TOP TECH

P20HWA-4-RC6

Intelligent Grinding & Polishing

Smart Cleaner

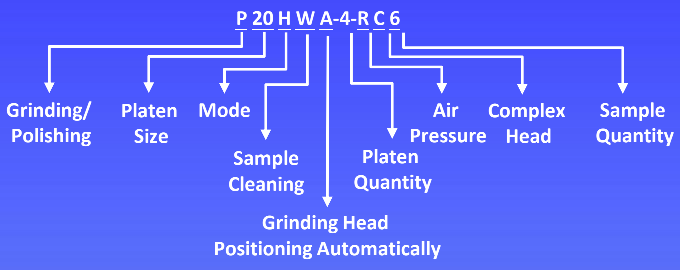
Intelligence Cleaning

Head Auto Positioning

Head Auto Positioning

Auto Calibration

Grinding Depth Adjustable



P 20 H W A-4-R C 6

Grinding/ Polishing

Platen Size

Mode

Sample Cleaning

Grinding Head Positioning Automatically

Platen Quantity

Air Pressure

Complex Head

Sample Quantity

P20HWA-4-RC6 Series

- No need to replace consumables (e.g., sandpaper, diamond discs) during grinding/polishing.
- Ultrasonic cleaning effectively prevents cross-contamination during sample preparation.
- Save nearly 95% of operator time
- Oscillating grinding head enhances grinding efficiency
- Individual force and central force
- Grinding depth can be set and auto adjustment
- Equipped with a grating safety protection device
- Digital grinding & polishing force setting

Patent

Perfect Surface. Always

Introduction & Feature

Adjustable head rotation speed

The head is equipped with a servo motor, offering excellent stability and durability. The rotation speed of the head covers a wide range, from 10 to 170 rpm, allowing flexible adjustments based on the material and characteristics of the sample to meet the requirements of various materials.

Micro-speed grinding and polishing function

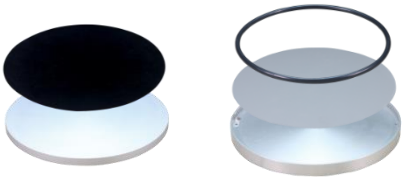
The grinding speed can be precisely adjusted to as low as 1 rpm, making it ideal for long-duration precision grinding and polishing operations, especially for sample preparation requiring zero deformation.

Individual force: Digital control and stable air pressure supply

The pressure range is from 0.5 to 6 kilograms, allowing users to precisely set the appropriate pressure based on the characteristics of the sample and preparation requirements.

Versatile platen options for various consumables

Available in two platen sizes, 8” and 10”, allowing users to select the appropriate size and type based on sample requirements and experimental conditions. Grinding platens are suitable for use with consumables like waterproof SiC papers, while polishing platens are compatible with polishing cloths. Additionally, magnetic platens are available for flexible applications, meeting diverse sample preparation needs.



Rinse and spin cleaning function

Equipped with a rinse and spin cleaning function, the machine can rapidly clean the surface of grinding and polishing consumables surface, ensuring immediate cleanliness after each sample preparation step. This design not only enhances operational convenience but also effectively reduces cleaning time, further accelerating the overall sample preparation process.

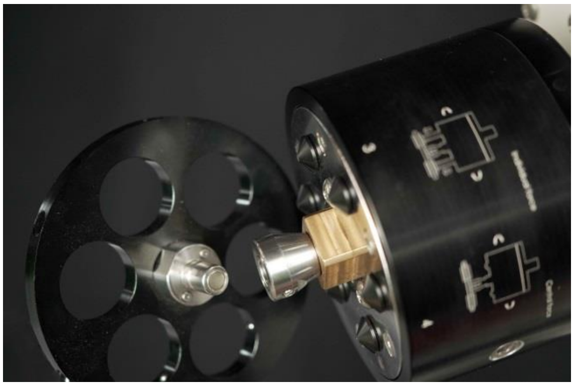
Introduction & Feature

Precision micro-pressure adjustment (Option)

An optional precision micro-pressure adjustment feature is available, with a pressure range of 0.2 to 1 kilogram, specifically designed for sample preparation requiring delicate handling. This lightweight pressure application is ideal for fragile, sensitive, or low-pressure samples, ensuring no stress damage or deformation occurs during the preparation process.

Central force

The pressure range is 0.5 to 7 kilograms, ensuring uniform force is applied to the sample during grinding and polishing, further enhancing surface flatness and consistency. Featuring a quick-release design, the sample holder can be easily removed for convenient cleaning or leveling operations.



Overload protection

Equipped with an automatic overload protection function, it monitors pressure during operation to ensure it does not exceed the factory-preset safety value. If the pressure goes beyond the safe range, the machine will immediately stop operation to prevent potential mechanical damage or sample deterioration, providing an additional protection.

Linked dispenser system

Through the human-machine interface, dosing parameters can be easily set to achieve precise and stable polishing liquid supply. Users can adjust the dosing rate and time according to the sample material and polishing requirements, ensuring controllability and high reproducibility of the polishing process.

Save nearly 95% of operator time

Compared to traditional cleaning methods, users can easily complete the sample cleaning process with the one-touch automatic cleaning function, significantly reducing the time spent on manual cleaning by nearly 60%.

Introduction & Feature

Combine grinding, polishing, and sample cleaning functions
Not only equipped with grinding and polishing capabilities, but also provides a sample cleaning function, making it a multifunctional, all-in-one sample preparation machine. After grinding or polishing, operators can directly use the cleaning function to quickly remove residual dust and polishing liquids from the sample surface, significantly saving time and improving the efficiency of the sample preparation process.

Intelligence Cleaning
After the grinding/polishing process is completed, the grinding head automatically positions itself at the cleaning tank to initiate the cleaning procedure, eliminating the need for additional manual cleaning. This significantly saves manual labor resources.

Ultrasonic Cleaning
Combining automatic ultrasonic water cleaning and drying functions, the cleaning process can be performed without removing the sample platen or samples. This prevents cross-contamination during the preparation process and significantly improves work efficiency.

Grinding depth can be set and auto adjustment
The calibration function enables precise control of grinding depth, allowing users to set the desired grinding depth through the touch panel. During the grinding and polishing process, the machine automatically adjusts the grinding depth. The grinding depth range can reach up to 5mm, with a minimum adjustment increment of 0.01mm. This feature not only ensures high precision but also provides exceptional ease of operation.

Oscillating grinding head enhances grinding efficiency
The left-right oscillation design of the grinding head effectively enhances efficiency and uniformity during the grinding process. This design enables the grinding head to cover a larger grinding/polishing area through oscillation, effectively preventing excessive wear of consumables in specific areas, extending their lifespan, and further reducing operating costs.

Environmentally friendly
Utilizes ultrasonic water cleaning to clean samples effectively without the need for chemical cleaning agents. By accelerating water molecules through ultrasonic vibrations, it penetrates the sample surface and tiny gaps, effectively removing contaminants, dust, and polishing residues. This ensures the cleanliness of the samples while reducing environmental pollution.

Introduction & Feature

No need to replace consumables during grinding/polishing
With the innovative four-platens design, users can perform grinding and polishing operations without frequently replacing consumables, optimizing the workflow. This design not only significantly reduces operation time but also minimizes labor requirements, enhancing overall grinding and polishing efficiency.

LED lighting enhances observation
The high brightness and uniform illumination design of the LED lights provide users with an excellent observation environment after grinding and polishing operations. The high brightness improves visibility, helping users quickly identify the results of grinding and polishing.

Grating safety protection device
Using a high-precision optical sensing system, this device provides safety protection for operators and equipment. By utilizing the principle of beam interruption, it instantly triggers a shutdown mechanism upon detecting foreign objects or human presence near the work area, effectively preventing accidents.

10 memory modules, each capable of storing 4 sets parameters
Equipped with a high-resolution color touch panel and an intuitive human-machine interface design, the system includes 10 memory modules, each capable of storing 4 sets different parameters. This allows users to quickly switch between and save various grinding programs with ease.

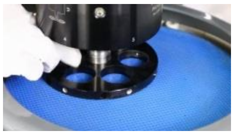
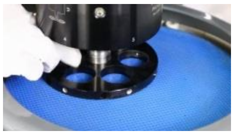
Three-color light design simplifies machine status monitoring
With a simple and intuitive three-color light design, users can quickly understand the real-time status of the machine without detailed inspections, improving work efficiency and operational convenience.

1. When the red light is on, it indicates that the machine is in an emergency stop state or has encountered an abnormal situation.
2. When the yellow light is on, it indicates that the machine is performing a homing process.
3. When the green light is on, it means the machine is in normal operation, with a stable workflow requiring no additional intervention.

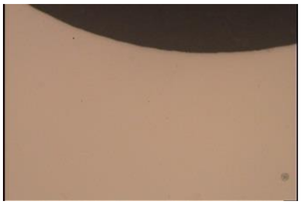
Specification

Model	**P20HWA-4-RC6**	**P25HWA-4-RC6**
Platen Size (mm)	Ø203.2 (8")	Ø254 (10”)
Platen Quantity	4	
Sample Size/Quantity	Ø25mm, Ø25.4mm, Ø30mm, Ø31.75mm, Ø32mm/ 6pcs Ø38.1mm,Ø40mm/3pcs	Ø25mm, Ø25.4mm, Ø30mm, Ø31.75mm, Ø32mm/ 6pcs Ø38.1mm, Ø40mm/3 or 4pcs Ø45mm, Ø50mm/4pcs
Individual Force **Max. Grinding Quantity**	0.5~2kg 6 pcs, 0.5~4kg 3 pcs, 0.5~6kg 2 pcs, Max. 12kg in total	
Central Force (kg)	0.5~7 (Option)	
Calibrated Depth Setting (mm)	0.01~5	
Platen Motor Power (W)	4 x 400	
Platen Rotational Speed (rpm)	1~600	
Head Motor Power (W)	200	
Head Rotational Speed (rpm)	10~170	
Head Travel Distance(mm)	80	
Cleaning Tank(set)	1	
Cleaning Method	Water & Air Pressure Drying	
Preparation Time Setting (s)	3600	
Cleaning Time Setting (s)	999	
Drying Time Setting (s)	999	
Memory Modules (set)	10 (Each set capable of storing 4 sets parameters)	
Safety Device	Grating Sets	
Water Inlet (mm)	Inner Dia.: 3/8“ (Ø9.53mm), Outer Dia.: 19/32" (Ø15.08mm)	
Water Outlet (mm)	Inner Dia.: 1-125/128“ (Ø50.2mm), Outer Dia.: 2-15/64" (Ø56.8mm)	
Control Box Dimension WxDxH (mm)	550 x 480 x1400	
Control Box Weight (kg)	41	
Machine Dimension WxDxH (mm)	2100 x 920 x 1700	
Machine Weight (kg)	967	968
Power Supply	AC220V 1Ø	
Standard Accessories	Grinding Platen 4pcs, O-ring 4pcs, Silicon Carbide Paper 8pcs, Polishing Cloth 2pcs, Aluminum Oxide Powder 100g, 500g Dispenser 4 pcs	

Preparation Process Comparison

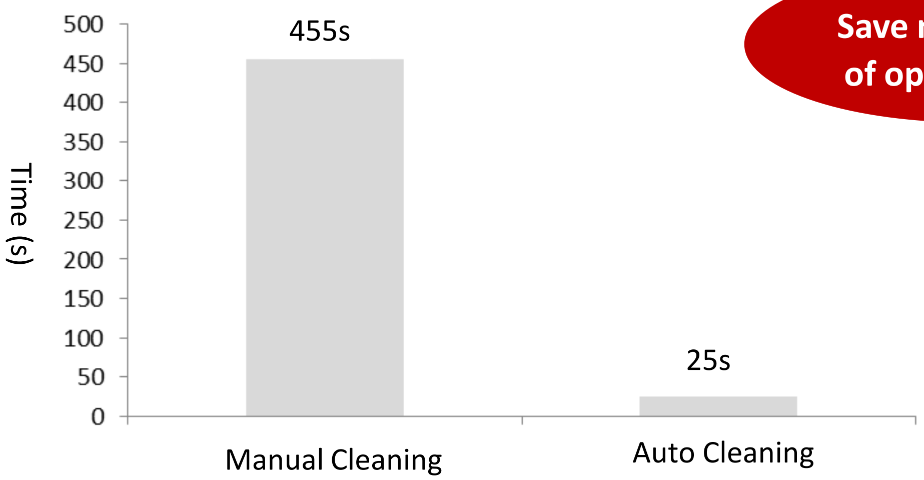
	Manual Cleaning		Ultrasonic cleaning	
Model	P20G-1-R6		P20HWA-4-RC6	
	Auto Time	Manual Time	Auto Time	Manual Time
Sample Placement		25s 		25s 
P120 Diamond Disc				
Auto Head Positioning			20s	
Grinding Time	180s		180s	
Auto Head Positioning			25s	
Cleaning time		Cleaning 70s 	Cleaning 70s 	
Platen Replacement & Sample Placement		50s 		
Auto Head Positioning			25s	
9um Polishing (Diamond Disc + 9um Diamond Suspension)				
Grinding Time	180s		180s	
Auto Head Positioning			25s	
Cleaning time		About 70s (Total time spent for 6 samples)	Cleaning 70s 	
Platen Replacement & Sample Placement		50s 		
Auto Head Positioning			25s	

Preparation Process Comparison

	Manual Cleaning		Ultrasonic cleaning	
Model	P20G-1-R6		P20HWA-4-RC6	
6um Polishing (Woven Polishing Cloth + 6um Diamond Suspension)				
Grinding Time	180s		180s	
Auto Head Positioning			25s	
Cleaning time		About 70s (Total time spent for 6 samples)	Cleaning 70s 	
Platen Replacement & Sample Placement		50s 		
Auto Head Positioning			25s	
1um Polishing (Polishing Cloth + 1um Diamond Suspension)				
Grinding Time	60s		60s	
Auto Head Positioning			25s	
Cleaning time		About 70s (Total time spent for 6 samples)	Cleaning 70s 	
Auto Head Positioning			15s	
Manual Labor Time	**The total manual labor time is 455s** • Initial sample placement: 25s • Sample cleaning: 70s per cycle, 4 cycles totaling 280s • Changing platens and placing samples: 50s per cycle, 3 cycles totaling 150s		**The total manual labor time is 25s** • Initial sample placement: 25s	
Metallographic Microstructure Image (Magnification: 50X)				

Preparation Process Comparison

Operator Time Comparison



Save nearly 95% of operator time

Note :Automatic cleaning requires no manual labor. The entire preparation process involves only manually placing the samples, which takes approximately 25 seconds.

Manual Labor Comparison: Auto Cleaning vs Manual Cleaning

Auto Cleaning → Automatic cleaning requires no manual labor. (The entire preparation process involves only manually placing the samples, which takes approximately 25 seconds.)

Automatic cleaning requires no manual labor.

Manual Cleaning → Manual Labor: 120s per cycle

Manual cleaning 35s

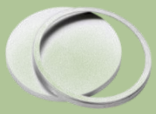
Manual drying 35s

Platen replacement & sample placement 50s

Accessories (Optional)

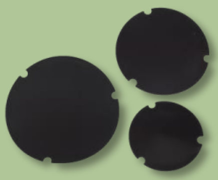
Grinding Platen

Polishing Platen



Magnetic Platen
and Paper Hold

Item	Size	Order No.
Grinding Platen (Patent)	8”	CP0601
	10”	CP0602
Polishing Platen	8”	P20D00020101
	10”	P25A00010201
Magnetic Platen and Paper Hold (Patent)	8”	CP0501
	10”	CP0502



Item	Size	Order No.
Magnetic	8”	S080101
	10”	S080102

Item	Size	Order No.
Carrier Plate	8”	S090101
	10”	S090102

Accessories (Optional)

Precise Light Force (0.2~1kg)

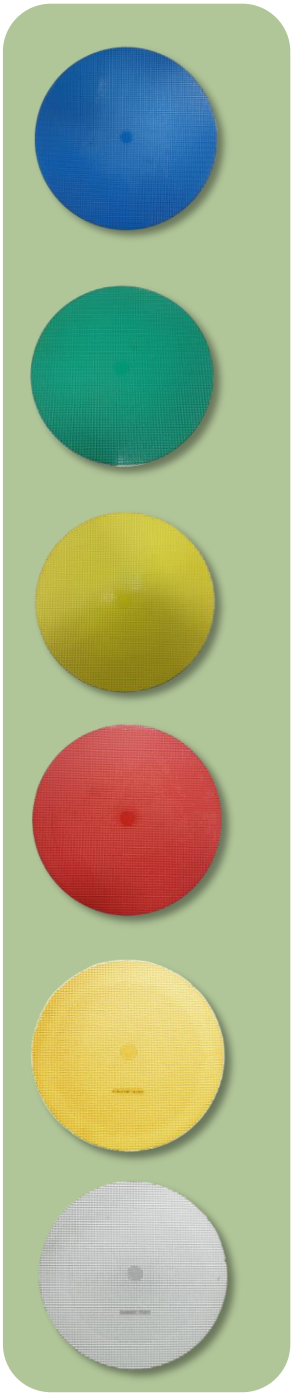
Size (mm)	Sample Quantity	Order No.
Ø25	6	PA1-D2-625
Ø25.4	6	PA1-D2-625.4
Ø31.75	6	PA1-D2-631.75
Ø32	6	PA1-D2-632
Ø38.1	3	PA1-D2-338.1
Ø40	3	PA1-D2-340
Platen 250mm only		
Ø38.1	4	PA1-D2-438.1
Ø40	4	PA1-D2-440
Ø50	4	PA1-D2-450

Central Force (3~12kg)

Size (mm)	Sample Quantity	Order No.
Ø25	6	PA1-D3-625
Ø25.4	6	PA1-D3-625.4
Ø31.75	6	PA1-D3-631.75
Ø32	6	PA1-D3-632
Ø38.1	3	PA1-D3-338.1
Ø40	3	PA1-D3-340
Platen 250mm only		
Ø38.1	4	PA1-D3-438.1
Ø40	4	PA1-D3-440
Ø50	4	PA1-D3-450

Consumable (Optional)

Diamond Disc



Ordering No.	Description		Magnetic Pad	Package (pc/box)
No. 1	Equivalent to SiC Paper of P120			
SAA09CA54020	8”	(203mm)	●	1
SAA09CA54040	10”	(254mm)	●	1
No. 2	Equivalent to SiC Paper of P240			
SAA09CA55020	8”	(203mm)	●	1
SAA09CA55040	10”	(254mm)	●	1
No. 3	Equivalent to SiC Paper of P600			
SAA09CA56020	8”	(203mm)	●	1
SAA09CA56040	10”	(254mm)	●	1
No. 4	Equivalent to SiC Paper of P1200			
SAA09CA58020	8”	(203mm)	●	1
SAA09CA58040	10”	(254mm)	●	1
No. 5	Without diamond particles, applied with diamond suspension for polishing (Suitable for general material)			
SAA09CA53020	8”	(203mm)	●	2
SAA09CA53040	10”	(254mm)	●	2
No. 6	Without diamond particles, applied with diamond suspension for polishing (Suitable for harder material)			
SAA09CA52020	8”	(203mm)	●	2
SAA09CA52040	10”	(254mm)	●	2

Consumable (Optional)

FEPA P SiC Paper (Plain Back)

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 200mm SiC Paper		
S0520002	8”(200mm)	P80	100
S0520003	8”(200mm)	P100	100
S0520004	8”(200mm)	P120	100
S0520005	8”(200mm)	P150	100
S0520006	8”(200mm)	P180	100
S0520007	8”(200mm)	P240	100
S0520008	8”(200mm)	P320	100
S0520009	8”(200mm)	P400	100
S0520010	8”(200mm)	P600	100
S0520011	8”(200mm)	P800	100
S0520012	8”(200mm)	P1000	100
S0520013	8”(200mm)	P1200	100
S0520014	8”(200mm)	P1500	100
S0520015	8”(200mm)	P2000	100

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 250mm SiC paper		
S0525002	10”(250mm)	P80	100
S0525003	10”(250mm)	P100	100
S0525006	10”(250mm)	P180	100
S0525007	10”(250mm)	P240	100
S0525008	10”(250mm)	P320	100
S0525009	10”(250mm)	P400	100
S0525010	10”(250mm)	P600	100
S0525011	10”(250mm)	P800	100
S0525012	10”(250mm)	P1000	100
S0525013	10”(250mm)	P1200	100
S0525014	10”(250mm)	P1500	100
S0525015	10”(250mm)	P2000	100

Consumable (Optional)

ANSI SiC Paper (Plain Back)

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 200mm SiC Paper		
S0520080060AU	8”(200mm)	#60	100
S0520080120AU	8”(200mm)	#120	100
S0520080180AU	8”(200mm)	#180	100
S0520080240AU	8”(200mm)	#240	100
S0520080320AU	8”(200mm)	#320	100
S0520080400AU	8”(200mm)	#400	100
S0520080600AU	8”(200mm)	#600	100
S0520080800AU	8”(200mm)	#800	100
S0520081000AU	8”(200mm)	#1000	100
S0520081200AU	8”(200mm)	#1200	100

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 250mm SiC Paper		
S0525100060AU	10”(250mm)	#60	100
S0525100120AU	10”(250mm)	#120	100
S0525100180AU	10”(250mm)	#180	100
S0525100240AU	10”(250mm)	#240	100
S0525100320AU	10”(250mm)	#320	100
S0525100400AU	10”(250mm)	#400	100
S0525100600AU	10”(250mm)	#600	100
S0525100800AU	10”(250mm)	#800	100
S0525101000AU	10”(250mm)	#1000	100
S0525101200AU	10”(250mm)	#1200	100

Consumable (Optional)

FEPA P SiC Paper (PSA Back)

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 200mm SiC Paper		
S05A20006	8”(200mm)	P180	100
S05A20007	8”(200mm)	P240	100
S05A20008	8”(200mm)	P320	100
S05A20009	8”(200mm)	P400	100
S05A20010	8”(200mm)	P600	100
S05A20011	8”(200mm)	P800	100
S05A20012	8”(200mm)	P1000	100
S05A20013	8”(200mm)	P1200	100
S05A20014	8”(200mm)	P1500	100
S05A20015	8”(200mm)	P2000	100

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 250mm SiC Paper		
S05A25006	10”(250mm)	P180	100
S05A25007	10”(250mm)	P240	100
S05A25008	10”(250mm)	P320	100
S05A25009	10”(250mm)	P400	100
S05A25010	10”(250mm)	P600	100
S05A25011	10”(250mm)	P800	100
S05A25012	10”(250mm)	P1000	100
S05A25013	10”(250mm)	P1200	100
S05A25014	10”(250mm)	P1500	100
S05A25015	10”(250mm)	P2000	100

Consumable (Optional)

ANSI SiC Paper (Plain Back)

	Size	Grain Size	Package (pcs/pack)
Order No.	Φ 254mm SiC Paper		
S05A25100600AU	10” (254mm)	#600	100
S05A25100800AU	10” (254mm)	#800	100
S05A25101000AU	10” (254mm)	#1000	100
S05A25101200AU	10” (254mm)	#1200	100

Diamond Suspension

Order No.	Monocrystalline Diamond Suspension		
S0703080902	0.1um	300ml	Dark Gray
S0703030902	1um	300ml	Blue
S0703040902	3um	300ml	Green
S0703050902	6um	300ml	Yellow
S0703060902	9um	300ml	Red

Order No.	Polycrystalline Diamond Suspension		
S0708080402	0.1um	470ml	Black
S0708030402	1um	470ml	Black
S0708040402	3um	470ml	Black
S0708050402	6um	470ml	Black
S0708060402	9um	470ml	Black
S0708070402	15um	470ml	Black

Consumable (Optional)

Oxide and Final Suspension

Oder No.	Aluminum Oxide Suspension	
S0707010902	0.05um	300 ml
S0707020902	0.3um	300 ml

Order No.	Final Polishing Suspension (Colloidal Silica)	
S0704C10902	0.04um	300 ml

Oxide Powder

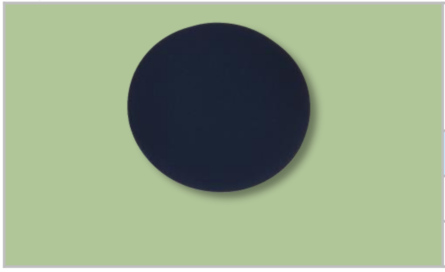
Order No.	Aluminum oxide powder	
S0701010102	0.05um	1 lb
S07010201	0.3um	1 lb
S07010211	0.3um	2 lb
S07010301	1um	1 lb
S07010311	1um	2 lb
S07010401	3um	1 lb
S07011201	5um	1 lb

Order No.	Zirconium oxide powder	
S07061009	0.5um	1 lb
S07061109	1.5um	1 lb

Consumable (Optional)

Polishing Cloths

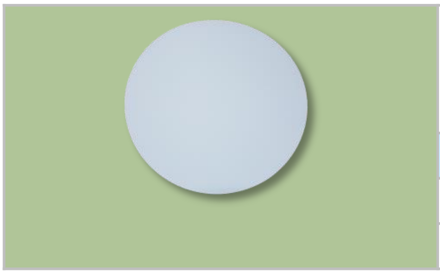
Nylon



- Flock polishing cloth used for scratch removal, and polishing as high reflective as possible, suitable for most materials
- For fine polishing, it is recommended to use 0.3-6µm polishing suspension or colloidal silica.

Order No.	Size		Packing
S060101	Ø8”	Ø203mm	10
S060102	Ø10”	Ø254mm	10

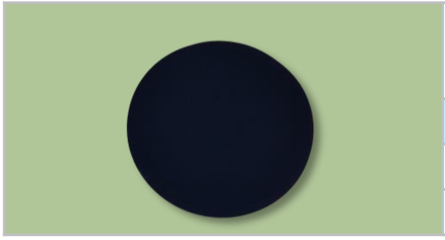
Pellon



- Non-woven, with excellent removal rate and flatness, suitable for steel, composite materials, rocks, etc
- For rough and medium polishing, it is recommended to use 6-9µm polishing suspension.

Order No.	Size		Packing
S060301	Ø8”	Ø203mm	10
S060302	Ø10”	Ø254mm	10

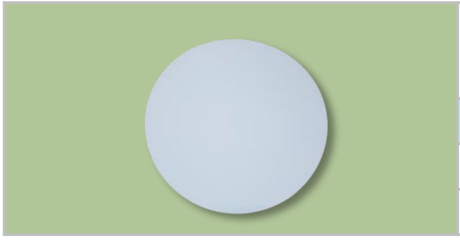
PolyPadL



- Polyurethane polishing pads, used for removing stains in chemical mechanical polishing, suitable for various metals and glass
- For fine polishing, it is recommended to use colloidal silica.

Order No.	Size		Packing
S060701	Ø8”	Ø203mm	10
S060702	Ø10”	Ø254mm	10

PolyPadH

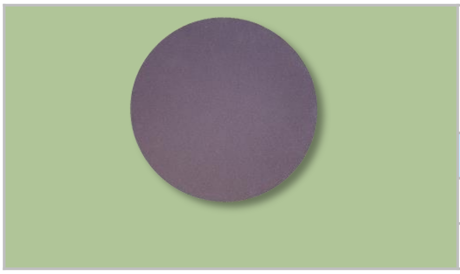


- Polyurethane polishing pads, used for removing stains in chemical mechanical polishing, suitable for various metals and glass
- For fine polishing, it is recommended to use colloidal silica.

Order No.	Size		Packing
S060801	Ø8”	Ø203mm	10
S060802	Ø10”	Ø254mm	10

Consumable (Optional)

FinalPad



- Soft fiber synthetic silk used for scratch removal, and polishing as high reflective as possible, suitable for most materials
- For fine polishing, it is recommended to use 0.3-6µm polishing suspension or colloidal silica.

Order No.	Size		Packing
S060901	Ø8”	Ø203mm	10
S060902	Ø10”	Ø254mm	10

Woven

- Woven natural fibers, with excellent removal rate and flatness, suitable for most materials
- For rough and medium polishing, it is recommended to use 3-9µm polishing suspension.

Order No.	Size		Packing
S061601	Ø8”	Ø203mm	5
S061602	Ø10”	Ø254mm	5

Top Tech distributors

TOP TECH

TOP TECH MACHINES CO.,LTD
No.6-3,Siayuan Rd.,Dali,Taichung,412 Taiwan
TEL: +886-4-2406-3799 FAX:+886-4-2406-0960
E-mail: top@toptech.tw http://www.toptech.tw

Agent

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