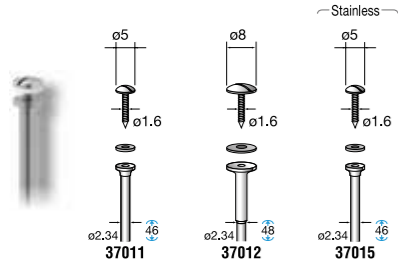


SPECIALTY TOOLS

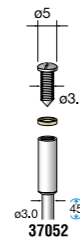
SHANK  $\phi 2.34$   
10 pcs./pack Mandrels



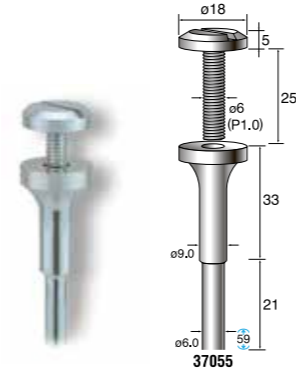
SHANK  $\phi 3.0$   
10 pcs./pack Mandrels



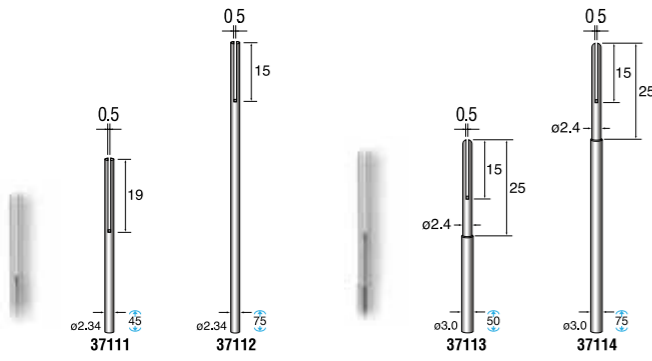
3 pcs./pack Mandrels



SHANK  $\phi 6.0$   
1 pc./pack Mandrels



SHANK  $\phi 2.34, \phi 3.0$   
10 pcs./pack



MOUNTED POINTS

Types of Abrasive Grain

"Abrasive Grain" is a general term of very hard abrasive particles for polishing and grinding. Abrasive Grain is harder than work materials and functions to grind work materials. Abrasive Grain is classified generally into three types.

Alumina type

Primary ingredient is alumina (aluminium oxide :  $Al_2O_3$ ).

- A** : For rough grinding of iron and steel materials, low carbon steels, forged products, castings and raw steel materials.
- WA** : For general grinding of alloy steels, tool steels and carbon steels.
- PA** : For general grinding of heat treated alloy steels, tool steels, and stainless steels.

Silicon Carbide type

Primary ingredient is silicon carbide (SiC).

- C** : For general grinding of cast iron, chilled cast iron, copper, bronze, brass, aluminum and non ferrous metals.
- GC** : For general grinding of super hard alloys, ceramics, stone, jewelry, glass, pottery, wood and synthetic resins.

Mixed Abrasive Grain type

Mixed use of abrasive grain of the same type

- PA · W** : For precision grinding of high speed steel, alloy steels, tool steels and special alloys.
- A · WA** : For rough grinding of iron and steel materials, low carbon steels, forged products, castings, steel materials and stainless steels.

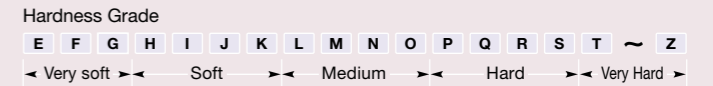
Bonding Material

Material used to bond and hold abrasive grains. Primary bonding materials are shown below.

- V (vitrified)** : Mainstream of magnetic bonding material, grinding stone
- B (resinoid)** : Bonding material is mainly made of thermosetting
- R (rubber)** : Hard rubber
- E (shellac)** : Thermoplastic resin (natural resin)

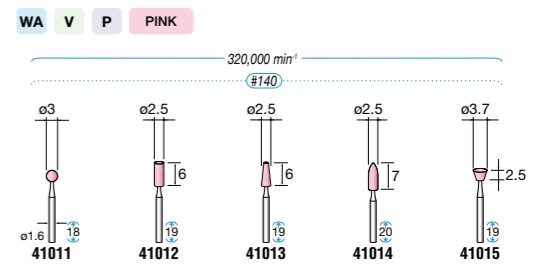
Hardness Grade

This shows bonding strength of abrasive grain, bonding materials and wear resistance of grinding stone. The Hardness Grade is measured by various instruments. The hardness is classified from A to Z, A is the softest while Z is the hardest.

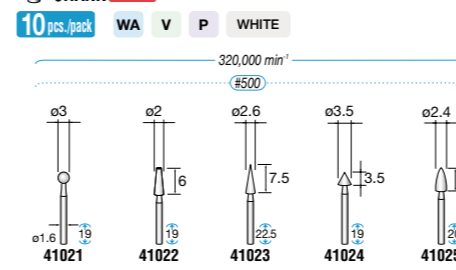


1.6 mm shank diameter series.  
Short Shank Type grindstones for high-speed rotation. Ideal for very small parts.

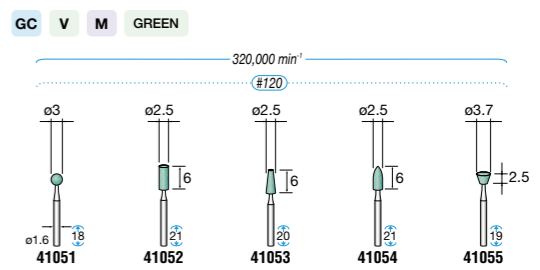
SHANK  $\phi 1.6$   
10 pcs./pack



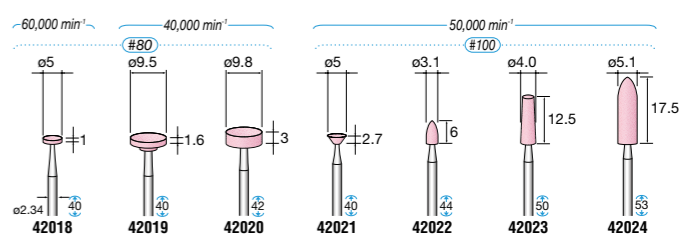
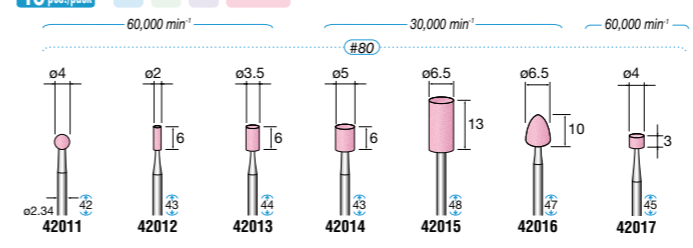
SHANK  $\phi 1.6$   
10 pcs./pack



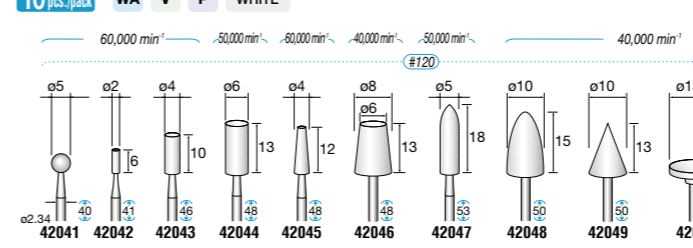
10 pcs./pack



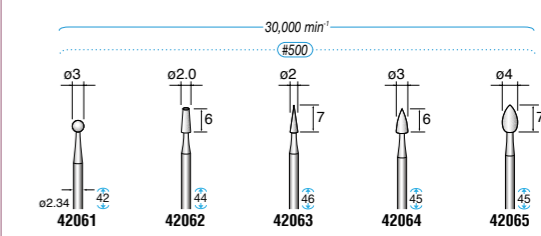
SHANK  $\phi 2.34$   
10 pcs./pack



SHANK  $\phi 2.34$   
10 pcs./pack



10 pcs./pack

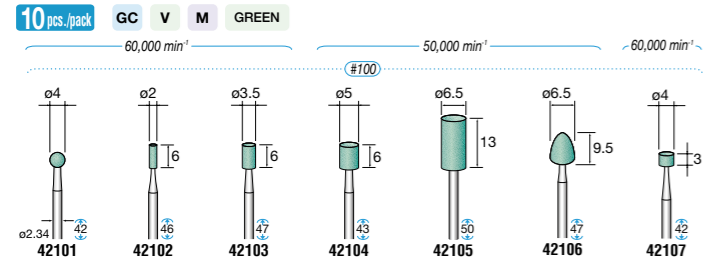


Diamond / CBN  
Carbide Cutters  
Specialty Tools  
Mounted Points  
Rubberized Abrasives  
Flap Wheels  
Polishing Brushes  
Felt Bobs  
Abrasive Compounds & Polishing Tools  
NSK Exclusive Tools

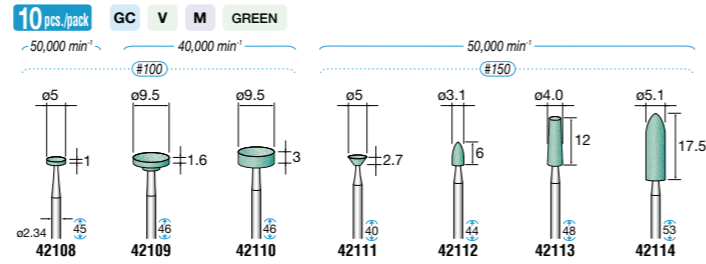
Diamond / CBN  
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MOUNTED POINTS

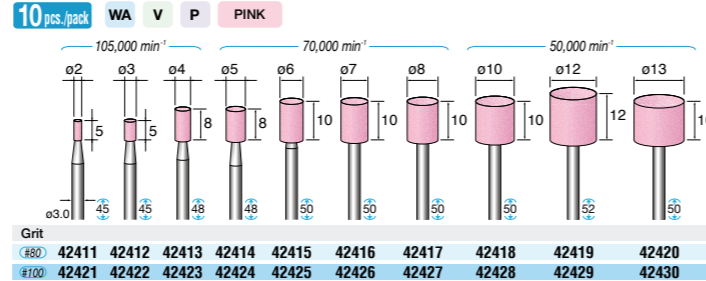
SHANK  $\phi 2.34$



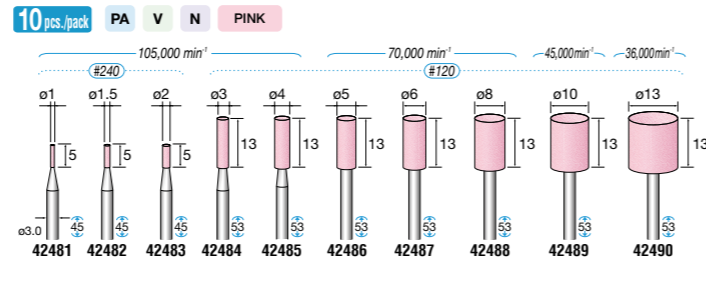
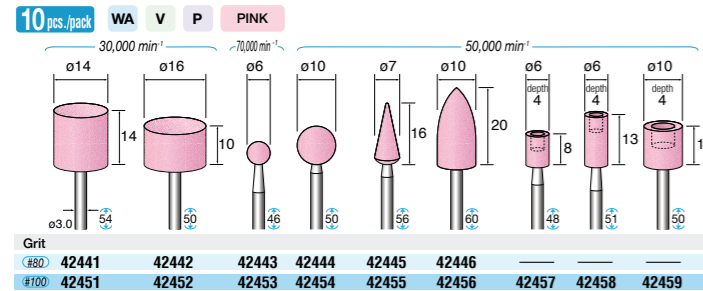
3.0 mm shank diameter series. Perfect for high surface finishing, precision work.



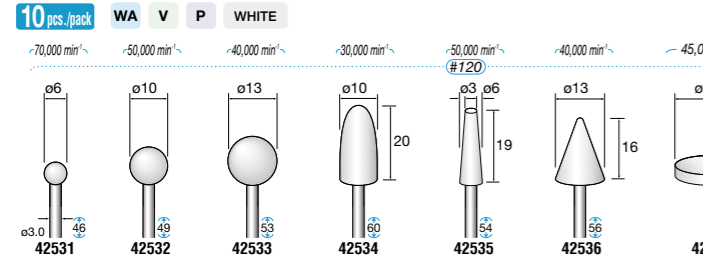
SHANK  $\phi 3.0$



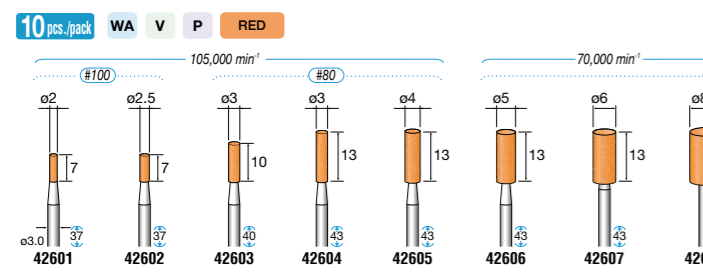
SHANK  $\phi 3.0$



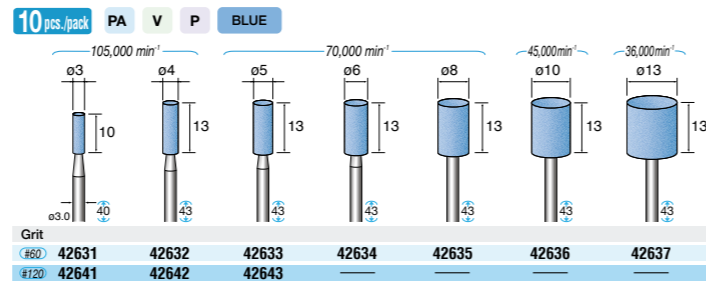
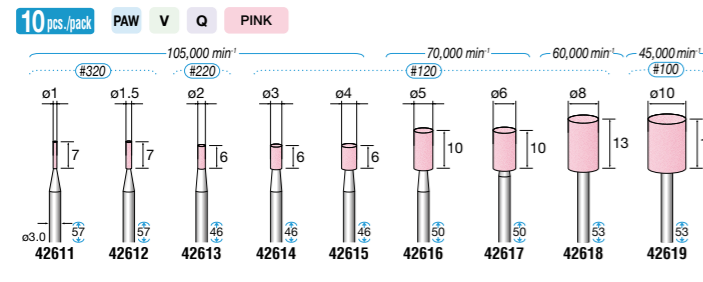
SHANK  $\phi 3.0$



SHANK  $\phi 3.0$

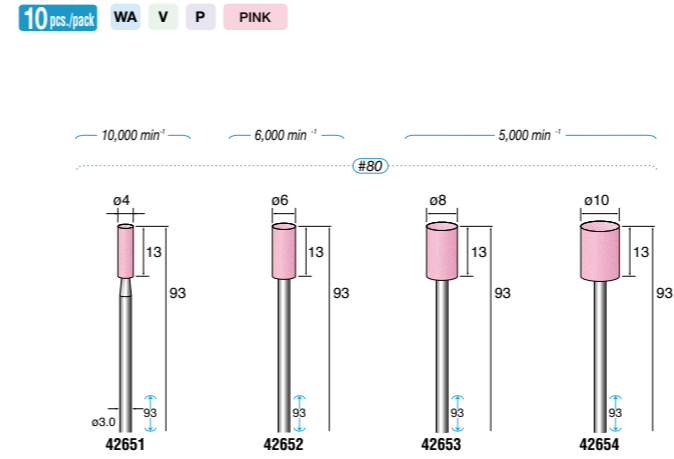


SHANK  $\phi 3.0$

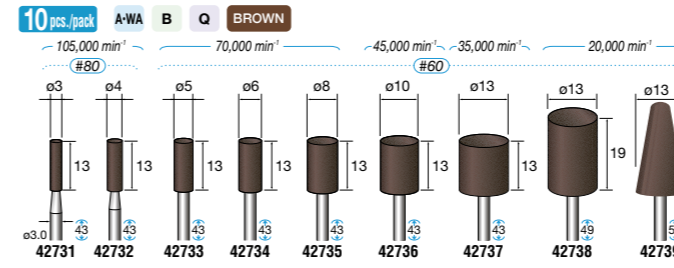


MOUNTED POINTS

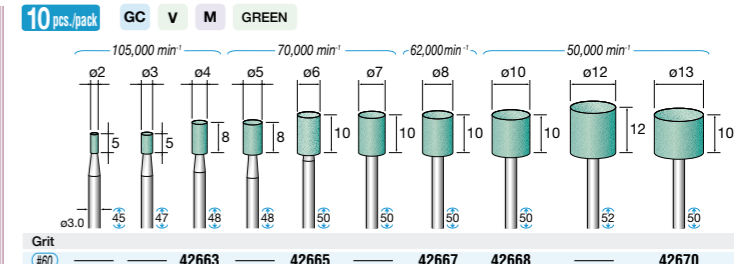
SHANK  $\phi 3.0$



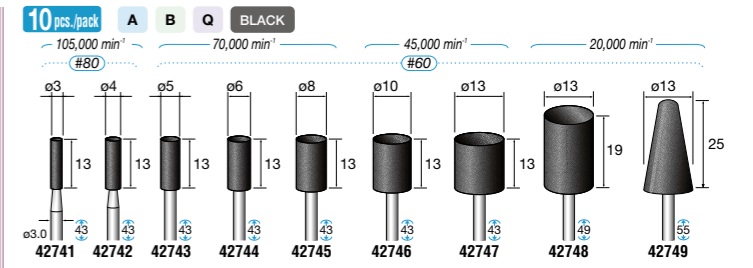
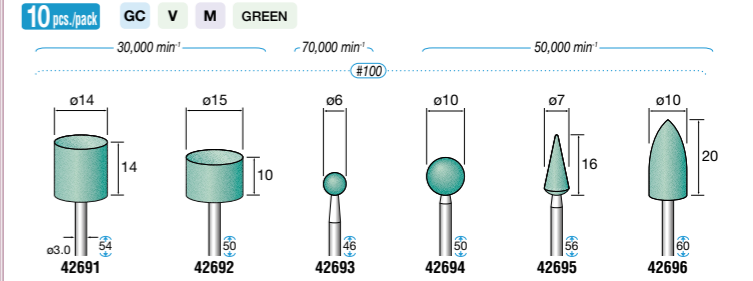
SHANK  $\phi 3.0$



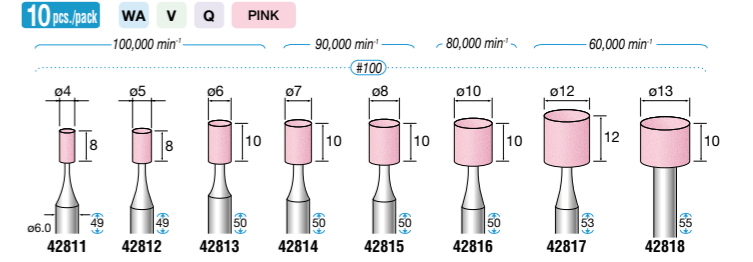
6.0 mm shank diameter series. High quality finishing grindstones.



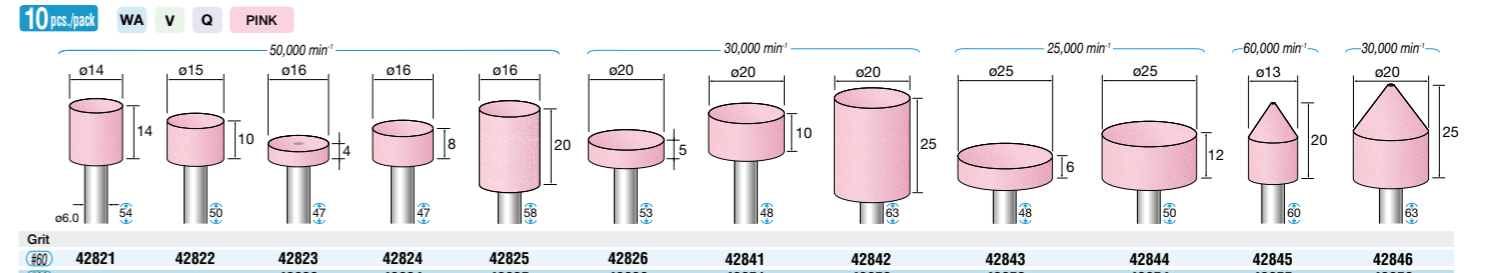
SHANK  $\phi 3.0$



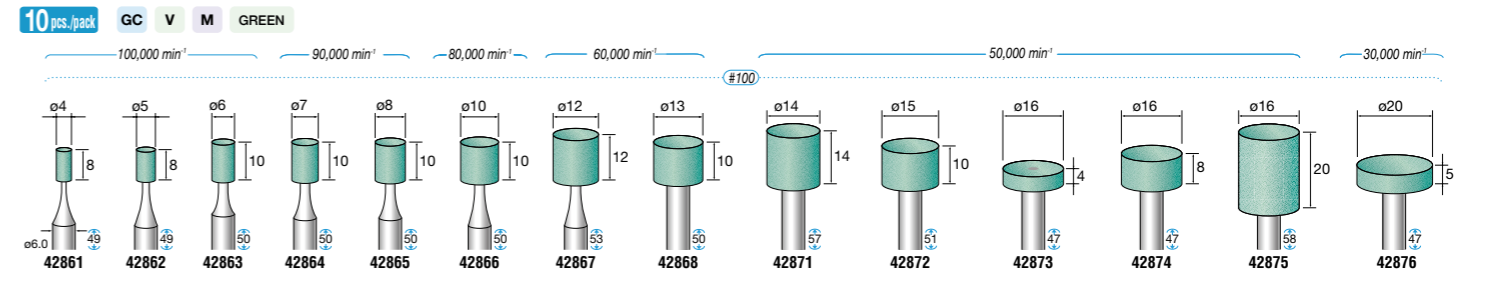
SHANK  $\phi 6.0$



SHANK  $\phi 6.0$



SHANK  $\phi 6.0$



**MOUNTED POINTS**

**SHANK  $\phi 6.0$**   
10 pcs./pack GC V M GREEN

30,000 min<sup>-1</sup> 25,000 min<sup>-1</sup> 60,000 min<sup>-1</sup> 30,000 min<sup>-1</sup>

Part numbers: 42881, 42882, 42883, 42884, 42885, 42886

**SHANK  $\phi 6.0$**   
10 pcs./pack A-WA B Q BROWN

102,000 min<sup>-1</sup> 90,000 min<sup>-1</sup> 81,000 min<sup>-1</sup> 69,000 min<sup>-1</sup> 55,000 min<sup>-1</sup> 40,000 min<sup>-1</sup> 30,000 min<sup>-1</sup> 25,000 min<sup>-1</sup>

Part numbers: 42901, 42902, 42903, 42904, 42905, 42906, 42907, 42908

Grinding disk for metal grinding, slitting and cutting. Can easily be attached to mandrels (P.29)  
\*Mandrel is purchased separately.

**SHANK  $\phi 6.0$**   
10 pcs./pack A B Q BLACK

102,000 min<sup>-1</sup> 90,000 min<sup>-1</sup> 81,000 min<sup>-1</sup> 69,000 min<sup>-1</sup> 55,000 min<sup>-1</sup> 40,000 min<sup>-1</sup> 30,000 min<sup>-1</sup> 25,000 min<sup>-1</sup>

Part numbers: 42911, 42912, 42913, 42914, 42915, 42916, 42917, 42918

**SHANK  $\phi 3.0$**   
10 pcs./pack WA

15,000 min<sup>-1</sup> 13,000 min<sup>-1</sup> 8,000 min<sup>-1</sup>

Part numbers: 43101, 43103, 43104, 43105, 43106

**SHANK  $\phi 2.34$**   
18 pcs./pack Assorted Set

43401

Set (18 pieces) (Each code No. one piece-pack)	
WA	GC
#80 42011	#100 42101
#80 42012	#100 42102
#80 42013	#100 42103
#80 42014	#100 42104
#80 42016	#100 42106
#80 42018	#100 42108

**SHANK  $\phi 3.0$**   
18 pcs./pack Assorted Set

43405

Set (18 pieces) (Each code No. one piece-pack)		
WA	PA	GC
#90 42421	#90 42428	#120 42484
#90 42422	#90 42430	#120 42485
#90 42423	#90 42454	#120 42486
#90 42424	#90 42455	#120 42487
#90 42425	#90 42456	#120 42488
#90 42427		#120 42489

**SHANK  $\phi 3.0$**   
15 pcs./pack Assorted Set

43410

Set (15 pieces) (Each code No. one piece-pack)			
PAW		PA	
#320 42612	#120 42616	#60 42631	#60 42632
#220 42613	#120 42617	#60 42633	#60 42634
#120 42614	#120 42618	#60 42635	#60 42636
#120 42615	#120 42619	#60 42637	

**SHANK  $\phi 3.0$**   
12 pcs./pack Assorted Set

43415

Set (12 pieces) (Each code No. one piece-pack)			
GC			
#100 42681	#100 42688		
#100 42682	#100 42690		
#100 42683	#100 42692		
#100 42684	#100 42694		
#100 42685	#100 42695		
#100 42687	#100 42696		

**RUBBERIZED ABRASIVES**

**SHANK  $\phi 1.6$**   
10 pcs./pack WA Silicon Polisher

1.6 mm shank diameter series. Short type for high-speed rotation. Ideal for grinding very small parts.

**SHANK  $\phi 2.34$**   
10 pcs./pack WA GC Green Polisher

2.34 mm shank diameter series. Perfect for precision finishing and deburring.

**SHANK  $\phi 2.34$**   
10 pcs./pack WA High Shine Polisher

High Shine Polisher

Grit	Color	46111	46115	46121	46125	46131	46135	46151	46155
#120	(GC) Green	46111	46115	46121	46125	46131	46135	46151	46155
#220	(WA) Green	46112	46116	46122	46126	46132	46136	46152	46156
#320	(WA) Green	46113	46117	46123	46127	46133	46137	46153	46157

**SHANK  $\phi 2.34$**   
10 pcs./pack WA Silicon Polisher

Silicon Polisher

Grit	Color	46312	46315	46322	46326	46331	46342	46346
#180	Gray	46312	46315	46322	46326	46331	46342	46346
#220	Brown	46311	46314	46323	46327	46332	46343	46347
#500	Dark Brown	46311	46314	46323	46327	46332	46343	46347
#1000	Green	46313	46316	46323	46327	46332	46343	46347
#2000	Blue	46314	46317	46324	46328	46333	46344	46348

**SHANK  $\phi 3.0$**   
10 pcs./pack WA Power Polisher

3.0 mm shank diameter series. Produces a smoother, better surface finish due to greater pliability versus standard grindstones.

**SHANK  $\phi 1.6$**   
10 pcs./pack WA Silicon Polisher

Silicon Polisher

Grit	Color	46011	46012	46013	46014	46015
#180	Blue	46011	46012	46013	46014	46015
#400	Blue	46011	46012	46013	46014	46015
#800	Blue	46011	46012	46013	46014	46015
#1000	Blue	46011	46012	46013	46014	46015
#1500	Blue	46011	46012	46013	46014	46015

**SHANK  $\phi 3.0$**   
10 pcs./pack WA Power Polisher

Power Polisher

Grit	Color	46601	46611	46621	46631	46641	46651
#80	Red	46601	46611	46621	46631	46641	46651
#120	Dark Green	46602	46612	46622	46632	46642	46652
#180	Olive	46603	46613	46623	46633	46643	46653
#220	Green	46604	46614	46624	46634	46644	46654
#320	Brown	46605	46615	46625	46635	46645	46655
#400	Beige	46606	46616	46626	46636	46646	46656

Diamond / CBN  
Carbide Cutters  
Specialty Tools  
Mounted Points  
Rubberized Abrasives  
Flap Wheels  
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Felt Bobs  
Abrasive Compounds & Polishing Tools  
NSK Exclusive Tools