

# Sheenus ZERO

## Ultrasonic Polisher



"ZERO magic" Achieve ZERO burden in polishing operations

### Sheenus ZERO Series

High-speed polishing system using ultrasonic vibrations of 19,000 to 29,000 times per second with a maximum amplitude of 40  $\mu\text{m}$ . Vibration is not conveyed to the hand, and safety is further improved with high efficiency through circuit optimization and a heat generation protection function.

#### Improved visibility

The digital LED display on the controller clearly shows the status of the operating function. The Blue LED on the handpiece will indicate whether the power is ON or OFF.



#### Improved energy savings

Rated power consumption is reduced by 13 % compared to the previous model.  
(SHEENUS neo : 31 W → Sheenus ZERO : 27 W)

#### High efficiency power

Transmission efficiency has been improved by 16 % at maximum compared to the previous model.

#### Light weight

The weight of the controller has been reduced by 29 % compared to the previous model.  
(SHEENUS neo : 2.1 kg → Sheenus ZERO : 1.5 kg)  
Allows ease to carry around.

#### Heat protection function

Sheenus ZERO automatically suppresses the output and keeps the temperatures from rising to allow for continuous use.

- Adapted the worldwide power supply, 100 - 240V
- High-frequency noise is reduced by a sine wave drive.

CAUTION

Electric System

Air System

Ultrasonic

General Parts

Exclusive Tools

CAUTION

Electric System

Air System

Ultrasonic

General Parts

Exclusive Tools

ULTRASONIC POLISHER

# Sheenus ZERO Set

- Sheenus ZERO can be used for grinding, polishing and mirror finishing on a wide range of materials from aluminum dies to cemented carbide dies. It is also perfect for plastic molds, press, casting, forging, trimming and header dies.
- This tool quickly removes hard layers of EDM deposits and polishes difficult areas such as complex corners and ribs.
- Capabilities include deburring, grinding and polishing of precision molds, dies electronic and ceramic components.



Code No.	<b>7775</b>	Model	<b>US-50P Set 120V</b>
Code No.	<b>7776</b>	Model	<b>US-50P Set 230V</b>

※Adapted the worldwide power supply, 100 - 240V.  
Please choose the plug type of main power cord.

**Standard equipment**

- Controller : 1 pc.
- Handpiece : 1 pc.
- Tool box (Plastic) : 1 pc.
- Wrench (10 mm) : 2 pcs.
- Hexagon wrench (2.5 mm) : 1 pc.
- Foot switch (FC-24) : 1 pc.
- Spare fuse (T1.6AH 250V) : 2 pcs.
- Main power cord (2 m) : 1 pc.  
(Plug type : 120V or 230V)

- Tools : 1set
- #60101 Electroplated diamond file (#200, Flat taper, 4 x 50 mm, t=0.4) : 1 pc.
- #60519 Ceramic fiber grindstone (#800, Flat, 6 x 50 mm, t=1.0) : 1 pc.
- #60902 Tip holder (For round, ø 3.0 tip) : 1 pc.
- #60922 Tip holder (For flat, t=1.0 tip) : 1 pc.



# Sheenus ZERO

SERIES ◀◀

## Sheenus ZERO Controller

- Powerful  
Max. output power is 45 W.
- Digital Display  
The LED display can be switched between the amplitude and WATT.
- Safety  
The heat protection function can be set to detect abnormal heat.

**Specifications**

Oscillation frequency : 19 kHz - 29 kHz  
Frequency control: Auto-tracking system  
Outputs : 45 W (max.) UNCLAMP mode  
20 W (max.) CLAMP mode  
Output adjustment : 21 steps variable  
Rated input : AC 100 - 240V  
Rated power consumption : 27W  
Dimensions : W161 x D256 x H84 mm  
Weight : 1.5 kg

**Standard accessories**

- Spare fuse (T1.6AH 250V) : 2 pcs.
- Main power cord (2 m) : 1 pc.  
(Plug type: 120V or 230V)

Code No.	<b>7778</b>	Model	<b>Sheenus ZERO CONTROLLER 120V</b>
Code No.	<b>7779</b>	Model	<b>Sheenus ZERO CONTROLLER 230V</b>

※Adapted the worldwide power supply, 100 - 240V.  
Please choose the plug type of main power cord.



- A Power level indicator
- B Indicator (Display the amplitude, WATT and ERROR)
- C UP key / DOWN key
- D ERROR / WATT
- E ON / OFF key (Start and stop the handpiece)
- F CLAMP key
- G Main power switch
- H UNCLAMP key

Handpiece can be placed on the controller.

⚠ Sheenus ZERO is not compatible with SHEENUS neo.

## Sheenus ZERO Handpiece

Exclusive Tools p.5-5~ 12

- Comfortable Usability  
Light weight, ergonomically designed resin body enables effortless, precision work over long periods of time.
- Easy Tool Installation  
Easy tool installation using wrenches.

**Specifications**

Oscillator : PZT piezoelectric type  
Attachment fixing: M6 x P0.9 screw  
Cord length : 3 m  
Dimensions : Max. ø 28 x L 134 mm  
Weight : 140 g (excluding cable)

Exclusive Tools p.5-5~ 12



Code No.	<b>7780</b>	Model	<b>US-50P</b>
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※Tip holder and ceramic fiber grindstone in this picture are not provided when only handpiece is purchased.  
NAKANISHI genuine tools are highly recommended.

⚠ Sheenus ZERO is not compatible with SHEENUS neo.

## Sheenus ZERO Spare Parts

Product	Code No.	Description
	<b>8103</b>	FC-24 Foot switch (ON / OFF switch only)
	—	Wrench 10 mm Available in the market
	—	Hexagon wrench 2.5 mm Available in the market

## For safe usage

- Please read operation manuals before using any NAKANISHI product.
- Please keep the operation manuals on hand so that the user can refer to them at any time.

## ⚠ Caution

Incorrect use of the product, or ignoring 'CAUTIONS for safety' described in the operating manuals may cause fatal or serious bodily injury.

## CAUTIONS

	<p><b>Always use safety glasses, masks, face guards for your safety.</b></p>		<p><b>Select proper hand tools and for your application.</b> Select tools carefully considering the performance of the hand tools, work procedure and type / shape of the material.</p>
	<p><b>Do not touch the tools and hand tools when in operation.</b> Make sure the work area is neat and there is sufficient light.</p>		<p><b>Do not wear loose clothing and/or accessories that may be caught in machinery.</b> Long hair should be tied prior to machine operation.</p>
	<p><b>Do not operate the products where flammable liquids or gases exist.</b></p>		<p><b>Fix the work material firmly in a vise and/or other clamping fixture.</b></p>
	<p><b>Do not leave the work area with the hand tools still in operation.</b> Confirm that the hand tools have completely stopped after switching them off.</p>		<p><b>Perform an inspection before use.</b> Clean the inside of the collet and tool shank, chips or fine metals inside the collet could cause tool slippage and result in damage to machinery or bodily injury.</p>

	<p><b>Fasten the chuck firmly.</b> Make sure the tool is intact in the chuck to avoid tool slippage.</p>		<p><b>Do not apply high pressure or pry to the tools.</b> This can break and/or bend the tools. Use the tools within their design limitation. Excessive pressure will decrease the efficiency of your work and cause excessive wear of the tools.</p>
	<p><b>Do not use damaged or broken electric cords and air hoses.</b></p>		<p><b>Check the tools carefully before use.</b> Confirm that the tools are free of chips, cracks, splits, scratches, lack of bonding, deformation, etc.</p>
	<p><b>Start at low speed and gradually increase to insure safe work.</b> This is particularly important for the use of new tools, large cutting tools and elastic tools such as rubber grindstone, sander and brush tools.</p>		<p><b>Stop grinding or polishing immediately whenever unusual sounds, vibrations, or wear are found.</b> Restart the work only after the problem is solved.</p>
	<p><b>Store the tools and hand tools in a cool and dry place.</b></p>		<p><b>Only use attachments, parts, consumable articles and accessories produced by NAKANISHI INC.</b></p>
	<p><b>The tools should be used by taking care of the overhang and below maximum allowable speed.</b> The catalogue shows the maximum allowable speed at 10 mm overhang (distance between the face of the collet and the top of the tool shank).</p>	<p>Decrease the speed as shown in the table below, if you are using a longer overhang than 10 mm.</p>	

Overhang	Maximum allowable speed (min <sup>-1</sup> )
Less than 10 mm	Shown in the catalogue (A)
Less than 20 mm	(A) x 0.5
Less than 25 mm	(A) x 0.3
Less than 50 mm	(A) x 0.1

The pages are organized by code number, so you can find the code number you need by checking the code numbers printed at the top of the left and right pages.

### SHANK DIAMETER



Indicates the shank diameter of various types of shafted tools.

※ NAKANISHI micro grinders use a collet system to maintain high precision. Please prepare a collet that corresponds to each shank diameter.

### Grit Size (Mesh Size)



This indicates the size (roughness) of the abrasive grains used in various types of polishing / grinding materials. The larger the number, the smaller (finer) the grit size, and conversely, the smaller the number, the larger (coarser) the grit size (roughness). This is the most significant factor that affects the roughness of the finished surface.

- Rough Finishing ..... 46, 54, 60, 70, 80, 90
- Pre Finishing ..... 100, 120, 150, 180
- Middle Finishing ..... 220, 240, 280, 320, 400
- Finishing ..... 500, 600, 700, 800, 1000
- Extra Fine to Mirror Finishes ..... 1200, 1500, 1800, 2000, 3000, 4000, 6000, 8000...

### Maximum Allowable Speed



Do not exceed the maximum allowable speed. For safety reasons, always use below the indicated allowable speed.

If this is the first time you are using the equipment or tip tool, start with a low speed and gradually increase it to reach the most appropriate speed for use.

Conditions may vary depending on the type, shape, overall length, and wear condition of the tip tool, so please work with constant care.

※ The maximum allowable operating speed is for when the overhang is under 10 mm. If the overhang is more than 10 mm, please reduce the speed.

For details, please refer to "Precautions for use" on page A-3~4.

※ Make sure there are no mechanical defects in the equipment prior to each use.

Actual size illustration (excluding some tools and overall length)

Shank diameter of the tools listed on the facing page

The beginning of the Code Numbers listed on the facing page. (The last number listed is found on the right side.)

### Quantity in Standard Package



A standard package is the minimum shipping unit. This number shows the number of pieces in the standard package (bag, box, etc.). Please order the number of packages needed for the desired quantity.

11131~

**Angle Type Grinder  
(Electric / Pneumatic)  
Exclusive Tools for "MINI ANGLE Type"**

NAKANISHI Angle Grinders are available with a wide range of tools for a variety of machining operations, from cutting to grinding, polishing and lapping.

**SHANK DIAMETER**

SHANK Ø1.6

MINI Angle Type

**Diamond Burs for Deep Hole Chamfering**

SHANK Ø1.6 1 pc./pack

Diamond Burs for Deep Hole Chamfering

- Ideal for machining hardened steel, cemented carbide, ceramics, etc.

320,000min<sup>-1</sup>

#130

30°

Ø2.5  
4  
Ø1.6  
19

11131

320,000min<sup>-1</sup>

#130

30°

Ø3  
5  
Ø1.6  
20

11132

320,000min<sup>-1</sup>

#130

30°

Ø4  
6  
Ø1.6  
21

11133

320,000min<sup>-1</sup>

#140

60°

Ø3  
2.7  
Ø1.6  
20

11151

320,000min<sup>-1</sup>

#140

90°

Ø5  
4.4  
Ø1.6  
20

11152

320,000min<sup>-1</sup>

#140

90°

Ø3  
1.8  
Ø1.6  
20

11153

320,000min<sup>-1</sup>

#140

90°

Ø5  
2.8  
Ø1.6  
20

11154

320,000min<sup>-1</sup>

#140

110°

Ø3  
1  
Ø1.6  
20

11155

320,000min<sup>-1</sup>

#140

110°

Ø5  
2.1  
Ø1.6  
20

11156

**Tools of Ø1.6 mm shank**

Diamond Burs

Carbide Burs

Mounted Abrasive Points

Abrasive Rubber Points

**P.5-31**

Maximum Allowable Speed  
Grit Size

Quantity in Standard Package

Overall length

Code No. (Order Number)

Photograph of the basic shape

Note : Specifications may change without notice. The color of the tools in the catalog may differ from the actual color due to printing and other factors.

# Exclusive Tools for Ultrasonic Polisher "Sheenus ZERO"

These tools are specially designed for NAKANISHI's Ultrasonic Polishing System to achieve the ideal finish with powerful sonic vibrations. A wide variety of tools are available to meet all kinds of processing situations.

<Precautions for use>

Select the CLAMP / UNCLAMP mode according to the tool you are using.



- ★ Suitable for finishing of high-hardness metals such as mold steel (removal of hardened electroplated layer, etc.) and heat treated metal. Also suitable for polishing of cemented carbide molds, aluminum molds, and copper alloy molds.
- ★ Ideal for grinding and polishing fine parts and rib slits of various molds for plastics, press, forging, headers, die-casting, etc.
- ★ It can be used for grinding and polishing ceramics, precision electronic parts, and precision mechanical parts.
- ★ It can handle a wide range of processing, from grinding of complex shapes and minute parts to mirror-polished finishes.

Ultrasonic Polisher  
Sheenus ZERO

## Electroplated Diamond File

<Features>

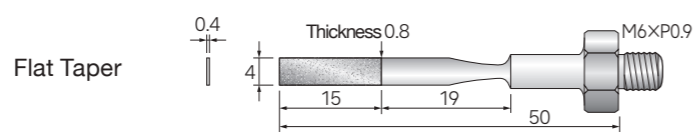
- Diamond abrasive grains are electroplated to the file surface (electroplated coating).
- The electroplated type has the largest amount of protruding abrasive grains and offers excellent cutting performance.
- The life of the file is shorter than that of metal bonded files due to the single layer of diamond grains on the surface.
- It is suitable for processing ribs, corners, and holes because the shape of the file hardly changes.
- It is suitable for finishing of hard metal such as mold steel (removal of hardened electroplated layer, etc.) and heat treated metal. It is also suitable for polishing cemented carbide molds, aluminum and hard alloy molds.
- Suitable for grinding and polishing ceramics, precision electronic parts and precision mechanical parts.

※The diamond file part is brazed onto the holder, so the diamond file part cannot be replaced.

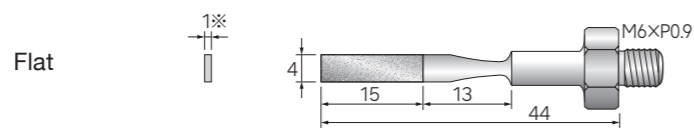


## 1 pc./pack Electroplated Diamond File The illustrations on this page are 90% of the actual size.

## 1 pc./pack Electroplated Diamond File The illustrations on this page are 90% of the actual size.

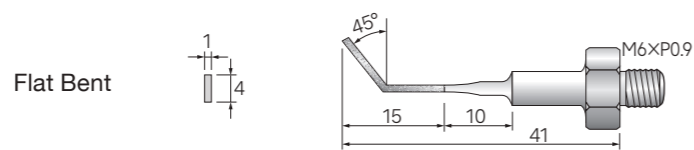


Grit Size	Code No.
#200	60101
#320	60102
#600	60103

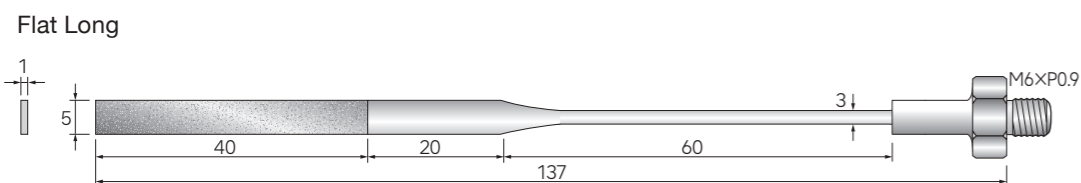


Grit Size	Code No.
#200	60105
#320	60106
#600	60107

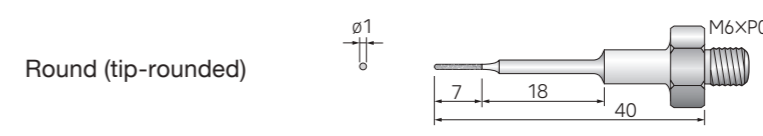
※Thickness of 60107 is 0.8 mm.



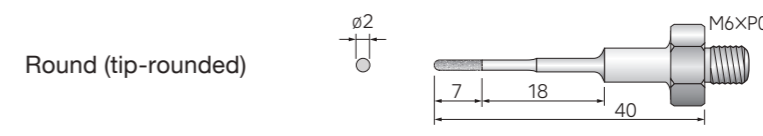
Grit Size	Code No.
#200	60111
#320	60112
#600	60113



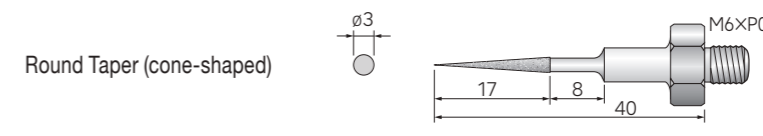
Grit Size	Code No.
#200	60115
#320	60116
#600	60117



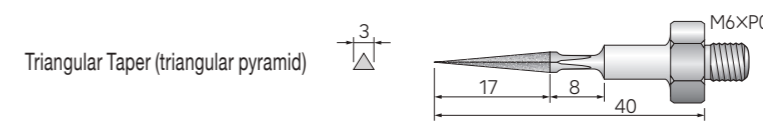
Grit Size	Code No.
#200	60151
#320	60152
#600	60153



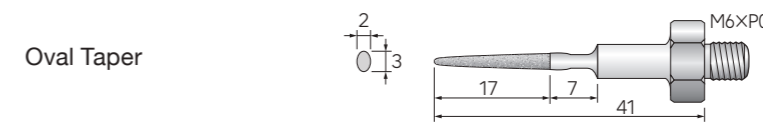
Grit Size	Code No.
#200	60155
#320	60156
#600	60157



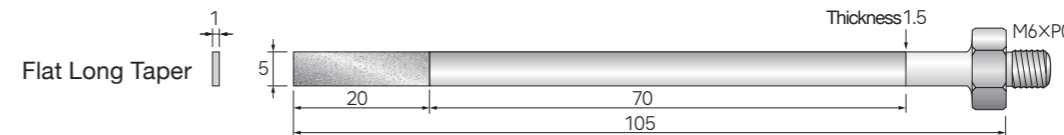
Grit Size	Code No.
#200	60181
#320	60182
#600	60183



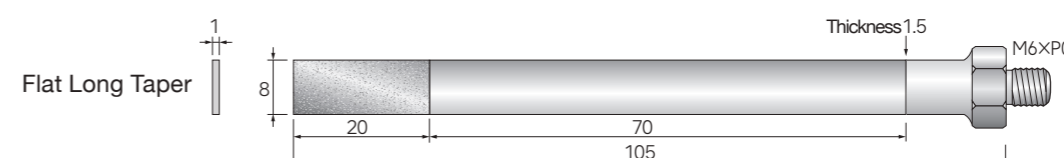
Grit Size	Code No.
#200	60185
#320	60186
#600	60187



Grit Size	Code No.
#200	60191
#320	60192
#600	60193



Grit Size	Code No.
#200	60231
#320	60232
#600	60233



Grit Size	Code No.
#200	60235
#320	60236
#600	60237

SHANK DIAMETER



These tools are specially designed for NAKANISHI's Ultrasonic Polishing System to achieve the ideal finish with powerful sonic vibrations. A wide variety of tools are available to meet all kinds of processing situations.

<Precautions for use>

Select the CLAMP / UNCLAMP mode according to the tool you are using.



Ultrasonic Polisher Sheenus ZERO

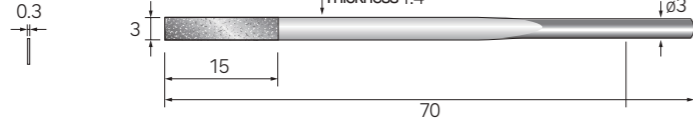
Electroplated Diamond File



- <Features>
- Diamond abrasive grains are electroplated to the file surface (electroplated coating).
  - The amount of protruding diamond grains is large, and the cutting performance is excellent.
  - We use carefully selected diamond abrasive grains and electroplate them particularly strongly for machine finishing, so they have excellent durability. It has excellent durability.
  - It is suitable for finishing of high-hardness metals such as mold steel, heat treated metal, cemented carbide, and ceramics, polishing and finishing of various molds, and deburring and correction of machine parts.

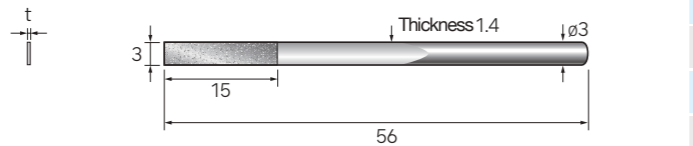
SHANK 03.0 1 pc./pack Electroplated Diamond File

Flat Taper



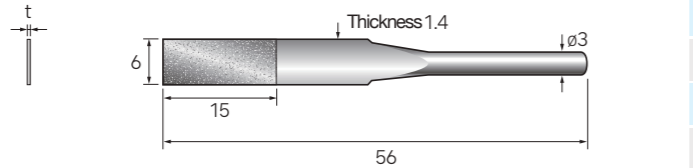
Grit Size	Code No.
#200	62301
#400	62302
#600	62303

Flat Taper



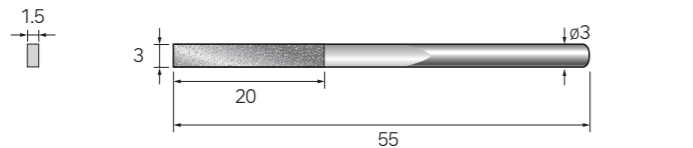
Thickness (t)	Grit Size	Code No.
0.5	#200	62801
0.4	#400	62802
0.35	#600	62803

Flat Taper



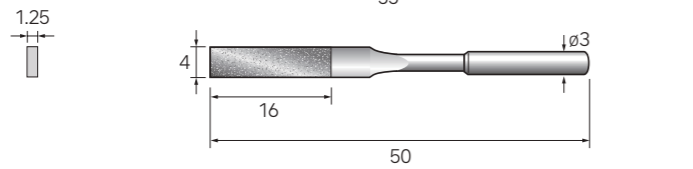
Thickness (t)	Grit Size	Code No.
0.5	#200	62805
0.4	#400	62806
0.35	#600	62807

Flat



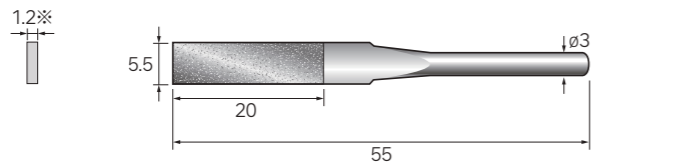
#150	62811
#200	62812
#400	62813

Flat (Single Side Electroplated)



#100	62814
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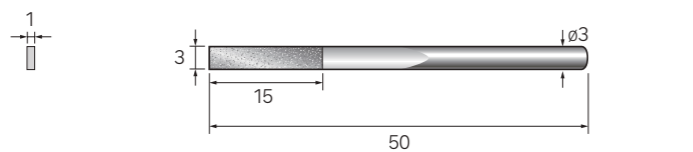
Flat



#150	62815
#200	62816
#400	62817

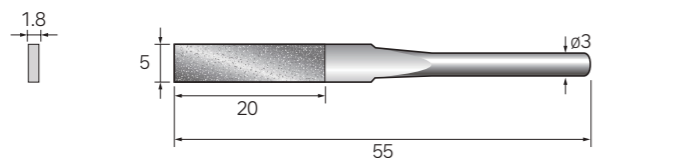
※ Thickness of 62815 is 1.4 mm.

Flat (Single Side Electroplated)



#150	62821
#200	62822
#400	62823

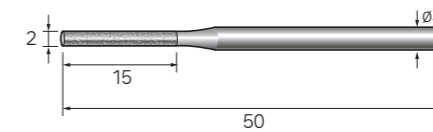
Flat (Single Side Electroplated)



#150	62825
#200	62826
#400	62827

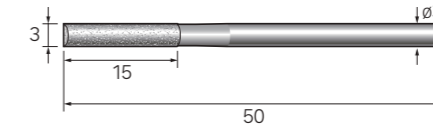
SHANK 03.0 1 pc./pack Electroplated Diamond File

Round



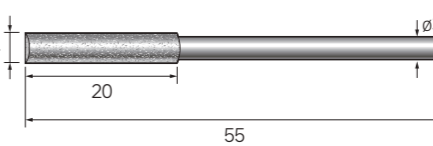
Grit Size	Code No.
#150	62845
#200	62846
#400	62847

Half Round



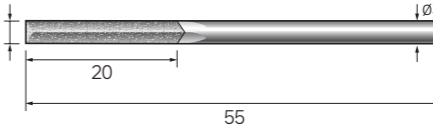
#150	62865
#200	62866
#400	62867

Half Round



#150	62871
#200	62872
#400	62873

Triangular



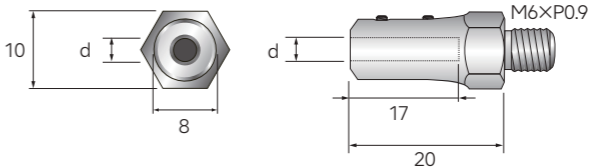
#150	62881
#200	62882
#400	62883

2 pcs./pack

Special Tip Holder



Round



Diameter (d)	Code No.
ø2.0	60911
ø3.0	60912
ø3.2	60913

Attach various round bar type tips (lapping brass tips, electroplated diamond files). Suitable for hard materials.

About Exclusive Tools for Sheenus ZERO

Highly efficient processing is realized by the tool which vibrates (longitudinal direction) at an ultrasonic speed of 22,500 times per second (22.5KHz).

Unlike mechanical vibration, the amplitude is extremely small (40μ) and the operator does not feel the vibration.

Principle: Each tool has its own natural frequency. When the ultrasonic vibration frequency matches that of the tool, the tool resonates significantly. This resonant state is maintained in a stable manner and is used as a processing force.

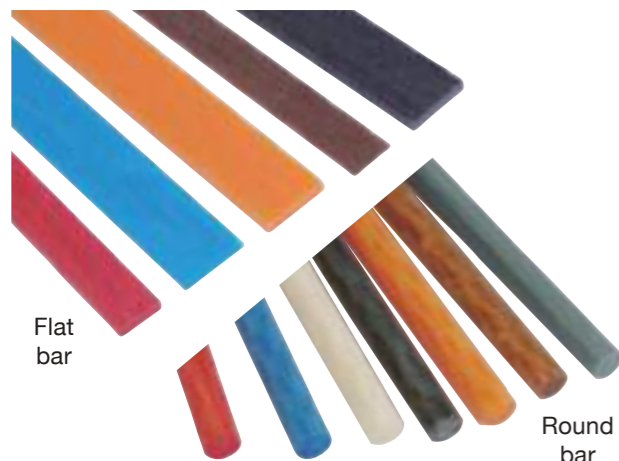
※ As the ultrasonic vibration and tool's resonant frequency must synchronize, commercially available NON-NAKANISHI genuine files and other abrasive tools may not properly vibrate. Please note that the length, thickness, material, density, weight, shape, etc. of the tool will affect the results.

These tools are specially designed for NAKANISHI's Ultrasonic Polishing System to achieve the ideal finish with powerful sonic vibrations. A wide variety of tools are available to meet all kinds of processing situations.

<Precautions for use>  
Select the CLAMP / UNCLAMP mode according to the tool you are using.



Ceramic Fiber Grindstone Tip



A ceramic fiber grindstone with both intensity and flexibility developed for finish polishing.

<Features>

- Its softness and sharpness make it possible to perform finishing with a comfort, not possible with conventional grindstones.
- Its elasticity makes it difficult to break despite its thinness, and its good grip on the surface makes it easy to work with and use.
- It provides a smooth surface without scratches, and by sharpening the tip it performs excellently for polishing fine areas and slits.

※ Please clamp it to the special tip holder (sold separately). Refer to p.5-11.

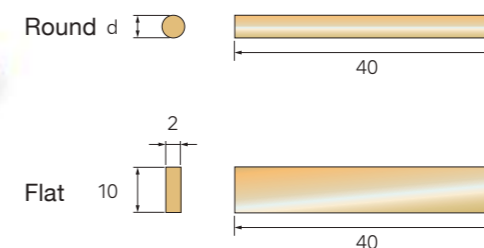
5 pcs./pack

Brass Lapping Tip



- This is a lapping tool for final finishing.
- Use with diamond compound or other abrasives.
- It is used to form according to the processing shape.

※ Please clamp it to the special tip holder (sold separately). Refer to p.5-11.



Diameter (d)	Code No.
ø2	60801
ø3	60802

60805

2 pcs./pack Ceramic Fiber Grindstone Tip



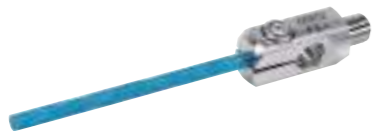
Thickness 1 mm		W=4 mm	W=6 mm
Grit Size	Color	Code No.	Code No.
# 120	Violet	60511	60516
# 220	Brown	60512	60517
# 400	Orange	60513	60518
# 800	Blue	60514	60519
# 1200	Red	60515	60520



Example of special tip holder installation



Diameter ø3		
Grit Size	Color	Code No.
# 220	Gray	60551
# 300	Mazenta	60552
# 400	Orange	60553
# 600	Black	60554
# 800	Blue	60555
# 1000	White	60556
# 1200	Red	60557



Example of special tip holder installation



Example of special tip holder installation

These tools are specially designed for NAKANISHI's Ultrasonic Polishing System to achieve the ideal finish with powerful sonic vibrations.  
A wide variety of tools are available to meet all kinds of processing situations.

<Precautions for use>

Select the CLAMP / UNCLAMP mode according to the tool you are using.



- ★ Suitable for finishing of high-hardness metals such as mold steel (removal of hardened electroplated layer, etc.) and heat treated metal. Also suitable for polishing of cemented carbide molds, aluminum molds, and copper alloy molds.
- ★ Ideal for grinding and polishing fine parts and rib slits of various molds for plastics, press, forging, headers, die-casting, etc.
- ★ It can be used for grinding and polishing ceramics, precision electronic parts, and precision mechanical parts.
- ★ It can handle a wide range of processing, from grinding of complex shapes and minute parts to mirror-polished finishes.

Special Tip Holder

<Features>

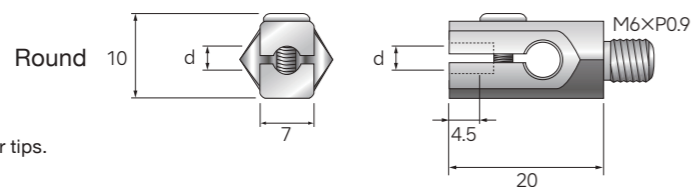
- This is a special holder for installing various types of tool tips. Please select according to the size and shape of the tip.
  - The power of the NAKANISHI "Sheenus ZERO" Ultrasonic Polishing System is efficiently transmitted to the tips.
- ※ Please be aware that NON-NAKANISHI genuine tools may not vibrate as required when mounted on the Sheenus ZERO due to the length, thickness, diameter, weight, specific gravity, and density of the tools.



2 pcs./pack Special Tip Holder



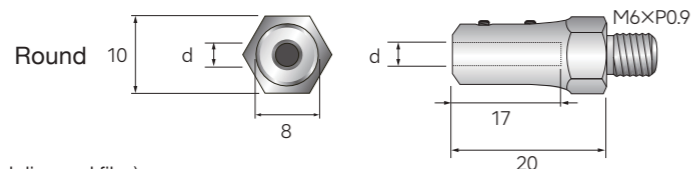
Attach round bar Ceramic Fiber tips.  
Suitable for soft materials.



Diameter (d)	Code No.
ø2.0	60901
ø3.0	60902
ø3.3	60903
ø3.2	60904



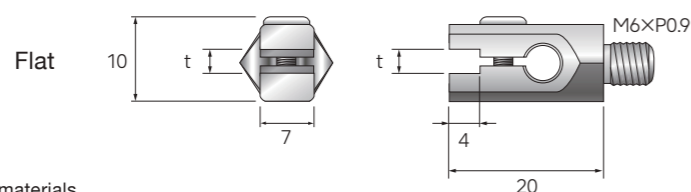
Attach various round bar tips  
(lapping brass tips, electroplated diamond files).  
Suitable for hard materials.



Diameter (d)	Code No.
ø2.0	60911
ø3.0	60912
ø3.2	60913



Attach a flat ceramic fiber tip.  
Suitable for both hard and soft materials.



Thickness (t)	Code No.
0.8	60921
1.0	60922
2.0	60923
3.0	60924
3.3	60925