Challenge & Innovation to become the world best !

Shinhan Diamond Dresser

SHINHAN DIAMOND

www.shinhandia.com

Shinhan Diamond Ind. Co., Ltd., the engineering tool manufacturer, has been continuously creating value for customers and enlarging customer satisfaction with cutting-edge technologies and know-how accumulated through the long standing experiences.

HEAD OFFICE

R&BD CENTER

Application

1. **HYUNDAI Motors**
   - Input & Output Shaft ... Etc.
2. **KIA Motors**
   - Input & Output Shaft ... Etc.
3. **GM DAEWO Motors**
   - Crank Shaft ... Etc.
4. **WIA Corporation**
   - Machine Parts ... Etc.
5. **YG-1 Corporation**
   - End-Mill & Drill ... Etc.

Contents

Diamond Dresser

1. Terminology

1) Dressing : The process of exposing new abrasive grain and new sharp cutting edges.

2) Truing : The process of forming the working face of the grinding wheel so that it is concentric to the axis of the grinding wheel.

3) Forming : The process of the precise form to the grinding wheel, screw grind wheels and geared grind wheels into the required shape.

2. Dresser's Type

1) Single-point Dresser

Dressers with one diamond mounted in one shank.

2) Forming Dresser

Dressers with a single diamond that has been polished to the required shape and dimensions mounted in one shank.

- Chisel Type : Chisel edge tools for dressing concave and convex radii on all wheel sizes; for contour dressing on centerless grinders; and for angle head dressing

- Cone Type : The CONE type dresser contains an elongated diamond cut to a conical point. The included angle of the cone should be as large as possible for maximum point life.

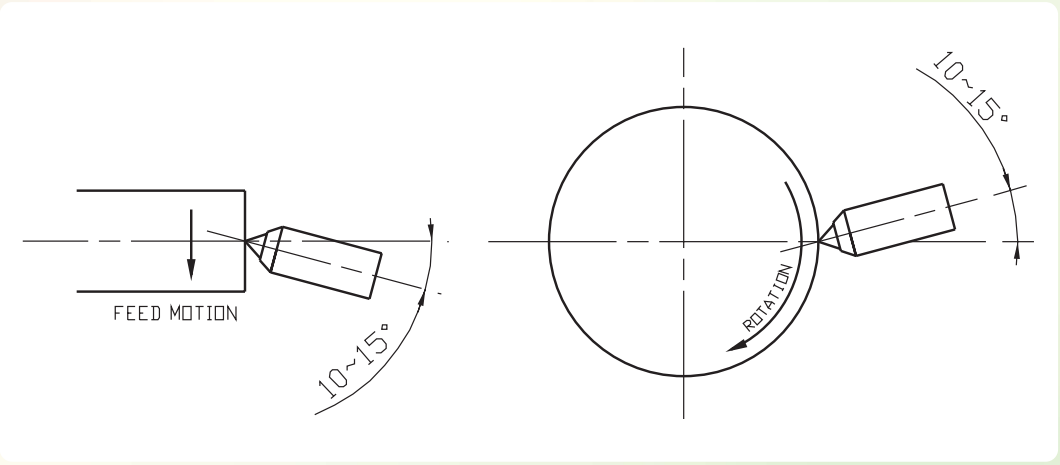
3) Multipoint Dresser

Dressers with multiple diamonds mounted in one shank.

Type	Size of Diamonds	Application	Characteristic
Bearing Type	Usually Big Grit (1/20 ~ 1/2 ct)	Cylindrical Grinding Inner surface Grinding Centerless Grinding	1.Do not need repair 2.Enough coolant is required
Blade Type	Usually Small Grit (1/40 ~ 1/50 ct)	Straight line or Step Wheel Radius Wheel Profile Revising	1.Do not need repair 2.Due to the less wear-out, tolerance is stable 3.More than 2 grits need to be contacted 4.Enough coolant is required

Usage of Diamond Dresser

1. Angle of attachment



The diamond dresser should be attached at an angle of 10 ~ 15 degrees from the horizontal axis of the grinding Wheel, and at an angle of 10 degrees to the circumference of the wheel.
If you rotate the dresser frequently, you can maintain a sharp point and perform ideal dressings.

2. Dressing Procedure

1) The roughness of the grinding edge depends on the peripheral speed and depth of cut, and the total depth of cut of the final dressing must not exceed 0.02mm.

   ** Depth of cut : Fine dressing = 0.005 ~ 0.015mm*

   Rough dressing = 0.02 ~ 0.03mm

2) To protect Diamonds from thermal damage & carbonization, should correct the exact amount of coolant, the cooling point and the direction of nozzle.

3) The diamond dresser should be turned to prevent dull diamond from glazing wheel and overheating.

4) The dresser should be firmly fixed, to avoid any damage caused by loose clamping.

Shapes and dimensions of Diamond dressers

1. Natural DIAMOND

Dodecahedron, Crystals, Maccles, Elongated...etc.

2. Synthetic DIAMOND

Chemical Vapor Deposition (CVD) Diamond, Mono-crystalline Diamond (MCD),
Poly-crystalline Diamond (PCD)

3. Important factors in deciding Diamond size

1) Type of abrasive grinding wheel

Abrasive, Grit size, Hardness, Bonding material, Abrasive grinding wheel diameter and width

2) Usage conditions

Angle of attachment, Wet or dry, Depth of cut, Peripheral speed, Material to be worked and required surface roughness, Plane grinding or forming grinding, Machine and precision

4. Equation for Diamond's CT

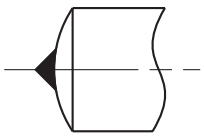
$$\frac{\text{Diameter(inch)}+2\times\text{Width(inch)}}{10} \text{ or } \frac{\text{Diameter(mm)}+2\times\text{Width(mm)}}{250} = \text{CT}$$

5. Requirements when choosing CT for dressers.

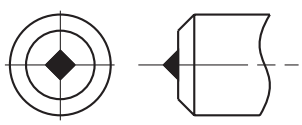
1) The bigger grit is required for the harder grit.
2) The bigger grit is required for the bigger grain size.
3) The bigger grit is required for the higher hardness.

6. DRESSER's standard diamond shapes and symbols

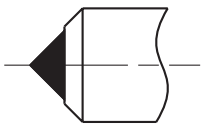
A Original stone as-is



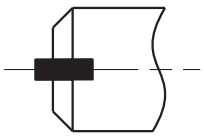
B Pyramid shaped



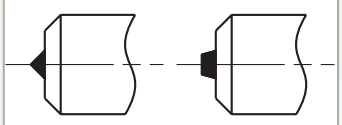
C Conical shaped



D Flat shaped

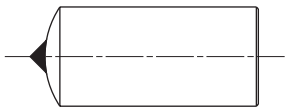


E Wedge shaped



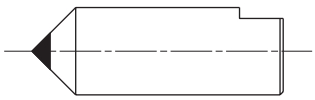
Standard dresser shank shapes and their referring tools

A



B

C



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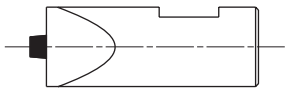

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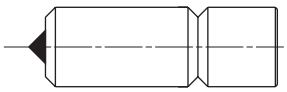

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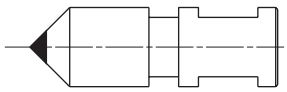

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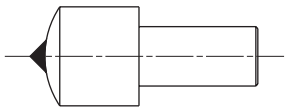

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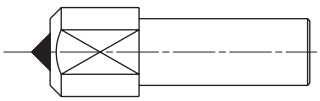

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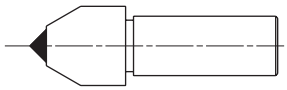

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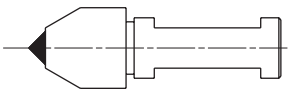

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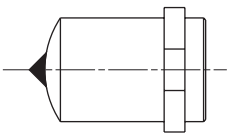

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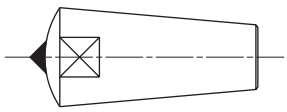

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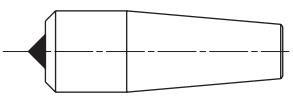

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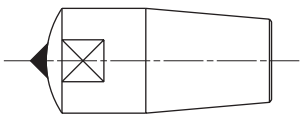

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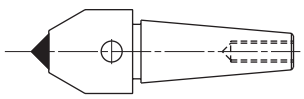
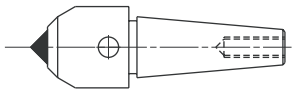


Standard dresser shank shapes and their referring tools

R



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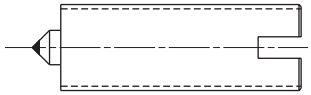

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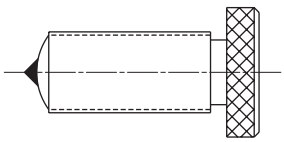

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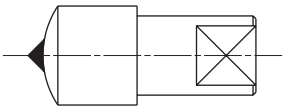

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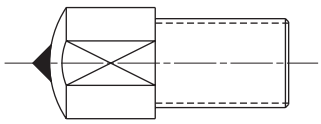

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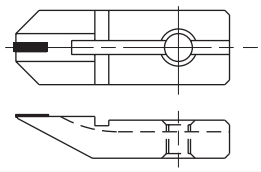
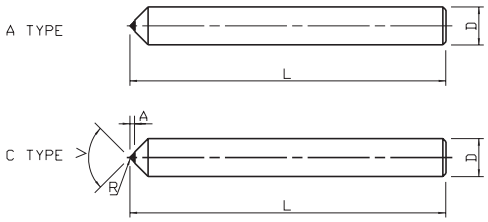


Single-point Dresser

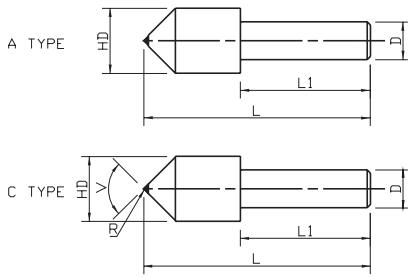
DS-1



CODE	DIMENSIONS(mm)					
A1A	D	L				
1102	6	30				
1104	8					
1107	8	100				
1111	10					
1119	12					

CODE	DIMENSIONS(mm)					
C2A	D	L	V	R	A	
1102	6.3	25.4	80º	0.1	1.5	
1104	9.5	35.0	60º			
1106	11.0	40.0	80º			

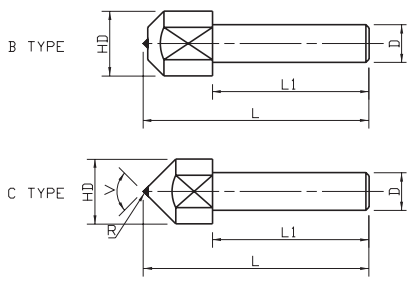
DS-2



CODE	DIMENSIONS(mm)					
A1G	D	HD	L	L1		
1201	6	12	27	12		
1202			35	20		
1207	8		26	16		
1210	11	16	35	20		
1211			40	25		

CODE	DIMENSIONS(mm)					
C3G	D	HD	L	L1	V	R
1213	4.7	8	16	8	90°	0.2

DS-3

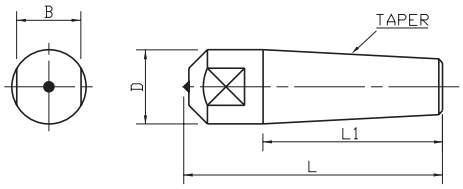


CODE	DIMENSIONS(mm)					
A2H	D	HD	L	L1		
1301	6	12	27	12		
1302	6	12	35	20		
1306	11	16	35	20		

CODE	DIMENSIONS(mm)					
C3H	D	HD	L	L1	V	R

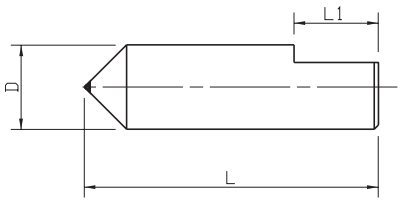
Single-point Dresser

DS-4



CODE	DIMENSIONS(mm)					
A1M	D	L	B	L1	L2	TAPER
1401	6.3	26	5	22	4	1/50
1402	8.7	33	7	24	6	1/50
403-1	9	27	7	21	5	MT #0
1403-2	9	31.5	7	25.5	5	MT #0
1404-1	12	36	10	27	6	MT #1
1404-2	12	49	10	40	8	MT #1

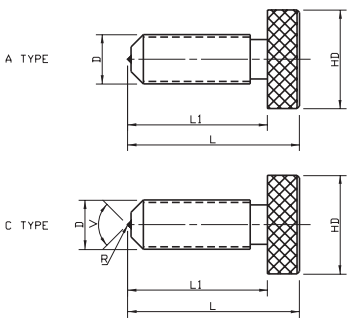
DS-5



CODE	DIMENSIONS(mm)					
A1G	D	HD	L	L1		
1201						
1202						
1207						
1210						
1211						

CODE	DIMENSIONS(mm)					
C3G	D	HD	L	L1	V	R
1213						

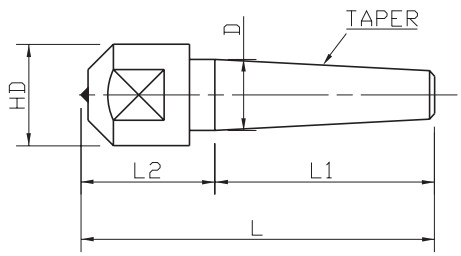
DS-6



CODE	DIMENSIONS(mm)				
A1U	DXPICH	HD	L	L1	
1601	M8X1.25	13	51	43	
1602	M10X1.5	15	57	49	
1603	M10X1.5	16	65	57	
1604	M10X1.5	19	44.5	32	

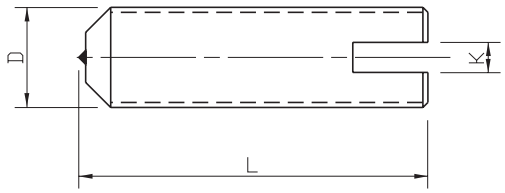
Single-point Dresser

DS-7



CODE	DIMENSIONS(mm)					
A1P	D	HD	L	L1	L2	TAPER
1701	5.8	9	31	21	9.5	1/40
1702	7.1	10	31	21	9.5	1/40
1703	9	12	31	21.5	9.5	MT #0
1704	9	16	42	25.5	14	MT #0
1705	12	18	57	40	9	MT #1

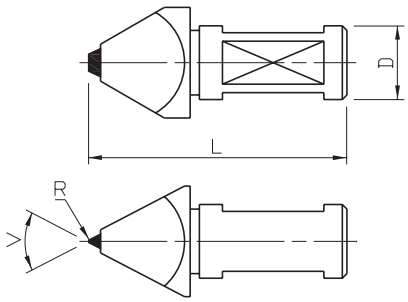
DS-9



CODE	DIMENSIONS(mm)				
A1S	DXPitch	L	K		
1901	M8X1.25	16	1		
1902	M8X1.25	40	1.5		
1903	M12X1.75	40	1.5		

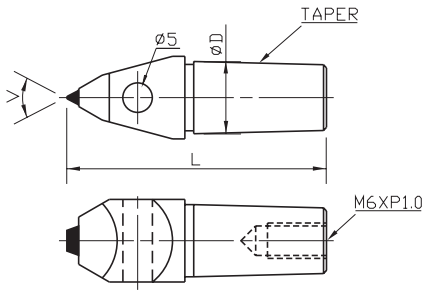
Forming Dresser (CHISEL)

DF-1



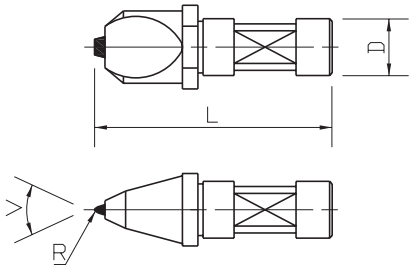
CODE	DIMENSIONS(mm)					
E6K	D	L	V	R		
2101	12	28	55	0.2		
2102	10	24	60	0.2		

DF-2



CODE	DIMENSIONS(mm)					
E6R	D	L	V	R	TAPER	
2201	14	44	55	0.3	MT1	
2202	12	40	60	0.3	MT1	

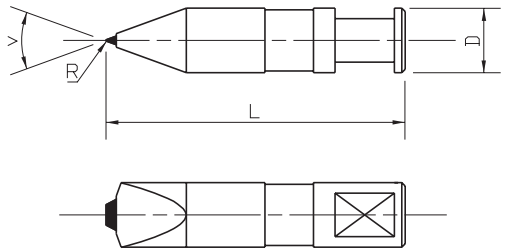
DF-4



CODE	DIMENSIONS(mm)					
E6Q	D	L	V	R		
2401	13	29	55	0.2		
2402	10	24	60	0.3		

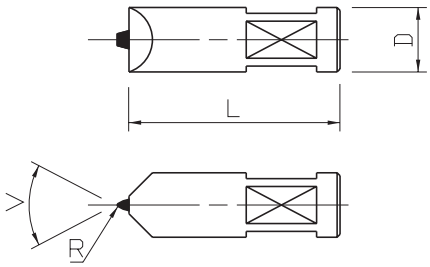
Forming Dresser (CHISEL)

DF-5



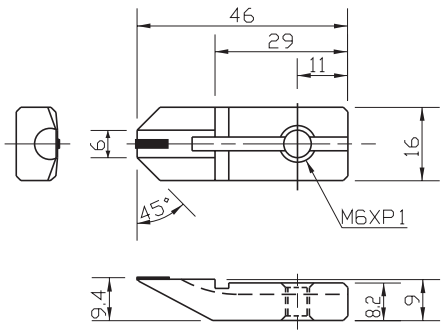
CODE	DIMENSIONS(mm)					
E6F	D	L	V	R		
2501	10	35	60	0.2		
2502	12	45	60	0.3		

DF-6



CODE	DIMENSIONS(mm)					
E6D	D	L	V	R		
2601	11	47	55	0.2		
2602	10	50	60	0.3		

DF-34



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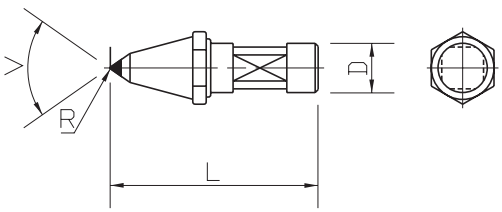
D7X						

Forming Dresser (CONE)

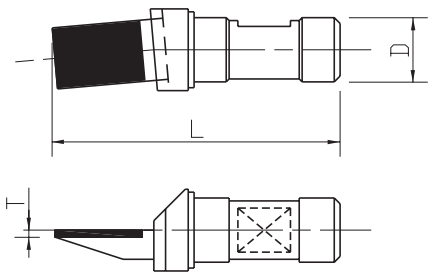
DF-35



CODE	DIMENSIONS(mm)					
E6K	D	L	V	R		
2351	11	46	70	0.2		
2352	10	50	70	0.3		

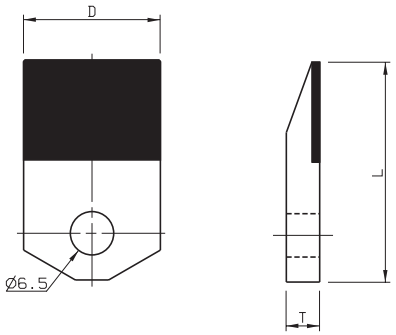
Multi-point Dresser (BLADE)

DM-1



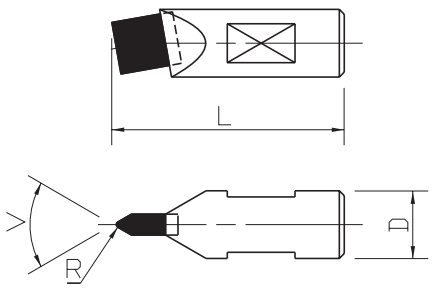
CODE	DIMENSIONS(mm)					
	D	L	T			
3101	8	40	10			
3102	10	45	15			
3103	12	50	20			

DM-2



CODE	DIMENSIONS(mm)				
	D	L	V	R	TAPER
3201	14	44	55	0.3	MT1
3202	12	40	60	0.3	MT1
3203					

DM-3



CODE	DIMENSIONS(mm)			
	D	L	V	R
3301	13	29	55	0.2
3302	10	24	60	0.3
3303				

Diamond gage point