

Global Authorized Distributor

**PIO-SHIP**



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**Kosoku**

# FUJI Grinding and Cut-off Wheels Operational Instruction



Global Authorized **Exclusive** Distributor  
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**Safety·Efficiency·Durability**

**FUJI Product**



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01

# Safety Education

# 01. Safety Education



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**1.1—Safety Consciousness**

**1.2—Protective Equipment (PPE)**

**1.3—Safe Guard**

**1.4— Nice Safety Work Area**

**1.5—Right Way to Grind and Cut off**

**Your Safety,  
Matter to us!**



**FUJI grinding wheels consistently adhere to Japan's stringent safety specifications for production and management. All grinding wheels MUST can bear 2 times of their marked maximum safety operating speed.**

# 1. Safety Education

## 1.1—Safety Consciousness

**Always keep the safety consciousness in your mind**

Grinding wheels are safe tools when they are used in accordance with some basic rules. However, if they are used incorrectly or not fitted carefully onto the machine, there is the possibility that the grinding wheel may burst and result in accidents.

Grinding wheels are designed to operate at very high speeds. Because of this, if the wheel shatters while it's in use, the fragments it creates can travel over 300 kilometers per hour! These fragments essentially become live shrapnel, and can result in material damage, serious injury, even death.

**WARNING**



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Before



After

# 1. Safety Education

## 1.2—Protective Equipment (PPE)



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**Properly use PPE to prevent accidents and ensure your safety**

**Before the grinding or cut-off operation, please wear qualified protective face shield or protective glasses, dust masks, earplugs, protective gloves, capes, aprons, safety shoes, and other necessary protective equipment according to actual working needs.**

# 1. Safety Education

## 1.2—Protective Equipment (PPE)



**Properly use PPE to prevent accidents and ensure your safety**



**No loose dressing, Long sleeves and long hairs during grinding, avoid getting caught into grinder for injury.**

**Adequate safety glasses to protect your eyes, along with a dust mask to keep the floating removed material from the wheel out of your lungs.**

**When grinding or cutting, always be sure to wear safety glasses with a side shield, or a full-face shield. Those shields could be the only thing between you and a whole lot of sharp-edged debris if something goes wrong.**



# 1. Safety Education

## 1.3—Safe Guard



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**Never remove protection guard from tools or machines**

- Keep the safe guards on your grinder in place.
- Sure, sometimes it might seem easier to work if they're not there, but they're in place for a reason!
- Those guards could be the only thing between you and a whole lot of sharp-edged debris if something goes wrong.

**Safe Guard May Avoid 90% Body Injury**



# 1. Safety Education

## 1.4— Nice Safety Work Area

### Always Have a Clean Work Area

- Throw sparks in a safe direction.
- About 1000 °C grinding sparks are hot enough to burn your skin and set fire.
- So keep work area away from flammable gas and explosive solvents, chemicals, cardboard, paper trash, woods.



**Not cause injury to yourself or someone else**

# 1. Safety Education

## 1.5—Right Way to Grind and Cut off

### Visual Inspection

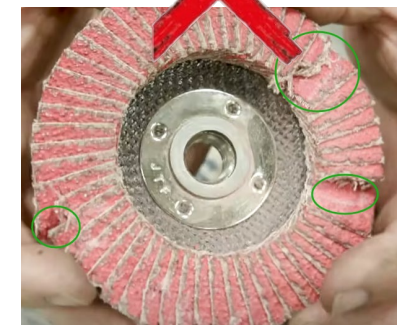
Perform visual inspection and check on the following issues before mounting wheel.

- Cracking, chipping or damage on the edge
- Label and abnormality, select the appropriate wheels as per the type of material you will be working on
- Check wear status of wheel, identify issues early
- Foreign substances on the flange connection surface

**Don't Use the Damaged Abrasives**



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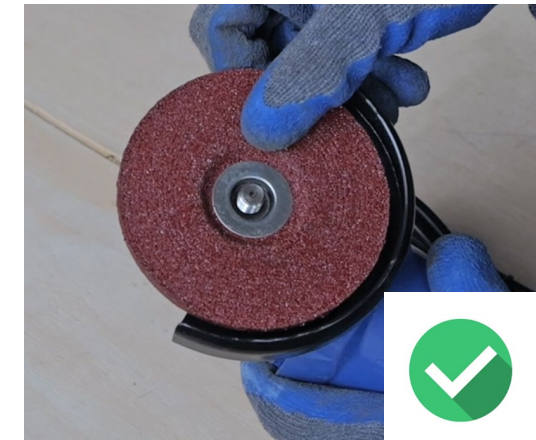
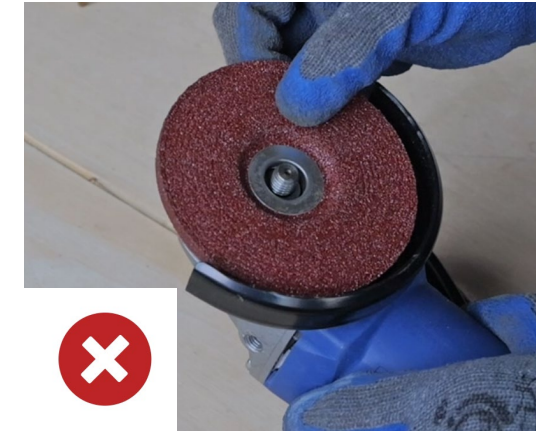
# 1. Safety Education

## 1.5—Right Way to Grind and Cut off

### The Hole (bore) Diameter Checking

- Check the bore diameter of the grinding wheel must be consistent with the diameter of the angle grinder flange. Japanese domestic standard is 15mm hole diameter for 4 inch angle grinder, while others countries keep 16mm hole diameter for the 4” angle grinder
- Do not alter or change the metal center of the arbor hole if the size does not fit the machines.

**Ensure the wheel is mounted correctly and functions properly**



# 1. Safety Education



## 1.5—Right Way to Grind and Cut off

### Test Running

Perform trial run as described below before starting operation:

- Before switching on the machine, make sure not to stand directly in front of a grinding wheel
- Perform a test run (no load) for at least 3 minutes when a grinding wheel is replaced. If there is no abnormality in the no-load running, then perform grind test. Check performance and grindability as well as safety.
- Before commencing grinding, perform a test run for at least 1 minute even though the wheel has passed the test run before.

**Check for any abnormalities, vibrations, or unusual sounds before official grinding**

# 1. Safety Education

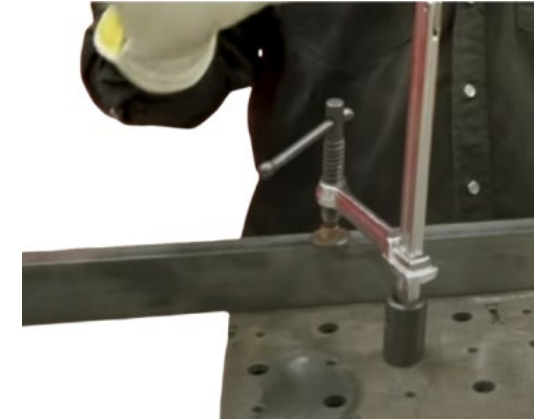
## 1.5—Right Way to Grind and Cut off

**The workpiece must be fixed well before starting**

- Make sure the piece you are working on is completely fixed or clamped down
- Put the small parts in a vise or clamp for fixing
- Two hands should be on the grinder at all times
- Forbidden to hold the workpiece with one hand while grinding or cutting with the other



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# 1. Safety Education

## 1.5—Right Way to Grind and Cut off

### Max. Safety Operating Speed

- The biggest factor affecting safety is the internal stress caused by centrifugal force. Excessive speed will produce internal stress exceeding its strength which can result in a wheel breakage.

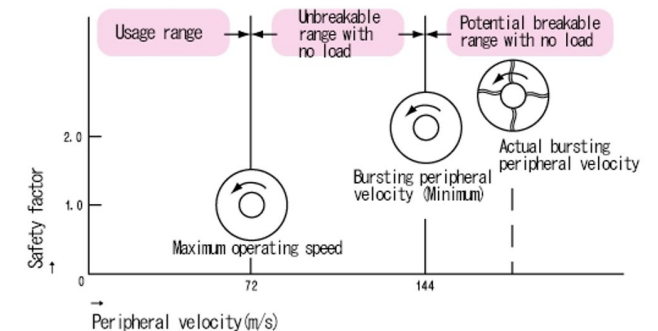
- FUJI make sure that the actual bursting peripheral velocity is more than 2 times of the max operating speed for ensuring safety, even reach 30000 R.P.M without breakage.

Some brand products often fail to reach the industry required safety speed, 1.7 times of their marked max. operating speed.

**In any case, do not exceed the safe operating speed shown on your wheel of choice.**



Destructive Test

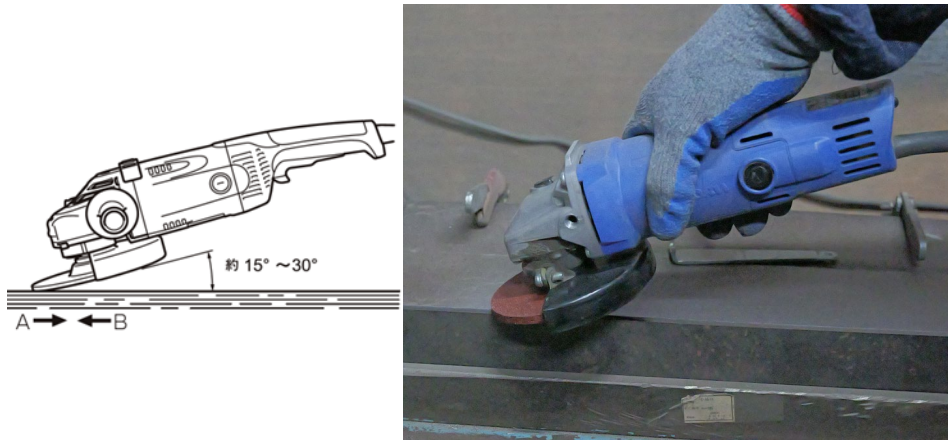


# 1. Safety Education

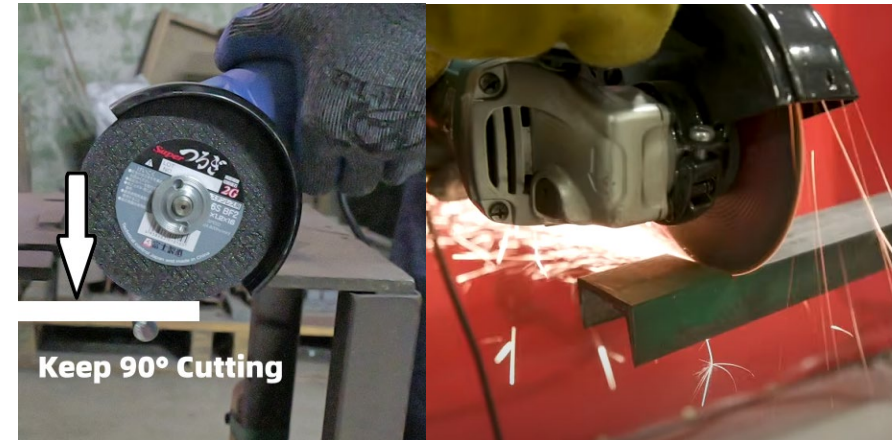
## 1.5—Right Way to Grind and Cut off

### Grinding and Cutting Angle

- The correct grinding angle is to make the working surface of the grinding wheel 15 to 30 degrees with the workpiece



- The right cutting angle is to keep 90°, the cutting disc vertical to the workpiece
- Other angle may make the cutting slower, even damage the wheels



# 1. Safety Education



## 1.5—Right Way to Grind and Cut off

### How much force is applied for grinding and cutting

- Fuji grinding wheels do not require heavy grinding. A good grinding effect can be achieved with only just the machine's own weight or slight force.
- Grinding Sequence: drag back and then push forward, back and forth, keep same motion
- Don't push too much force on the grinder, let the wheel do the work
- Don't hit (strike) the workpiece with cutting wheel
- Keep same light force for cutting



**The harder you push on wheel, the less work it's goanna do okay**

# 1. Safety Education

## 1.5—Right Way to Grind and Cut off

### Other Precautions

- Putting too much pressure on the grinding wheel may burn up your grinder and speed up the abrasives consumption

- Avoid using the same grinding wheel for different materials

These grinding wheels, which are saturated with iron, should not be used for grinding stainless steel. When used on stainless steel, they can contaminate the material with iron from the carbon steel, leading to oxidation. To prevent this issue, always mark wheels that are designated for stainless steel use only

- Don't touch the ground workpiece directly with your bare hands, otherwise there is a risk of burns

- Don't use the backside of wheel for grinding



02

# Product Introduction

# 2. Product Introduction



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## 2.1—Product Category

## 2.2— Popular Model for Recommendation

## 2.3—Product Label Information

**Safety·Efficiency·Durability**

**FUJI Product**



All Fuji products adhere to Japanese standards, ensuring exceptional safety, efficiency, and durability. We believe that our products will significantly enhance your work efficiency, reduce production costs, and ensure maximum safety and productivity, ultimately adding value to your business.

# 2. Product Introduction



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## 2.1—Product Category

**Grinding Wheels**



**Angle Grinder**



**Cut-off Wheels**



**High Frequency Power Tools**



**Metal/Cut-off Machine**



## Total Product Line Up

Welcome to purchase Fuji products! We offer an extensive range of high-quality cut-off and grinding wheels, ensuring that you can always find the right product for your application. All of our products are manufactured in our own factory in accordance with Japanese standards, guaranteeing the highest quality and maximum safety.

## 2. Product Introduction



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### 2.2— Popular Model for Recommendation

**Super-F2  
Grinding Wheel**



**Super Tsurugi  
Cut-off Wheels**



We would like to recommend two of our popular products for you,  
the most used representative **RESIN Bonded** grinding wheel and cut-off wheel from FUJI

# 2. Product Introduction



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## 2.2— Popular Model for Recommendation—Grinding Wheel

**Super-F2**  
**100/180mm**  
**Grinding Wheel**



**Our most popular grinding wheel, Super-F2 is a great option for stock removal of general steel**

### Super F-II Specification

Dimensions (Outer Dia. x Thickness x Hole Dia.) mm	Type	Package Qty (Pcs/Carton)	Max. Peripheral Speed
100 x 6 x 16 (4 inch)	AWA24P BF	200 (25x8)	72m/s (4.300m/min)
180 x 6/7 x 22 (7 inch)		50 (25x2)	

### Super F-II Applications:

**General Steel**

**Cast Iron**



**There are several other grit material of grinding wheels with different size, which will give you plenty options to meet your grinding needs, please contact us for details**

# 2. Product Introduction



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## 2.2— Popular Model for Recommendation—Grinding Wheel

### Super-F2

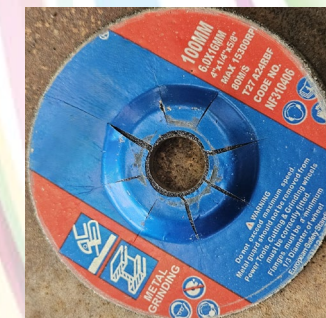


surface pore is clear



The economical Super-F2 grinding wheel, made from durable aluminum oxide coarse grains, delivers aggressive performance and longevity for stock removal on a wide range of general metals. It offers most bang for your buck, saving you both time and money.

Unlike other companies, Fuji does not cover the surface of its grinding wheel with a full sticker, as this would adversely affect the product's air permeability and heat dissipation. Our products are engineered to effectively minimize heat buildup and prevent thermal damage to the workpiece.



**NOT Recommend**

Fuji's grinding discs are designed to be flexible and effectively reduce vibration during the grinding process. Operators can complete their grinding tasks easily and efficiently, without the need for excessive force.

# 2. Product Introduction



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## 2.2— Popular Model for Recommendation—Cut off Wheel

**Super Tsurugi**  
**105mm**  
**Cut-off Wheels**

### Super Tsurugi Specification

Dimensions (Outer Dia. x Thickness x Hole Dia.) mm	Type	Package Qty (Pcs/Carton)	Max. Peripheral Speed
<b>105 x 1.0 x 16 (4 inch)</b>	<b>A36S BF2</b>	<b>200 (10x20)</b>	<b>80m/s (4,800m/min)</b>



### Super Tsurugi Applications:

**Thin metal sheet, pipe, rod of General Steel/Stainless Steel/Aluminum, etc.**



**There are several other larger size (305/355/405mm) of cut off wheels for metal cutting machine, if you have the needs, please contact us for more details**

# 2. Product Introduction



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## 2.2— Popular Model for Recommendation—Cut off Wheel

### Super Tsurugi 4" Cut-off Wheels



- Ultra Thin to offer a smooth sharp cutting ability
- Double reinforced glass fiber ensure max. cutting safety
- Fast Cut-off capability on every ferrous metal
- Provide extra longevity while maintaining good cut-off finishing, not require for retrim
- Reduce consumption loss and the frequency of disc replacement
- Offer a very economical expense



**Cut off 12mm metal plate**

# 2. Product Introduction



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## 2.3 —Product Label Information

### Description of Marking

**Abrasives**

- A = Brown Aluminium Oxide Grains
- SA = Single Crystal
- WA = White Aluminium Oxide Grains
- C = Black Silicon Carbide Grains
- GC = Green Silicon Carbide Grains
- Z = Zirconia Grains
- SG = Ceramic type

**Grit No.**

Coarse ← Grit → Fine  
24 36 46 60 80 100

**Hardness**

Soft ← Hardness → Hard  
N O P Q R S

**Type**

- B = Resin Bond
- BF = Fiber Glass Reinforcement Cut-Off Wheels
- BF2 = 2 Fiber Glass Reinforcement Cut-Off Wheels
- BF3 = 3 Fiber Glass Reinforcement Cut-Off Wheels

Firstly, please understand what our product code stands for. The left “Description of marking” will help you get familiar with our products soon.

Make sure to select the appropriate wheels as per the type of material you will be working on.

### APPLICATIONS OF ABRASIVES

ABRASIVES	APPLICATIONS
A	general steel, pure steel
WA	alloy steel, tool steel, quenched steel, precision grinding
AZ	tough materials
AWA	general materials
C	grinding of nonmetal, cast iron & precision grinding
GC	grinding of ultra-hard alloy

## 2. Product Introduction



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### 2.3—Product Label Information

**Here is an example:**



**These information may include:**

**Model No.: Super Tsurugi**

**Lot No.:206303**

**Application: Metal & Stainless Steel**

**Size:105\*1.0\*16mm**

**Abrasive Grain: A (Aluminum Oxide)**

**Grit: 36 (coarse)**

**Bond & Fiberglass Mesh: 2 layer**

**Hardness: Grade S (hard)**

**Max. R.P.M. Speed:80m/s (4800m/min)**

**Safety Reminder**

**Manufacturer Info.**

03

# Strengths & Features

# 3. Strength & Features



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**3.1— Safety**

**3.2— High Quality**

**3.3— High Working Efficiency**

**3.4— Durability**

**3.5— User Friendly**

**3.6— Rapid Heat Dissipation**

**3.7— Excellent Economical Benefit**

**FUJI, the only Japanese manufacturer that has integrated the production and sales of grinding and cut-off wheel, angle grinder and metal cut-off machine by itself at the same time**



# 3. Strength & Features



## 3.1— Safety

**Safety is the biggest benefit and your safety is utmost importance to us.**

**FUJI Grinding Wheel consistently adhere to high-quality standards and meet with Japan's stringent safety specifications for production and management. All grinding and cut-off wheels must withstand 2 times of the maximum safety operating speed, even can reach 30000 RPM without breaking.**

**Bursting Speed Test  
30000 RPM  
without breaking**



# 3. Strength & Features



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## 3.1 – Safety

**Safety is the biggest benefit and your safety is utmost importance to us.**

**Meanwhile, some branded products are labeled with a max. speed of 80 m/s and EN12413; however, the actual products often fail to meet the minimum bursting speed factor of EN (1.73 times of the max. operating speed), posing significant risks of bursting.**

### Comparison Test Between Fuji and Other Brand

100×6mm Grinding Wheel	Brand U	Brand J	FUJI
Max. RPM	25453	21273	30000
Result	Broken	Broken	No damage
Picture			



# 3. Strength & Features



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## 3.2— High Quality

**from the 1st to the 1,000,000th pcs of wheel, we consistently maintain the same highest quality**



**FUJI Grinding Wheel consistently adhere to high-quality standards in accordance with Japanese strict specifications for production and management. In the past 70 years, FUJI has always focused on safety and quality enhancement, delivering high-quality products to a diverse range of customers.**

**All of our products were manufactured in the own factory, not through OEM supplier as some western famous brand, we can guarantee each piece of our wheel has the superior quality.**

**Actions speak louder than words, we would like to make performance comparison test with other brand products.**



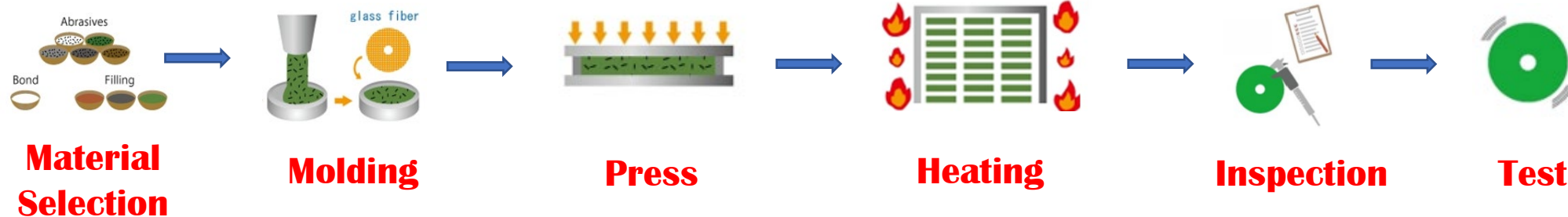
# 3. Strength & Features



## 3.2— High Quality

**from the 1st to the 1,000,000th pcs of wheel, we consistently maintain the same highest quality**

**FUJI Grinding Wheel consistently adhere to high-quality standards in accordance with Japanese strict specifications for production and management.**



**Our specially matched grit and innovative bond systems combined with our unique processing method ensure optimum quality.**

# 3. Strength & Features



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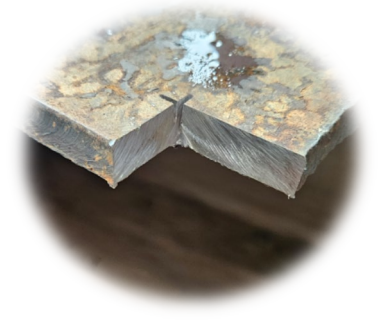
## 3.3— High Working Efficiency

**High efficiency grinding and cutting, faster and better**

**Faster grinding and cutting means more parts are processed in less time. Grinding and cutting more parts over a given time increases production capacity and overall productivity.**

**Extensive testing has shown our grinding and cut-off wheels boosts productivity as it removes more material faster meaning fewer disc changes, effectively grinding down process cost.**

**Achieve optimum surface finishing once time, no need for rework, save your time**



# 3. Strength & Features



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## 3.4— Durability

**FUJI products are engineered for durability, and maximum productivity**

**The benefits of longer product life are fewer abrasive changes, which means less downtime replacing the old wheels with new and starting over.**

**However, the major benefit is the reduction in abrasive consumption. Consuming fewer abrasives means lower consumable cost per part.**

**Lower wear rate allows longer working time, provides extra longevity while maintaining ultimate aggression, ensures the maximum productivity.**



# 3. Strength & Features



## 3.5— User Friendly

**Less force, less vibration; less clogging and dust scattering**

**FUJI's grinding wheel has excellent balance, flexibility and appropriate hardness, less aggressive force is required to do the work, the amount of material can be removed off easily, minimizing operator fatigue**

**The built-in glass fiber and special pore structure can absorb vibrations very well and reduces vibration damage to the human arm**



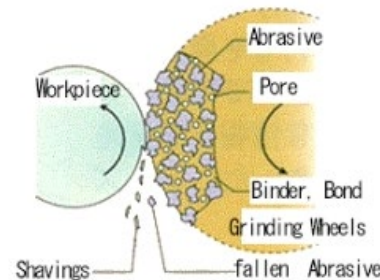
# 3. Strength & Features



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## 3.6— Rapid Heat Dissipation

**Our specially matched grits and innovative bond systems help to significantly reduce heat generation, less heat stress on heat-sensitive metals, avoid the thermal damage and discoloration to the workpiece, no need for rework.**



**Debris fall in the pores and are discharged while the rotations of wheel, the specially formulated abrasives acts as a cooling lubricant to take away the heat, and keep the temperature low, so that metal do not become “gummed up”, and stainless does not “blue over”**

# 3. Strength & Features



## 3.7— Excellent Economical Benefit

**Deliver high-quality results for your metal working application**

- Lower consumable wheels cost
- Shorten the production cycle
- Save the labor cost, time and money
- Reduce waste and the power consumption
- Extend the grinder the lifespan
- Grinding down the overall process cost
- Achieve maximum productivity, and add value to your business



04

# Test Record

# 4. Test Record



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**4.1— Grinding Wheel Performance Test Record**

**4.2— Key Points of Grinding Comparison Test**

**4.3— Recommendation Test Duration**

**4.4— Important Indicators Explanation**

**4.5— Some Performance Comparison Cases**

**Actions speak louder than words, we would like to make performance comparison test with other brand products.**



# 4. Test Record



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## 4.1 – Grinding Wheel Performance Test Record

Grinding Wheel Performance Test Record												
Grinding Metal Material: Carbon Steel						Test Date: 2024.12.4						
Lot No.: 2411204			Name: Super F2			Dimensions: 100X6mm			Customer: workshop			
Grinding Wheel Details			Grinding Wheel Weight (g)			Material Weight (g)			Grinding Time (min)	Grinding Ratio	Grinding Amount per Min (g)	Remarks
Weight	Thickness	Balance	Before	After	Consumption	Before	After	Consumption				
108.7	60.5	0.6	108.7	89.8	18.9	1156	1068	88	5	4.66	17.6	
				80.1	9.7		992	76	5	7.84	15.2	
				72	8.1		915	77	5	9.51	15.4	
				63.8	8.2		843	72	5	8.78	14.4	
				56.3	7.5		782	61	5	8.13	12.2	
				49.5	6.8		731	51	5	7.50	10.2	
			Total			59.2			Average			
						425			7.74			14.17



6 cycles grinding  
(5min/cycles)



For grinding performance tests, you may need a stopwatch to time it



# 4. Test Record



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## 4.2— Key Points of Grinding Comparison Test

1. From the beginning to the end of the test, keep the operating force consistent and the grinding speed balanced.

2. Keep the same grinding time (it is recommended to be 5 minutes per cycle) and repeat the operation.



3. Before the test and after a grinding cycle, weigh the iron parts and grinding wheels respectively. The difference weight before and after is the amount of iron grinding off and grinding wheel consumption in one cycle (5 minutes).

**Due to the difference in grinding wheel design and manufacturing process, the evaluation of the quality of a grinding wheel cannot be based on the data obtained in one cycle. It is better to conduct multiple cycles of testing and judge by the average value.**

# 4. Test Record



## 4.3— Key Points of Grinding Comparison Test

### Recommendation Test Duration:

4-inch (100mm) grinding wheel grinding for no less than 4 cycles (20 minutes in total)

5-inch (125mm) grinding wheel grinding for no less than 6 cycles (30 minutes in total)

7-inch (180mm) grinding wheel grinding for no less than 8 cycles (4 minutes in total)

**Note:** Some brands grinding wheels on the market may not reach the minimum test cycle request, so they can be compared according to the actual shortest grinding time.



# 4. Test Record



## 4.4— Key Points of Grinding Comparison Test

1. The amount of metal ground off per unit time (total weight of metal ground off (g)/time (min), which indicates the grinding efficiency of the grinding wheel.

2. **Grinding Ratio** (total weight of metal ground off/total consumption of grinding wheel), which means how many grams of metal can be ground off by 1 gram of abrasive, indicates the service life of the grinding wheel.

3. The remaining weight of the grinding wheel (remaining diameter). Indicates the grinding wheel's ability for continue grinding.

### **Recommended grinding wheel discarded size:**

φ180 grinding wheel wear limit is about 110mm (white ring)

φ125 grinding wheel is about 82mm

φ100 grinding wheel is about 78mm



φ180



φ100

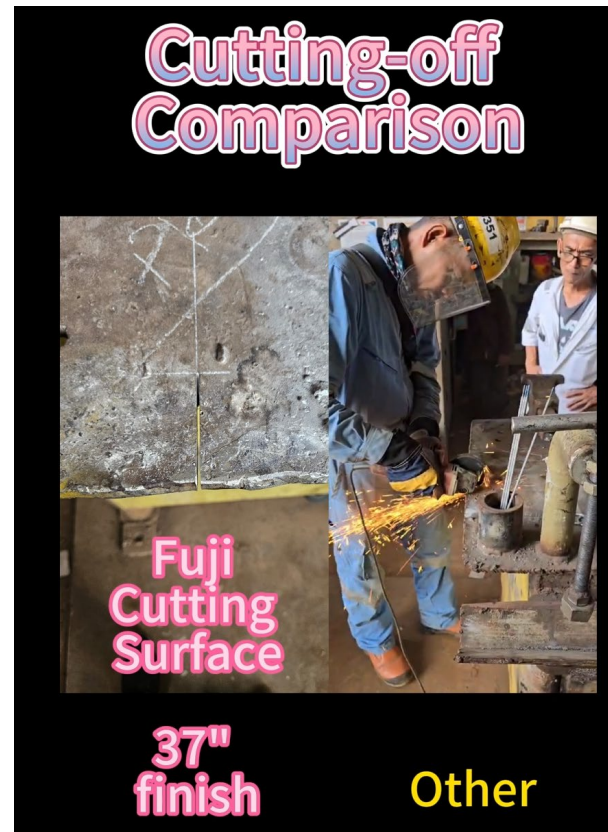
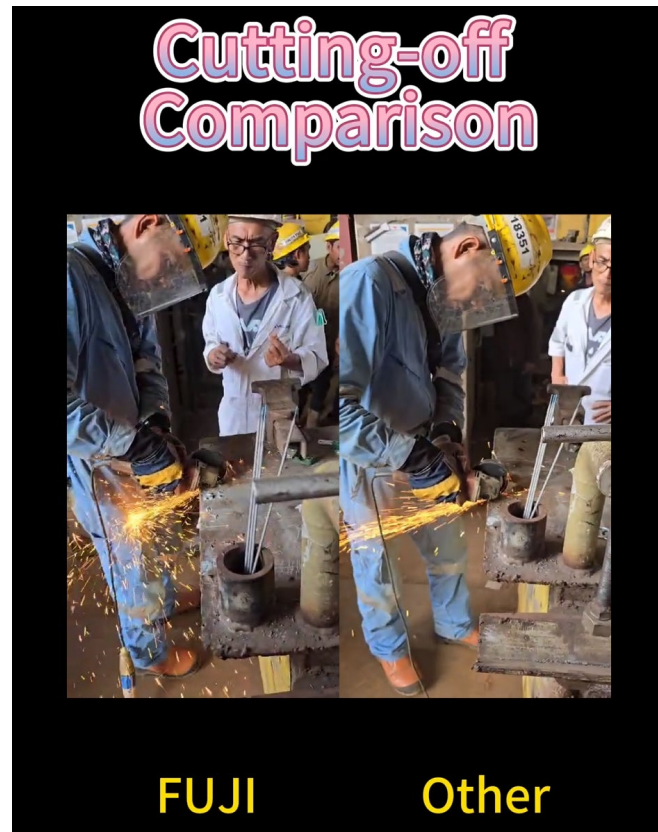


# 4. Test Record



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## 4.5— Some Performance Comparison Cases made by customer



**High efficiency grinding and cutting, faster and better**

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# Thank You

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whatsapp



Wechat



εχθες το κομμάτι με τη ληπ