

**The Welding
Accessory Experts™**



Piranha 3 Heavy-duty Tungsten Grinder Operations Manual

Arc-Zone.com, Inc.

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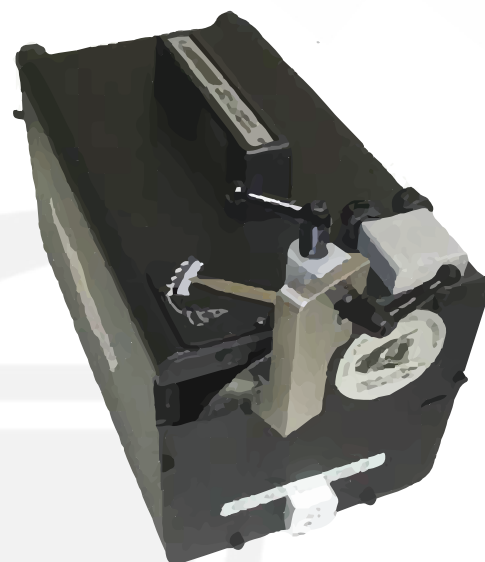
ArcZoneVideos

Thank you for purchasing the Piranha 3 Heavy-duty Precision Tungsten Electrode Grinder from Arc-Zone.com. Your new grinding machine is made in the USA and comes with a one-year warranty against manufacturing defects.

Piranha 3 Heavy-duty Precision Tungsten Electrode Grinder

Benefits:

- Solid, compact and durable construction, no vibration
- Can be used in horizontal or vertical position
- Longitudinal grinding for improved arc stability
- Consistently grinds electrode sizes from: .040" (1.0mm) to 3/16" (4.8mm)
- Included grind angle scale for quick setup and repeatability
- Electrode guide for consistent square-end (tip-flat) grinding
- Electrode notching slot, simplifies electrode cutting



Unpacking

Arc-Zone® takes great pride in producing and delivering quality products. If your product was damaged in transit, please contact your Arc-Zone® account manager immediately.

After unpacking your new grinder, you should have these items:

- The Piranha 3 Heavy-duty Tungsten Grinding Machine from Arc-Zone
- Two Allen wrench's sizes 7/64" and 1/8" for removing wheels.
- Operations manual, and other materials. Please read manual before proceeding.

Place the grinder on a flat surface with enough free space on each side for proper ventilation and to allow you to comfortably prepare electrodes. Make sure the power switch is in the off position (pointing down) plug the grinder into a "grounded" electrical outlet. Switch the power on and you are ready to begin preparing precision ground electrodes!

Description

The Arc-Zone® Heavy-duty Precision Tungsten Grinding Machine is an affordable solution for preparing precision ground tungsten electrodes quickly and easily. Precision electrode grinding benefits:

- Long-lasting diamond wheel delivers consistent high-quality longitudinal ground finish.
- Comprehensive included grind angle (taper) adjustment up to 60°.
- Tip-flat grinding option allows for simple tip-flat preparation.
- Universal collet accommodates .040" (1.0mm), 1/16" (1.6mm), 3/32" (2.4mm), 1/8" (3.2mm,



5/32" (4.0mm) and 3/16" (4.8mm) electrodes.

- Tungsten notching -- cutting option.

The Piranha 3 Heavy-duty Precision grinding machine allows operators to diamond grind electrodes consistently and accurately for improved weld quality and increased productivity. Precision ground electrodes deliver extended arctime, minimized arc wander, electrode spitting, shedding and weld inclusions.

Specifications

Motor: ¼ HP- 3000 RPM - 2.5 Amps – 115 Volts @ 60 HZ

Optional 220Volt, 50/60 Hz motor available, specify when ordering.

Grinding Wheels: Single sided diamond impregnated: Available in 300, for electrodes from 3/32" (2.4mm) to 3/16" (4.8mm) and 600 grit, for electrodes from .040 (1.0mm) to 1/16" (1.6mm)

Weight: 38lbs. (83.6kg)

Warranty

The Piranha 3 Heavy-duty Precision Tungsten Grinder from Arc-Zone.com comes with a one-year parts and labor warranty (excluding diamond wheel). This warranty excludes "excessive" abuse or improper handling. Note: This is a precision machine and should be treated accordingly.

Safety information

Read Safety Precautions Carefully

Note: This Precision Machine Is Designed To Grind Tungsten Electrodes Only!

- When not grinding electrodes, turn grinder off for safety purposes decreased wear on the precision electric motor.
- Wear proper safety apparel. Do not wear loose clothing, neckties, rings, bracelets, or other jewelry, which may get caught in the machine.
- Wear safety glasses and face mask.
- Never operate power tools when tired, intoxicated, or when taking medication that cause drowsiness.
- Use a grounded three-prong-plug, and plug directly into a three-prong-outlet.
- Keep visitors a safe distance from work area.
- Always unplug grinder prior to inspection.
- Read this manual thoroughly for specific adjustments and operating procedures.
- To ensure consistent electrode preparation, replace damaged parts.
- Make sure that the grinder is off before plugging it in.
- Do not apply extreme force to the tungsten while grinding. This may cause your grinder to jam or cause premature grinding wheel wear.



- Never leave the grinder unattended while running.
- Turn the grinder off first and do not leave it until it comes to a complete stop.
- Know your grinder; learn its operation, applications and limitations.

Preparing to Grind Electrodes

The Set Up Procedure

With the power turned off, select the Included Angle you would like to grind. Loosen the Angle Adjusting Knob "A" on the Collet Arm, rotate on its axis until the Angle Pointer is directed at the Grind Angle Scale, re-tightening Knob.

Insert tungsten through the appropriate Collet Hole in the Universal Collet, observing the height at which the tungsten contacts the wheel.

Loosen Knob "B" to adjust the Electrode Contact Point. The electrode should be as close to the top of the wheel as possible.

After continuous grinding, you will begin to wear a groove in the wheel. Adjusting knob "B" moves the contact point down to a new spot on the wheel.



NOTE: Diamond Grinding wheels are specifically designed fo grinding tungsten electrodes only!

Setting the Tip Flat Gauge

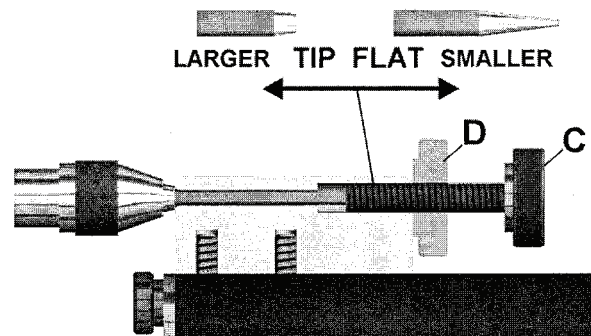
Note: The left gauge hole is for 3/32" diameter and smaller electrodes and the right gauge hole is for electrodes larger than 3/32" in diameter.

With electrode extending to the desired length, tighten the electrode wand. Loosen Nut D on the Tip Flat Gauge and insert electrode into the Tip Flat Gauge.

Rotate Knob C until the Stop makes contact with the electrode tip, then lock in place with Nut D.

To duplicate electrode Tip Flat diameter, insert electrode into electrode wand. Extension should be beyond the desired final length.

Adjust electrode wand so there is a slight drag on the extended electrode. Insert electrode into Tip Flat Gauge and slide until the nose of the electrode wand contacts the Gauge face. Secure electrode into position by tightening the electrode wand.



Grinding

After the set up procedure, you are now ready to prepare precision ground tungsten electrodes quickly and easily. Turn Power Switch On: Insert tungsten into the proper Collet Hole in the Universal Collet.

Lightly contact the wheel with the tungsten and rotating the electrode in a steady manner until you achieve the desired Grind Angle or Tip-Flat. Be patient and Do Not gouge or force the electrode into the wheel by trying to grind the electrode too quickly. Gouging the electrode into the wheel causes excessive wheel wear and inconsistent electrode finish.

Approximate Electrode Grinding Time:

.040" (1.0mm)	5 to 10 seconds
1/16" (1.6mm)	10 to 15 seconds
3/32" (2.4mm)	20 to 30 seconds
1/8" (3.2mm)	45 to 60 seconds
5/32" (4.0mm)	70 to 90 seconds
3/16" (4.8mm)	100 to 130 seconds

Note: Silicone carbide wheels will contaminate the tungsten and should not be used.

Total electrode length is critical to high-quality automated, orbital and fixture mounted welding operations. Please refer to your equipment manufacturers specifications to ensure consistent performance.

Notching your Electrode

The notching feature is located at the right hand side of your unit. This feature is provided to notch your electrodes so they can be re-sized, or to remove the contaminated portion of a spent electrode.

Never snap your electrode without notching it first, as this will cause splintering which can result in contamination of your weld.

Insert your electrode through one of the two openings and push through so the electrode exits from the opposite opening. Hold both ends and push the electrode towards the corner of the rotating wheel.

Once you have notched enough of your electrode on one side, rotate the electrode to notch the other side.

Use the Tip/Flat Block to flatten the end of your electrode and proceed to grind as normal.





Replacement Wheels

Heavy-duty replacement diamond wheels are available directly from Arc-Zone® and can be ordered online at: www.arc-zone.com, by phone: 1.800.944.2243 (toll free), 1.760.931.1500 (worldwide) or fax your order to: 1.760.931.1504.

Select the proper wheel using the Replacement Wheel Guide. Wheels are in stock for immediate delivery.

Replacement Wheel Guide

- For optimum wheel life and surface finish when grinding .040" (1.0mm) through 3/32" (2.4mm) electrodes: Use a 600 Grit Diamond Wheel.
Part Number: A-PTG-6-600 -- (600 grit).
- For optimum wheel life and surface finish when grinding 3/32" (2.4mm) through 3/16" (4.8mm) use a 300 Grit Diamond wheel.

Installing Replacement Grinding Wheels

Please use the following steps to remove and replace diamond grinding wheels:

1. Turn power off and unplug the electrical outlet. Wait until the motor comes to a complete stop.
2. Unscrew and remove Knob "A" (see picture of adjusting knobs). Lift up and remove the Arm, taking care not to loose the washer between the Arm and the Knob. Set them aside.
3. Unscrew the Thumb Screws on the Wheel Cover. Remove the Wheel Cover to fully expose the wheel.
4. Using the supplied Allen Wrench, loosen the Wheel Mounting Screws.
5. Remove the old Wheel and mount the replacement Wheel on the Wheel Arbor.
6. Replace all of the other parts in reverse order used to remove them.

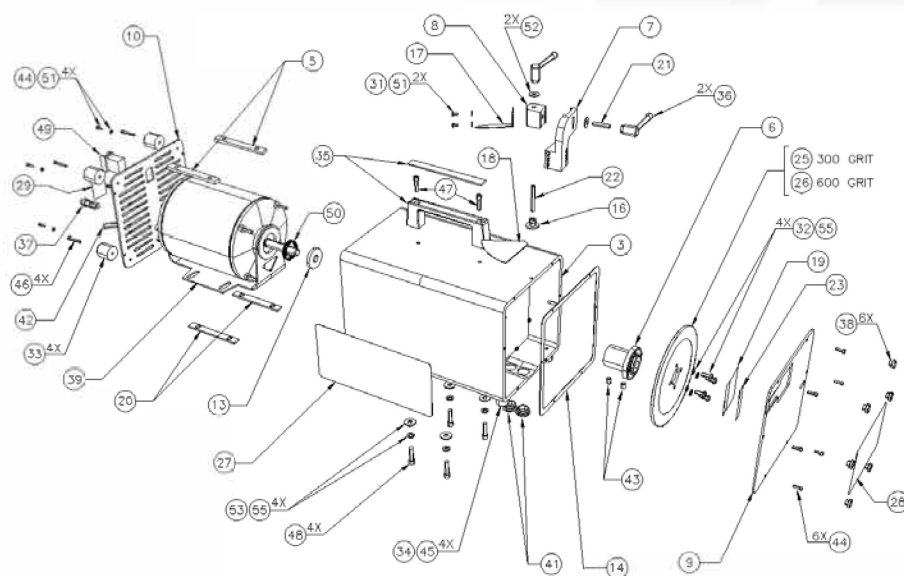
Heavy-duty Replacement Wheel Price List:

Part No.	Description	Price
A-PTG-3-300 (DGP-PG1425)	Double-sided Precision Diamond Grinding Wheel: 3" (76.2mm) Diameter, 300-Grit	\$161.96
A-PTG-3-150 (DGP-PG1426)	Heavy-duty, Double-sided Diamond Grinding Wheel: 3" (76.2mm) Diameter, 150-Grit	\$299.00

All prices are FOB Arc-Zone. Products listed above are stock items, consult factory for specialty wheels and accessories not listed. Prices are subject to change without notice.

Please see the parts list on the next page for information on additional replacement parts.





ITEM	NAME	ITEM	NAME
1	TOP ASSY - PIRANHA III	29	LABEL, POWER (120VAC)
2	-	30	-
3	ASSY - HOUSING	31	BHCS - #4-40UNC X 1/4 LG
4	-	32	BHCS - #10-32UNF X 1/2 LG
5	NUT PLATE, MOTOR	33	BUMPER - RECESSED 1.00 DIA X 1.00 HT - BLK
6	ARBOR - DISC	34	BUMPER - RECESSED W/ WASHER 3/4 DIA X 9/16 HT
7	ARM - ELECTRODE	35	HANDLE WITH CAP
8	BLOCK - ARM PIVOT	36	HANDLE - ADJUSTABLE
9	COVER - HOUSING FRONT	37	HOLDER - FUSE 125V / 10AMP
10	COVER - HOUSING REAR	38	KNOB - KNURLED - #4 - BLACK
11	DISK - GRIND 6.00 / 300 GRIT	39	MOTOR - P-III
12	DISK - GRIND 6.00 / 600 GRIT	40	-
13	FELT WASHER	41	PLUG - FINISHING - 3/4 HOLE - NYLON - BLK
14	GASKET - FRONT COVER	42	POWER CORD WITH GROMMET
15	-	43	SET SCREW - SOCKET DRIVE - 1/4-20UNC X 3/8 LG
16	PIVOT - ARM	44	SHCS - #4-40UNC X 3/8 LG
17	POINTER - ANGLE	45	SHCS - #6-32UNC X 1.00 LG
18	PROTRACTOR	46	SHCS - #8-32UNC X 1/2 LG
19	SCREEN - MYLAR - .005 THK	47	SHCS - #10-32UNF X 1.00 LG
20	SPACER - MOTOR MOUNT	48	SHCS - 1/4-20UNC X 1.00 LG
21	STUD - #10-32UNF X .97 LG	49	-
22	STUD - #10-32UNF X 1.65 LG	50	SPRING - COMPRESSION
23	STRIP - DOUBLE BACKED ADHESIVE	51	WASHER - FLAT - SMALL PATTERN #4
24	PLATE - HOUSING PARTITION	52	WASHER - FLAT - #10
25	DISK - GRIND - SINGLE SIDED 6.00 OD / 300 GRIT	53	WASHER - FLAT - 1/4
26	DISK - GRIND - SINGLE SIDED 6.00 OD / 600 GRIT	54	WASHER - SPLIT LOCK - #10
27	LABEL, P-III PRODUCT ID	55	WASHER - SPLIT LOCK - 1/4
28	LABEL, P-III GRIND TIMES	56	-



ArcTime™ All-Purpose™ Tungsten Electrodes

Arc-Zone® INTRODUCES:

State-the-Art Alloys in a New Non-Radioactive Tungsten!

- State-of-the-art oxides scientifically formulated for balanced migration and evaporation rates guaranteed to extend electrode arctime.
- Increased number of arc starts before re-sharpening and fewer misfires.
- Increased productivity saving you money and time.
- Lower work function requires less energy to start than 2% Thoriated, runs cooler and lasts longer.
- Proprietary non-radioactive formulation.
- FREE Sample available upon request to qualified customers.
- FREE Guide to Selecting Tungsten.



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