Grind has developed wheels especially for precision grinding applications in the electronic molds industry. E-Grind's product is suitable for slotting and grooving Carbide & HSS, profiles and other precision surface grinding.

Grinding wheels are for precision profile grinding Carbide & HSS. The minimum thickness available is 0.0118"; The Max OD is 150mm (6"). The often used shapes are 3A1, DW and 4B1.

**Machines: Wasino, Amada, Waida, Petewe etc.**

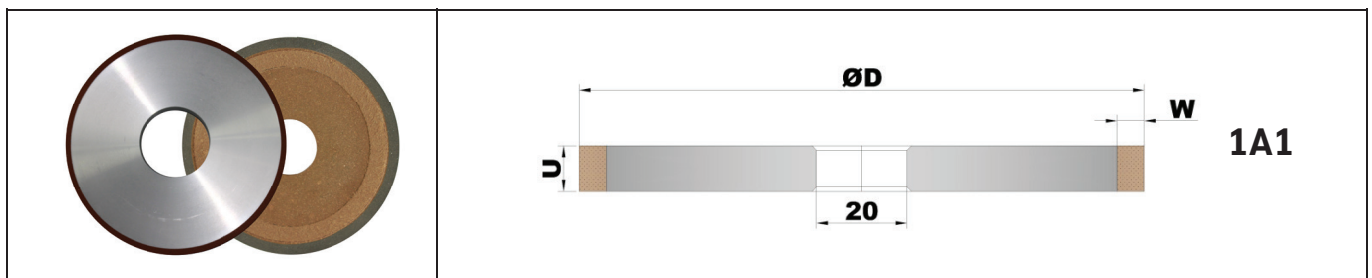
|                                                                                     |                                                                                                        |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|  | <p><b>3A1</b></p>  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|



### > Surface Grinding wheels

This wheel is used for precision grinding of dies. It includes a broad range of wheels with assorted bonds to meet varying work specifications. Besides the normal Alumina Core and Steel core, E-Grind also provide the ceramic core, which has perfect heat dissipation and suitable for deep feed and high stock removal rate.

As per applications, It is divided into 3 types: Roughing, Finishing and Polishing.  
The finest grit can be 2000mesh.



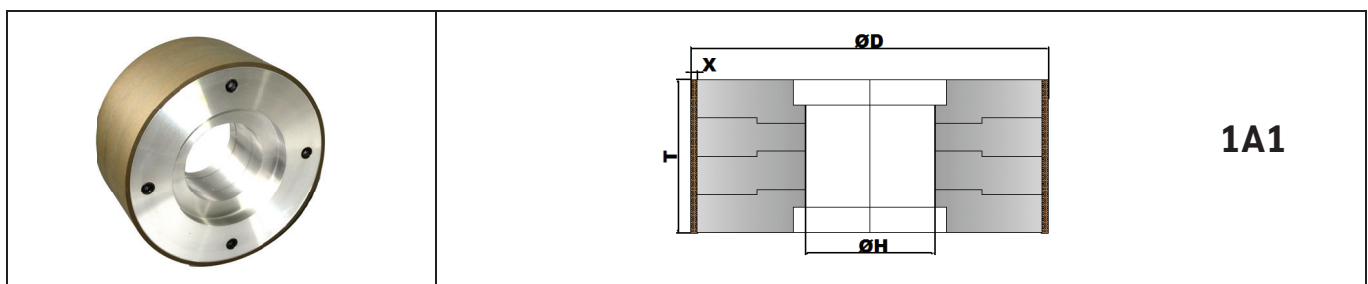
### 1.5 Centerless

Diamond & CBN centerless wheels are for TCT cutting tools, bearing parts, automobile parts, plungers, cylinders and engine valves.

Our Centerless wheels are divided into two types: Roughing and Finishing . The finest diamond grit used for centerless Finishing wheel can be 2000mesh, to provide mirror polishing result.

- Max OD: 500mm (20")
- Max Thickness: 250mm (10")
- The cores available: Alumina and Bakelite.

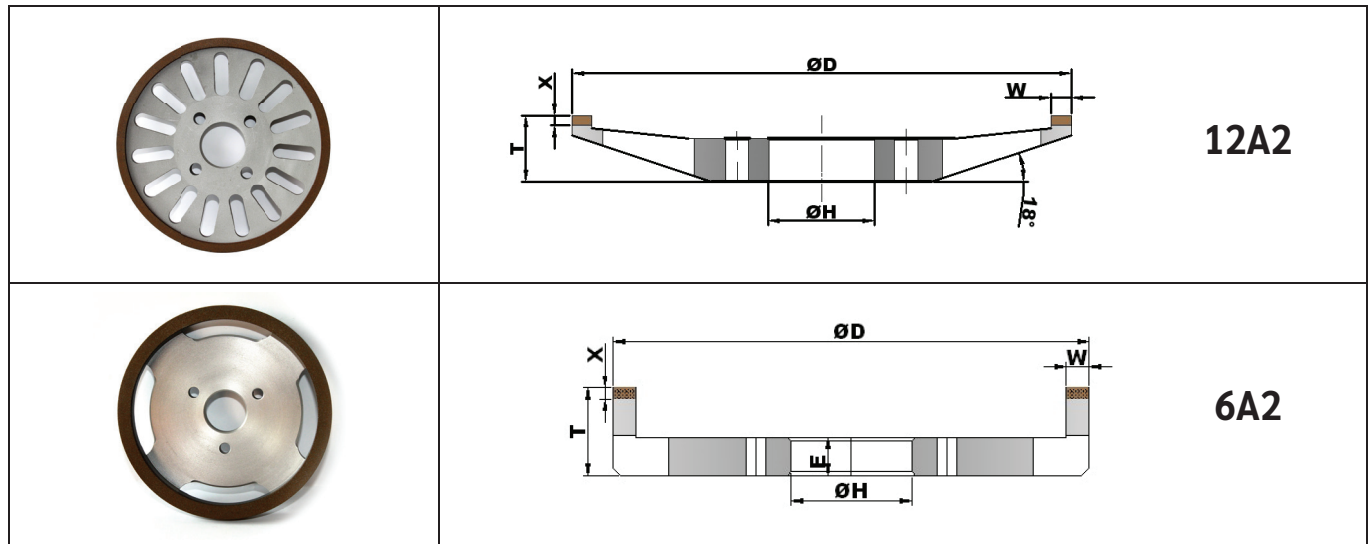
Bakelite core is elastic and lightweight. It provides higher surface finishing and lessen the machine load.





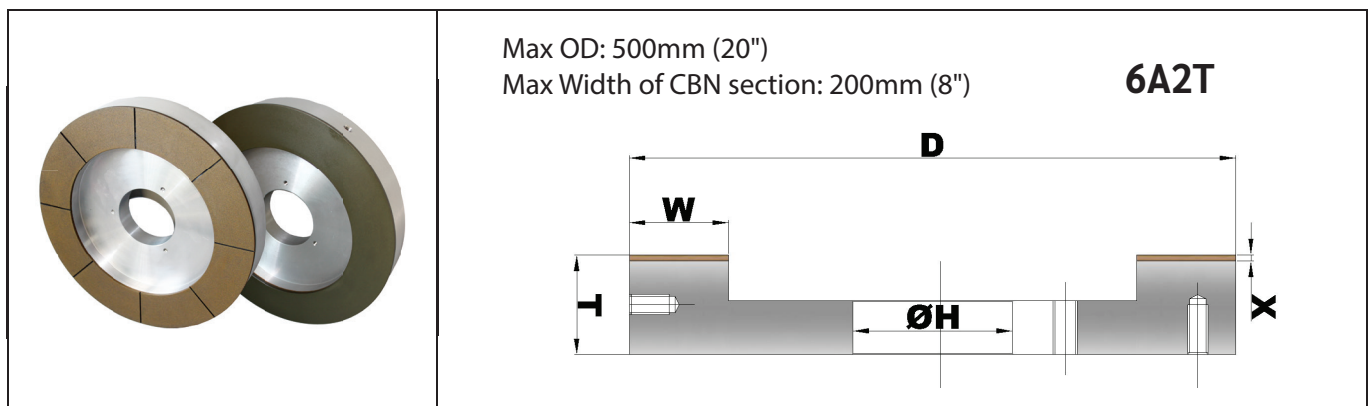
## 1.6 Paper knife

In Tissue/ Paper manufacturing industry, CBN wheels are used for grinding the knives, which are made from HSS, hardened steel ,alloy steel etc. E-Grind has developed the special bond for this type of wheel that provides long using life and efficient cutting.



## 1.7 Double Disc

E-Grind supplies Resin Bond CBN wheels for double-disc surface grinding of the inner and outer surfaces of bearings, transmission gears, washers, tappet shims, compressor part, vane pump vanes and rotors, precision springs, etc. These are applicable to a wide range of materials, such as high-speed tool steel, die steel, bearing steel, carbon tool steel, spring steel, cast iron and sintered ferrous metal, etc. Our superior technology for this wide surface wheels is applied in CBN distribution, consistent bond qualify and dimensional accuracy.



## 1.8 Tool&Cutter(Economical Wheel)

E-Grind offers Economical Diamond/CBN wheels to help customers lower the cost in reshaping carbide and HSS tools in their cutter grind and tool rooms.

Core available : Bakelite; compound of Bakelite & Aluminum for both Dry and Wet grinding.





## 2. Vitrified bonded Diamond CBN wheels

Vitrified bonded Diamond/ CBN wheels are the medium between metal bonded and resin bonded products. They give excellent performance in the processing of hard materials with high stock removal rate and good wear resistance.

Sintered inorganic material is used as bond, a lot of pores exist between diamond particles, and therefore a shielding phenomenon of diamond is nearly avoided. It results in improving grinding quality with minimum heat occurrence during grinding, allowing for longer wheel life with a fewer dressings.

### Vitrified bonded diamond wheels

They are widely used for grinding PCD/PCBN, diamond and gemstone etc. When grinding these materials with Vitrified diamond wheels, high finishes are obtained, long life, edge retention, little heat and they seldom load up.

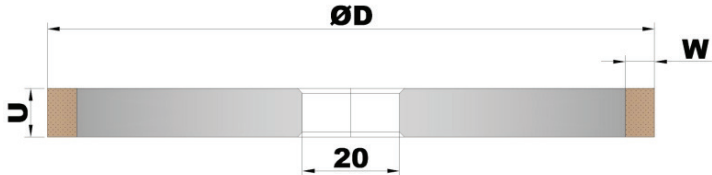
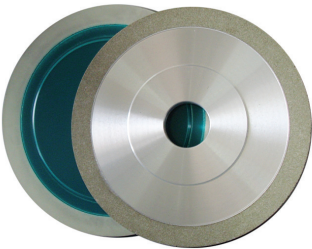
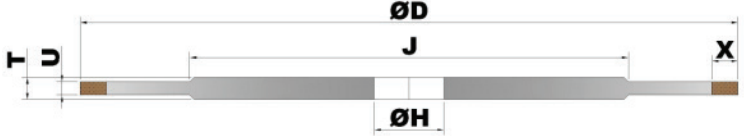
#### > For Diamond Bruting

E-Grind has developed a special Vitrified bond diamond wheels for bruting natural diamond. Our Diamond Bruting wheel has the following features:

High working efficiency, Long using life

- Less chipping and Premium surface finishing
- High performance and rate ratio
- More than 10 bond series available for different applications
- Applications : First Brute, Final Brute, Super Polishing

Applications : First Brute, Final Brute, Super Polishing

|                                                                                     |                                                                                                                                                      |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>Max OD : 220 mm<br/>Machines : DISCRON</p> <p><b>1A1</b></p>  |
|  | <p><b>14A1</b></p>                                               |



## > For PCD&PCBN inserts

With special vitrified bond, E-Grind created a highly efficient diamond wheels for sharpening PCD/PCBN insert. The advantages of our bond are as follows :

- The perfect grinding process efficiency
- Shortened shut-down grinder times
- High machining accuracy
- Short grinding times
- Very good tool profile stability
- Remarkably higher life in comparison with traditional grinding wheels

## How to choose the grit size?

| Grit Size | Machining Type | Application                                                                                                                                                                   |
|-----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| D22       | Rough          | Regeneration grinding a blade edge, profiling and sharpening of much worn inserts                                                                                             |
| D15       | Universal      | Standard grain size - there is a possibility of obtaining a high sharpening efficiency and good quality machined surfaces by taking advantage of additional spark-out passes. |
| D9        | Finish         | Finishing grinding - obtaining a very good quality of machined surfaces.                                                                                                      |
| D6        | Superfinish    | Superfinish grinding - obtaining a brilliant quality of machined surfaces.                                                                                                    |

## Machines : EWAG-RS15&RS12, FARMAN-FD250

|  |                    |
|--|--------------------|
|  | <p><b>1A1</b></p>  |
|  | <p><b>642C</b></p> |



## Vitrified bonded CBN wheel

E-grind vitrified bonded CBN wheels have significant superiority in high efficiency grinding processes when compared with conventional wheels. The basic feature of those grinding tools are as below: The CBN physical properties (hardness, abrasion and high temperature resistance) in connection with vitrified bond properties (hardness, brittleness, porosity structure) allow to machine a workpiece more aggressive with a great capacity and to achieve a high grinding productivity.

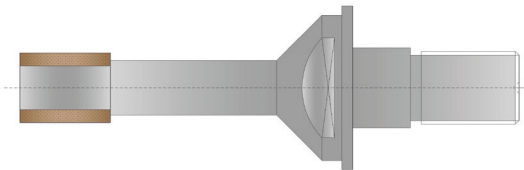
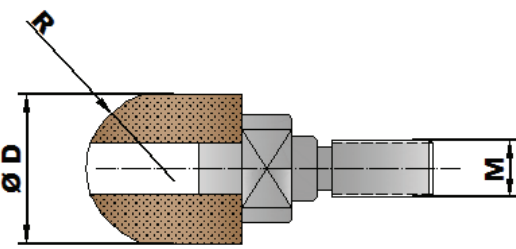
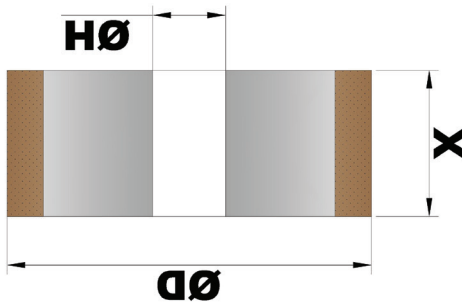
### > Internal Grinding

E-Grind vitrified CBN inner grinding wheels are widely used for grooving vane pump rotors and synchromesh ball-joints etc, as well as for forming injection parts.

Two types of Vitrified bonded CBN wheel for Inner grinding available:

- wheel with shaft
- wheel without shaft.

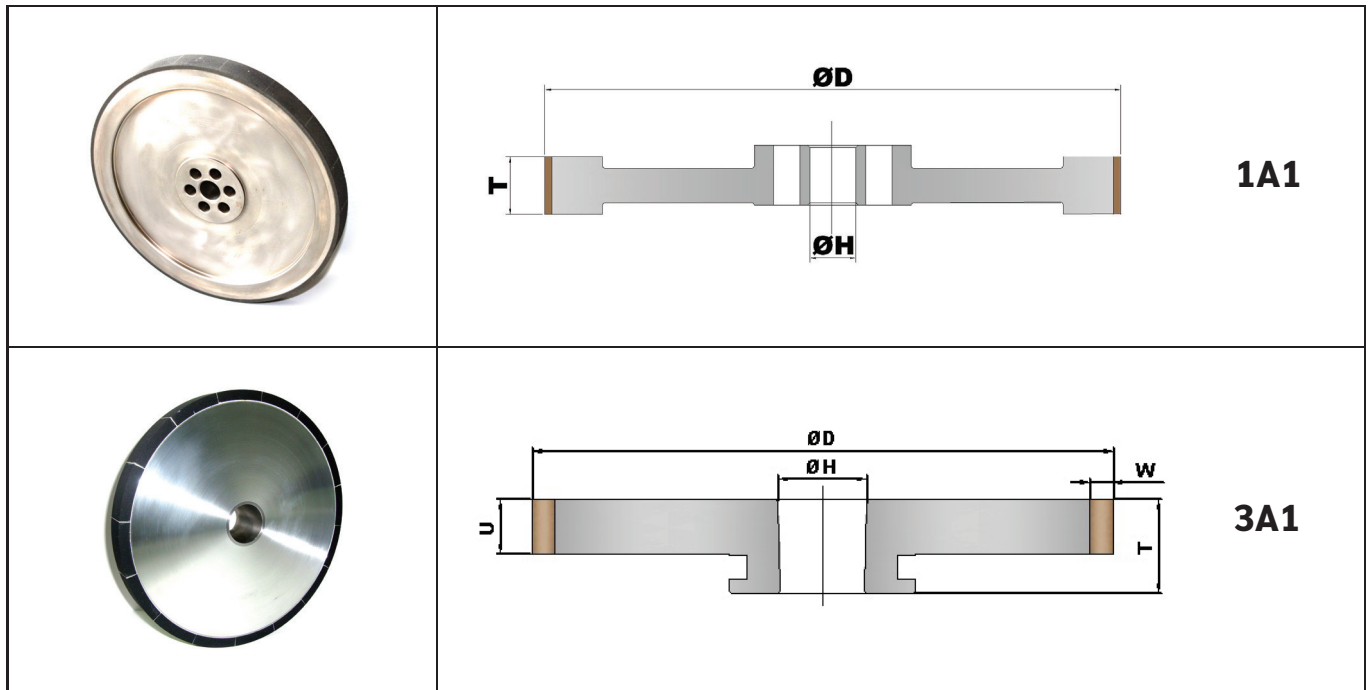
The Min. OD can be 3mm (0.118")

|                                                                                     |                                                                                                   |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
|  |  <b>14F1</b>  |
|  |  <b>14F1R</b> |
|  |  <b>1A1</b>   |



## > Camshaft, crankshaft and cylindrical grind

E-Grind provides vitrified bond CBN wheels for grinding the automobile camshafts, crankshafts and cylinder in air-compressor industry. Optimum bond specifications have been set for each type of cam material. The wheels are used for high-speed grinding, thus the bond quality, adhesives and the materials used for the core are carefully designed for safety.

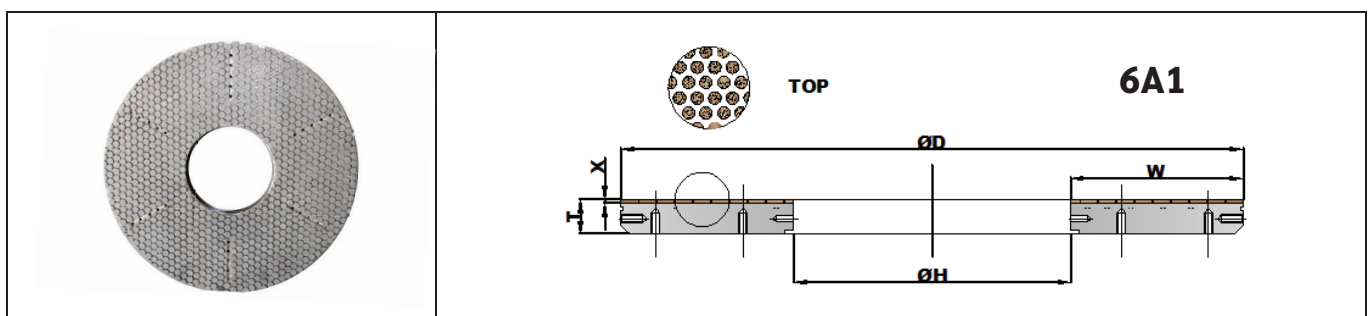


## > Vitrified bond Diamond/CBN Double Disc

Vitrified bond Diamond/CBN double disc wheels perform grinding and lapping in one process using a fixed abrasive system which makes cleaning of the work places quickly that allow for a clean work environment. They are widely used for Auto parts, Mechanical seal parts and air compressors for the Air Conditioning industry. Our wheels have the following advantages:

- Precision flatness without roll-off & chipping
- Increase stock removal rate and decrease the process time.
- Running costs are greatly reduced.
- Clean work site
- Reduce cleaning time.

**Machines: Petervolters**





### 3. Resin Bond Diamond/CBN grinding wheels

Metal Bonded Diamond/CBN Grinding wheels are with high efficiency, good self-sharpening, high stock removal products, good form retainment and anti-wearing ability.

#### Metal bond diamond wheel

Used for grinding quartz crystal, tungsten carbide, ceramic, glass, composite, sapphire, ferrite, refractory, thermal spraying material and other non-metallic materials.

#### Metal bond CBN wheel

Used for grinding HSS, tool steel, stainless steel, mold steel and titanium alloy etc



### 4. Blade & Wheel for semiconductor industry

Ongoing technological advances in Semiconductors and electronic components are giving rise a succession of new materials. As a result, E-Grind develops new precision diamond tools for these materials.

E-Grind Precision diamond wheels have been widely used in cutting, slotting, dicing, back-thinning and other precision processing in Semi-Conductor industry.

#### > Dicing Blade with Hub

Our diamond blade with Hub is with a stronger edge, which makes the blade more rigid and keep the edge from breaking, so the cutting with the blade is in high efficiency and excellent quality. This wheel is mainly used for the cutting and dicing wafers of silicon, glass, gap, pzt etc.



#### > Dicing Blade without Hub

Dicing Blade without hub is a kind of ultra thin and precision diamond blade with excellent cutting ability, good rigidity and high efficiency. It is used for dicing and slitting of many materials such as semiconductors, electronic components, ceramic, etc.

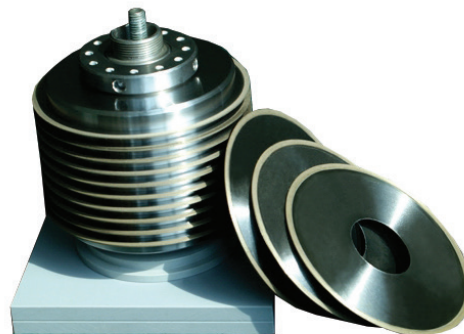




## > Precision cutting wheel

### - Metal core type

With metal core, precision cutting wheels have a higher rigidity, suitable for high-load cutting, deep cutting, also the V-shape, R-shape and other blade edge shapes available for various purposes. Our highly versatile cutting wheels can satisfy all types of processing requirement.



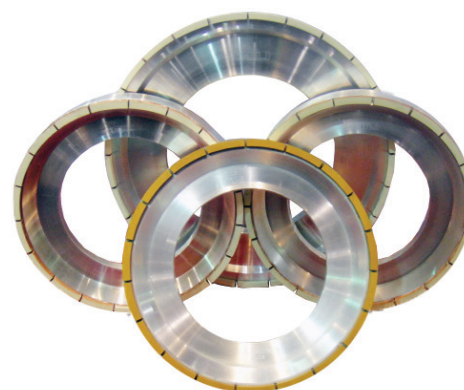
### - Non-core type

To work on precision electronic parts, a thin cutting wheel is required. E-Grind's non-core type wheels are hubless and highly precise. This wheel is commonly used on dicing machines or high precision slicing machines. Various types of bonds (metal, resin, electroforming) are available. The applications include magnetic heads, glass and the ceramics used in electronic etc.



## > Wheels for Wafer Back Grinding

- E-Grind Back-Grinding wheels are with advanced porosity technology to make it possible to grind all types of wafer with less bug-surface damage. Our Back-Grinding wheels use a special vitrified bond for rough grinding, or resin bond for fine finishing to improve process accuracy. They possess free cutting, excellent wear resistance, and good shape maintainability.





## Electroplated Diamond/CBN tools

Electroplated Diamond/CBN tools are featured with free cutting, non-truing and dressing, less heating due to the diamond particles protruding from the surface.

Diamond plated products are usually with a single layer of diamonds highly concentrated, and held on by a tough, durable nickel alloy. This high concentration enables plated products to retain their original shape and dimensions throughout its working life.

Our electroplated machines and technology are imported from Germany. We provide all types of high precision electroplated tools.



### Characteristics of Electroplated Wheels

Constant in grinding ability and can be used for many materials because of the high amount of abrasive material protruding from the bond.

Capable of holding form at low cost, therefore suitable for form wheels.

Best suited to produce small volume production in wide ranges. Electroplated wheels are inexpensive and wheel life is shorter than other bonds because they are typically a single layer of abrasive material. The consumed abrasive can be stripped and re-plated using the existing core (provided it is not damaged).

#### ■ Structure of Electroplated Area





## Diamond Dressing Roll

For higher precision requirements like  $\pm 0.005\text{mm}$  and especially for complicated profile shapes, the dressing of grinding wheels can be accomplished only by highly precise diamond rolls.

Diamond dressing rolls are divided into two series:

### Diamond Profile Roll

#### Advantages:

- Quick transfer of difficult profile shapes onto the grinding wheel for series production.
- Possibilities of automatizing the dressing process
- Production of a large number of workpieces with very narrow and uniform tolerances
- Low dressing costs for each workpiece due to the long using life of diamond profile rolls.
- Minimization of reject rate due to reproducible manufacturing tolerances.



### Diamond Form Roll

#### Advantages:

- Quick transfer of most different profile shapes to ceramic grinding wheels
- No problems in case of changes of profile shape, as only the grinding wheel has to be newly profiled.
- Low production costs for small numbers of workpieces
- Low dressing costs due to long using life of diamond form rolls.
- Repeated re-profiling is possible.





## Quality Control

- Our product are manufactured under ISO 9001:2015 Standard

### Test Raw material

Diamond Powder  
CBN  
Filler  
Bond (Resin or Ceramic)



### Test during production

Test per each process by worker himself and by inspection staff; make sure that the unqualified product does not go to next process.



### >Final Inspection



Flatness



Geometric dimension



Appearance



Radius and Angle



Hardness



Balance



Strength



Run-Out



### Laser Engraving



**SL.Carborundum<sup>TM.</sup>**

**Catalogue**

