EHWA DIAMOND

Since 1975, Ehwa Diamond has been growing rapidly by developing long-term partnerships with customers worldwide and continues to strive towards excellence in providing the very best customer satisfaction through product innovation and improvements.

SDD (Single-point Diamond Dressers)
Manufactured by sintering a selected diamond crystal with metal matrix into a steel shank.

FDD (Forming Diamond Dressers)
Manufactured by shaping a selected high-quality diamond.

MDD (Multi-point Diamond Dressers)
Two or more selected diamonds are set in metal matrix.

IDD (Impregnated Diamond Dressers)
Manufactured by sintering selected diamond particles with metal matrix.

PCD dressers
Manufactured by brazing Poly-crystalline diamonds.
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Applications

<table>
<thead>
<tr>
<th>Applications</th>
<th>Diamond dressers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Used for straight type conventional abrasive wheels.</td>
<td>SDD, IDD</td>
</tr>
<tr>
<td>• Used for simple profile, thread and gear grinding abrasive wheels.</td>
<td></td>
</tr>
<tr>
<td>• Used for straight type and conventional abrasive profile wheels.</td>
<td>FDD, MDD</td>
</tr>
<tr>
<td>• Able to dress complex forms and profiles with precision.</td>
<td></td>
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<tr>
<td>• Ideal for dressing larger and wider conventional abrasive wheels.</td>
<td>MDD, IDD</td>
</tr>
<tr>
<td>• Used for dressing conventional surface and center-less abrasive wheels.</td>
<td></td>
</tr>
<tr>
<td>• Used for dressing complex forms and profiles.</td>
<td>PCD dressers</td>
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</table>

Expression of EWHA diamond dressers

SDD - A 01

Dresser type

Material

Shank type
- Synthetic diamonds
  - F: MONO CRYSTAL
    - Almost same property as natural diamond
    - Applications: SDD, FDD
  - G: CVD (Chemical Vapor Deposition)
    - Applications: SDD, FDD, MDD
  - H: PCD
    - Applications: PCD dresser

- Natural diamonds
  - A: OCTAHEDRON
    - Point angle 90 degree
    - Applications: SDD, Natural diamond-MDD
  - B: DODECAHEDRON
    - Point angle 120 degree
    - Applications: SDD, Natural diamond-MDD
  - C: ELONGATED
    - Oblong shape
    - Applications: FDD cone type
  - D: MACCLE
    - Triangle shape
    - Applications: FDD chisel type
  - E: SHAPE
    - Round, Flat shape
    - Applications: FDD chisel type
### Comparison chart by material

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<tr>
<th>Property</th>
<th>Natural Diamond</th>
<th>Mono Crystal</th>
<th>CVD Diamond</th>
<th>PCD</th>
<th>WC (K10)</th>
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<td>50~100</td>
<td>80~100</td>
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<tr>
<td>Tensile strength (Gpa)</td>
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<td>1000~3000</td>
<td>400~800</td>
<td>1260</td>
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<td>Compressive strength (Gpa)</td>
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<td>2.9</td>
<td>1.3</td>
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#### Recommended diamond dresser by wheel shape

- **Straight**: SDD, MDD, IDD
- **Tapered**: SDD, MDD, IDD
- **Convex**: SDD, FDD, MDD
- **Concave**: FDD, MDD
- **Angled**: FDD, MDD
- **Multi-angled**: FDD, MDD
Single-point diamond dressers are versatile and economical to dress straight type conventional abrasive wheels. Customers can choose diamond carat and materials dependent upon working conditions such as wheels size, wheel width, depth of cut, etc.

Recommended Depth of Cut:
- Wheel grit size 20~60: 0.025 mm ~ 0.05 mm
- Wheel grit size 80~140: 0.015 mm ~ 0.025
- Wheel grit size 160~200: 0.01 mm ~ 0.015

Recommended Diamond Carat:
- Wheel Diameter 100~150: 1/7 ct
- Wheel Diameter 175~250: 1/5 ct
- Wheel Diameter 300~350: 1/4 ct
- Wheel Diameter 350~400: 1/3 ct
- Wheel Diameter 400~500: 1/2 ct
- Wheel Diameter 500~600: 3/4 ct
- Wheel Diameter 600~: 1 ct
Natural

Available diamond:
A (Octahedron)
B (Dodecahedron)

Available carat:
Max 1 ct ~ Min 1/30 ct

Synthetic

Available diamond:
F (Mono Crystal)
G (CVD)

Available size:
0.6 mm X 0.6 mm X 3 mm
0.8 mm X 0.8 mm X 3 mm
1.0 mm X 1.0 mm X 3 mm
1.5 mm X 1.5 mm X 3 mm

Specifications

- **SDD-A01**

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- **SDD-A02**

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- **SDD-A03**

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- **SDD-A09**

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<td>MT1</td>
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Specifications

- **SDD-A10**
  - D1: 12
  - D2: 8
  - L1: 42
  - L2: 25

- **SDD-A12**
  - D1: 10
  - D2: 8
  - L1: 43
  - L2: 22
  - L3: 8

- **SDD-A13**
  - D1: 16
  - D2: 11
  - L1: 37
  - L2: 22
  - W: 14

- **SDD-A14**
  - D1: 16
  - D2: 11
  - L1: 34
  - L2: 19
  - L3: 8

- **SDD-A18**
  - D1: 16
  - D2: 11
  - L1: 29
  - L2: 15
  - W: 14
Forming Diamond Dressers:

Forming diamond dressers are used for dressing specific forms into conventional abrasive wheels requiring longer tool life.

Natural diamonds have very high resistance while they could be easily broken and have unsteady tool life. On the other hand, synthetic diamonds have steady tool life. Generally, the bigger radius of diamonds can ensure longer tool life. However, the much bigger radius can get grinding wheels to be burned because it makes the grinding wheels’ grit blunt.

Recommended angle and radius (For chisel dresser)
Rough grinding: R 0.3~0.5, 50°~60°
Finish grinding: R 0.1~0.25, 30°~45°
**Specifications**

- **Roof**
  - **Available diamond:**
    - D (Macle), E (Shape), F (Mono crystal), G (CVD), H (PCD)
  - **Available carat:**
    - Max 3/4 ct ~ Min 1/4 ct

- **Chisel**
  - **Available diamond:**
    - D (Macle), E (Shape), F (Mono crystal), G (CVD)
  - **Available carat:**
    - Max 3/4 ct ~ Min 1/4 ct

- **Cone**
  - **Available diamond:**
    - C (Elongated), G (CVD)
  - **Available carat:**
    - Max 1/2 ct ~ Min 1/4 ct

- **FDD-C01**
  - D1 | L | V | R
  - Standard | 11 | 30 | 90 | 0.3

- **FDD-C13**
  - D1 | D2 | L1 | V | R
  - Standard | 15 | 11 | 23 | 90 | 0.3

- **FDD-C14**
  - D1 | D2 | L1 | V | R
  - Standard | 10 | 8 | 43 | 90 | 0.3

- **FDD-C19**
  - D | L | V | R
  - Standard | 11 | 46.5 | 70 | 0.3
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<th>Dimensions</th>
<th>V</th>
<th>R</th>
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<tr>
<td></td>
<td></td>
<td>D=10, L=45, V=55, R=0.2</td>
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Two or more selected diamonds are set in a metal matrix to provide multi diamond points for dressing larger and wider conventional abrasive wheels. Multi-point diamond dressers have two types. One is a general type for dressing straight type conventional abrasive wheels; the other a blade type for dressing larger and conventional abrasive profile wheels at lower cost.

Multi-point diamond dressers using diamonds made by chemical vapor deposition are suited to get high quality surface finish and consistent performance. On the other hand, multi-point diamond dressers made of elongated natural diamonds, which is called “Fliesen tool”, have longer tool life.
Natural

Available diamond:
A (Octahedron),
B (Dodecahedron)

Available carat:
Max 1/3 ct ~ Min 1/30 ct

Blade type

Available size:
CVD 0.4 mm X 0.4 mm X 5 mm
CVD 0.6 mm X 0.6 mm X 5 mm
CVD 0.8 mm X 0.8 mm x 3 mm
CVD 0.8 mm X 0.8 mm X 6 mm
CVD 1.0 mm X 1.0 mm X 3 mm
Elongated 1/20 ct ~ 1/80 ct

Specifications

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<td>D</td>
<td>L</td>
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<tr>
<td>Standard</td>
<td>11</td>
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</tbody>
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Specifications

- **MDD-G11**
  - L: 28, T: 5, W: 10, H: 6.1

- **MDD-G12**
  - L: 33, T: 5, W: 20, H: 6.1

- **MDD-G13**
  - L: 28, T: 5, W: 10, H: 6.1

- **MDD-G14**
  - L: 33, T: 5, W: 20, H: 6.1

- **MDD-G21**
  - D: 11, L: 41, W1: 8, W2: 10

- **MDD-G22**
  - D: 8, L: 29, V1: 55, V2: 10, R: 0.3
## MDD (Multi-point Diamond Dresser)

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<td>H</td>
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Impregnated Diamond Dressers:
Impregnated diamond dressers have tiny diamond particles bonded in metal matrix. Dressing force is spread across the fine diamonds; impregnated diamond dressers can achieve longer tool life at lower cost.

Randomly distributed impregnated diamond dressers cannot optimally show their performance as required. That is why Ehwa has developed patterned impregnated diamond dressers manufactured with ZENESIS® technology for dressing with precision.

ZENESIS® IDD
(Patterned Impregnated Diamond Dresser)
Patent no. 10-0428947 / US 6626167

- Suitable for longer tool life and better performance
- Available mesh: #20 ~ #60

Impregnated Diamond Dresser
- Used for economical dressing
- Available mesh: #20 ~ #140
### IDD-S01

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Burnishing tools

Burnishing tools are manufactured by natural or mono crystalline diamonds. The burnishing process is a cold process using proper pressure without removal of the work pieces. The burnishing tools are very useful for metalworking because they help get high quality mirror-like surface finish and meet dimensions as requested. The diamond burnishing tools can ensure longer tool life and good surface finish.

PCD (Poly-crystalline diamond) dressers

PCD dressers are cost-effective alternative in dressing conventional abrasive profile wheels. The PCD is easier to get desired shapes than the other diamond materials. As a result, PCD dressers can dress grinding wheels with complex profiles. The relatively lower tool life can be compensated by lower price.

Contact gauges

Contact gauges with natural diamonds or poly-crystalline diamonds have almost 100 times longer tool life than tungsten carbides or high-speed steel. The diamond contact gauges can ensure highly accurate measurement with ultra wear resistance.
LOCATIONS

Korea

- Headquarters Osan
- Factory Osan (Semiconductor)
- Factory Dongtan
- Factory Pyungtaek
- Factory Sosoin
- Factory Osan

Overseas

- Factory Weihai, China
- Factory Shanghai, China
- Factory Fujian, China
- Office Nagoya, Japan
- Office Ehwa Europe Frankfurt, Germany
- Factory, Thailand
- Office, GT, U.S.A.