

# P20GWA-2-RC6

## Air-Pressure Grinding & Polishing Cleaner



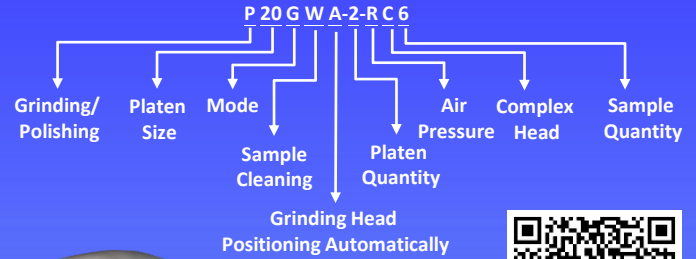
Intelligence  
Cleaning



Head Auto  
Positioning



Grinding Depth  
Auto Adjustment



## P20GWA-2-RC6 Series

**Patent**

- Combine grinding, polishing, and sample cleaning functions
- Automatic cleaning process after grinding & polishing
- Ultrasonic cleaning perfectly prevents cross-contamination during preparation
- Save over 80% of operator time
- 10 memory modules, each capable of storing 5 sets parameters
- Individual force and central force
- Grinding depth can be set and auto adjustment

*Perfect Surface.  
Always*

## Introduction & Feature

### Adjustable head rotation speed

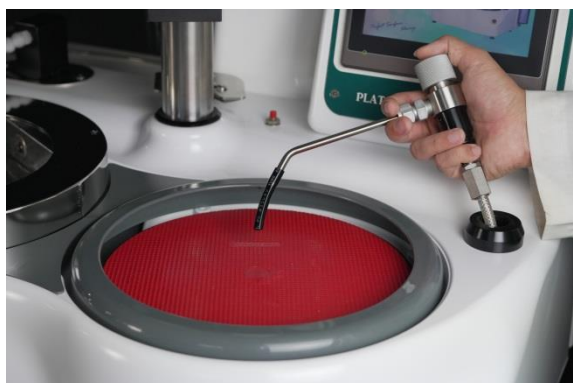
The head is equipped with a high-efficiency brushless motor, offering excellent stability and durability. The rotation speed of the head covers a wide range, from 10 to 170 rpm, allowing flexible adjustments based on the material and characteristics of the sample to meet the requirements of various materials.

### 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.

### Retractable water spray design

Designed with a focus on operational flexibility and cleaning convenience, the water spray can be adjusted and retracted as needed. This allows direct rinsing of the platen and samples during cleaning, quickly removing dust and debris left from the grinding or polishing process.



### 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.

### 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.

### 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.



## Introduction & Feature

### **Modular design**

The modular control box system can be placed either behind or beside the machine, maximizing spatial flexibility. Thoughtful quick-release design simplifies maintenance service.

### **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.

### **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.

### **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.

### **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.



## Introduction & Feature

### **Integrated dispenser system (Option)**

An external integrated dispenser system can be connected, allowing users to easily set drip bottle parameters via the human-machine interface for precise and stable supply of polishing liquids. Users can adjust the dripping rate and time according to the sample material and polishing requirements, ensuring controllability and high reproducibility of the polishing process.



### **Save over 80% 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 over 80%.

### **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.

### **10 memory modules, each capable of storing 5 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 5 sets different parameters. This allows users to quickly switch between and save various grinding programs with ease.

### **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.



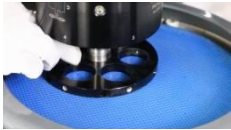
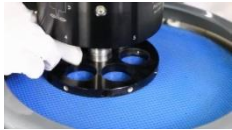







### **Environmentally Friendly**

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.







## Specification

Model	P20GWA-2-RC6	P25GWA-2-RC6
Platen Size (mm)	Ø203.2 (8")	Ø254 (10")
Platen Quantity	1	
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	0.5~2kg 6 pcs,	0.5~4kg 3 pcs,
Max. Grinding Quantity	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)	400	
Platen Rotational Speed (rpm)	1~600	
Head Motor Power (W)	50	
Head Rotational Speed (rpm)	10~170	
Head Travel Distance(mm)	55	
Head Swing Angle (°)	90	
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 5 sets parameters)	
Water Inlet (mm)	Inner Dia.: 3/8" (Ø9.53mm), Outer Dia.: 19/32" (Ø15.08mm)	
Water Outlet (mm)	Inner Dia.: 1-19/64" (Ø32.94mm), Outer Dia.: 1-29/64" (Ø36.91mm)	
Machine Dimension WxDxH (mm)	955 x 680 x 800	
Machine Weight (kg)	133	134
Power Supply	AC 110V/220V 1Ø	
Standard Accessories	Grinding Platen 1pc, O-ring 1pc, Anti-Splash Cover (Standard) 1 pc, Silicon Carbide Paper 8 pcs, Polishing Cloth 2pcs, Aluminum Oxide Powder 100g, Filter 1 set, PU Pipes 6m, 500g Dispenser 1 pc, Air Pressure Gun 1 set	
Option	PA1-F1-04A Dispenser Set, PA0108-1-V01 8" Anti-Splash Cover (For manual type), PA0108 -V01 10" Anti-Splash Cover (For manual type), PA0108-3 8" Anti-Splash Cover (For auto type), PA0108-4 10" Anti-Splash Cover (For auto type), PA0108-2 Anti-Splash Cover (Full cover), PA0110A Anti-Splash Cover (Movable), P20F0026A-1 Dosing System	

## Preparation Process Comparison

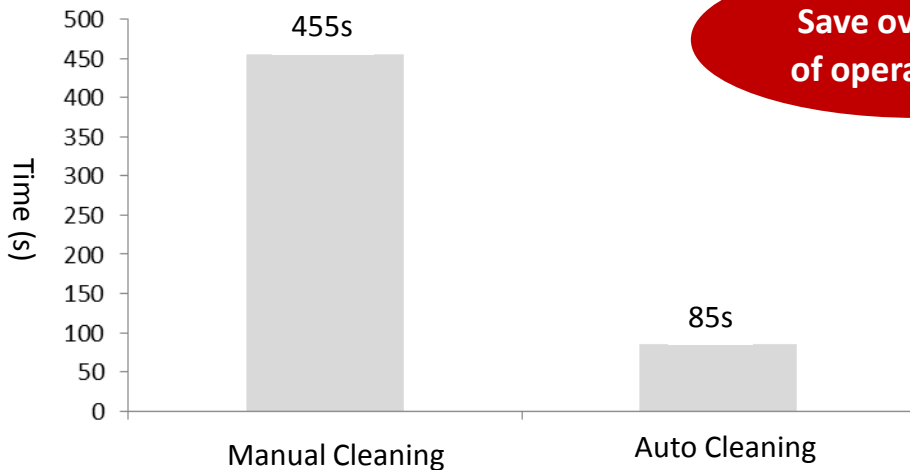
	Manual Cleaning		Ultrasonic cleaning	
Model	P20G-1-R6		P20GWA-2-RC6	
	Auto Time	Manual Time	Auto Time	Manual Time
Sample Placement	/	25s 	/	25s 
P120 Diamond Disc				
Grinding Time	180s	/	180s	/
Auto Head Positioning	/	/	30s	/
Cleaning time	/	Cleaning 70s 	Cleaning 70s 	20s (Platen replacement and auto cleaning simultaneously)
Platen Replacement & Sample Placement	/	50s 	/	
Auto Head Positioning	/	/	30s	/
9um Polishing (Diamond Disc + 9um Diamond Suspension)				
Grinding Time	180s	/	180s	/
Auto Head Positioning	/	/	30s	/
Cleaning time	/	About 70s (Total time spent for 6 samples)	Cleaning 70s 	20s (Platen replacement and auto cleaning simultaneously)
Platen Replacement & Sample Placement	/	50s 	/	
Auto Head Positioning	/	/	30s	/

# Preparation Process Comparison

	Manual Cleaning		Ultrasonic cleaning	
Model	P20G-1-R6		P20GWA-2-RC6	
6um Polishing (Woven Polishing Cloth + 6um Diamond Suspension)				
Grinding Time	180s		180s	
Auto Head Positioning			30s	
Cleaning time		About 70s (Total time spent for 6 samples)	Cleaning 70s 	20s (Platen replacement and auto cleaning simultaneously)
Platen Replacement & Sample Placement		50s 		
Auto Head Positioning			30s	
1um Polishing (Polishing Cloth + 1um Diamond Suspension)				
Grinding Time	60s		60s	
Auto Head Positioning			30s	
Cleaning time		About 70s (Total time spent for 6 samples)	Cleaning 70s 	
Manual Labor Time	<p><b>The total manual labor time is 455s</b></p> <ul style="list-style-type: none"> <li>Initial sample placement: 25s</li> <li>Sample cleaning: 70s per cycle, 4 cycles totaling 280s</li> <li>Changing platens and placing samples: 50s per cycle, 3 cycles totaling 150s</li> </ul>		<p><b>The total manual labor time is 85s</b></p> <ul style="list-style-type: none"> <li>Initial sample placement: 25s</li> <li>Changing platens: 20s per cycle, 3 cycles totaling 60s (Can be performed simultaneously during the automatic sample cleaning and drying process)</li> </ul>	
Metallographic Microstructure Image (Magnification: 50X)				

## Preparation Process Comparison

### Operator Time Comparison



Save over 80% of operator time

**Note:** During the automatic cleaning and drying process, manual platen replacement can be performed simultaneously. However, during manual cleaning process, platen replacement cannot be performed simultaneously.

### Manual Labor Comparison: Auto Cleaning vs Manual Cleaning

Auto Cleaning → Manual Labor: 20s per cycle



Platen replacement: 20s  
Can be performed simultaneously with automatic ultrasonic cleaning

Automatic cleaning  
No manual labor required

Manual Cleaning → Manual Labor: 120s per cycle



Manual cleaning  
35s



Manual drying  
35s



Platen replacement & sample placement  
50s

Note: The above data is based on Top Tech's actual testing. The time may vary slightly depending on the operator.

## Accessories (Optional)



Grinding Platen



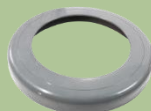
Polishing Platen



Magnetic Platen and Paper Hold



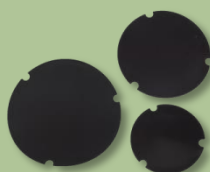
Anti-Splash Cover  
(For manual type)



Anti-Splash Cover  
(For auto type)



Anti-Splash Cover  
(Full Cover)



Item	Order No.
Dispenser Set	PA1-F1-04A
Dropping Bottle	Y09006

Item	Order No.
Dosing System	P20F0026A-1

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.
Anti-Splash Cover (For manual type)	8"	PA0108-1-V01
	10"	PA0108-V01
Anti-Splash Cover (For auto type)	8"	PA0108-3
	10"	PA0108-4
Anti-Splash Cover (Full Cover)	-	PA0108-2
Anti-Splash Cover (Movable)	-	PA0110A

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



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

#### 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

## Working Table (Optional)



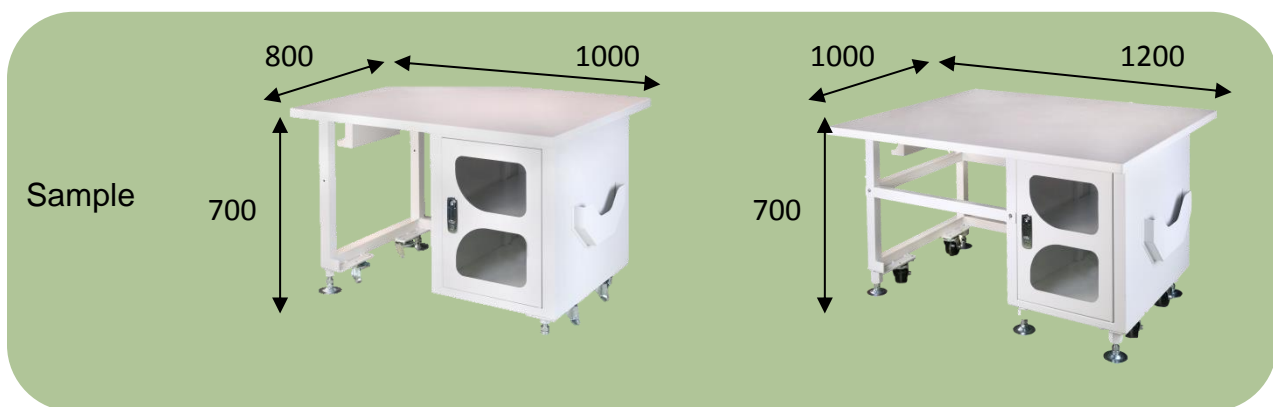
TF01

TF02

size(L\*W\*H)

1000\*800\*700 mm

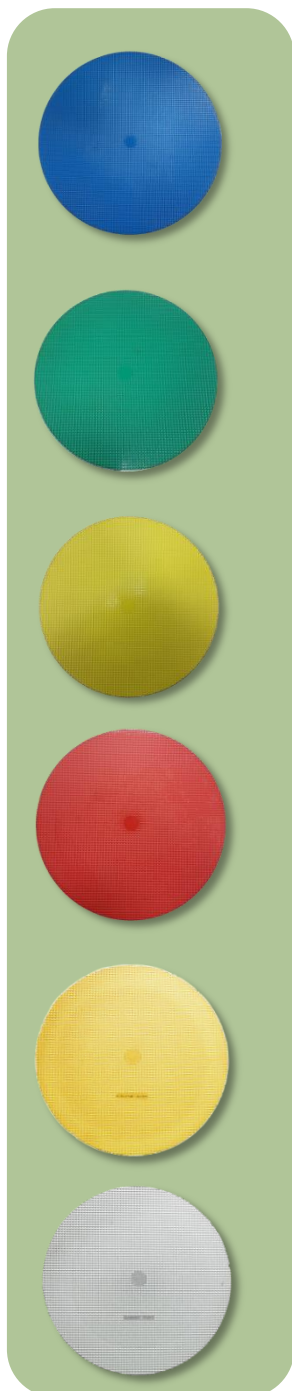
1200\*1000\*700 mm



(mm)

## Consumable (Optional)

### Diamond Disc



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

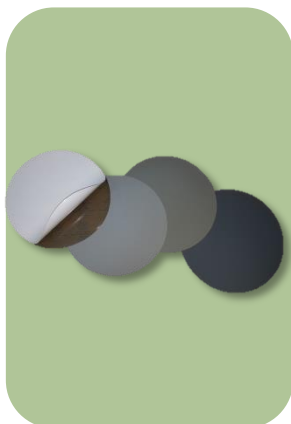


Order No.	Size	Grain Size	Package (pcs/pack)
	Φ 200mm SiC Paper		
S05A20006	8"(200mm)	P180	100
S05A20007	8"(200mm)	P240	100
S05A20008	8"(200mm)	P320	100
S05A20009	8"(200mm)	P400	100
S05A20010	8"(200mm)	P600	100
S05A20011	8"(200mm)	P800	100
S05A20012	8"(200mm)	P1000	100
S05A20013	8"(200mm)	P1200	100
S05A20014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

Order No.	Size	Grain Size	Package (pcs/pack)
	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)



Order No.	Size	Grain Size	Package (pcs/pack)
	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



Order 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 0.3-6 $\mu$ m 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 6-9 $\mu$ m 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 0.3-6 $\mu$ m 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 3-9 $\mu$ m 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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