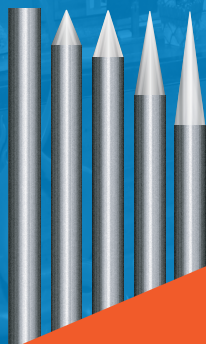


ARC-ZONE

Sharpie™

Operations Manual



SHARPIE MODELS:

- A-PTGK-DXCL *DELUXE CORDLESS*
- A-PTGK-SDCL *STANDARD CORDLESS*
- A-PTGK-DX *DELUXE*
- A-PTGK-SD *STANDARD*
- A-PTGK-DHD *HEAD ONLY*

The Fastest Way To Improve Your TIG Welding

Why Invest in a Sharpie™ portable tungsten grinder?

The #1 Reason: A smooth, consistent electrode taper is critical to laying down a high quality weld.

Performance: Sharpie™ is a globally recognized brand, delivering quick and consistent electrode grinds for snappy arc starts, better puddle control, and improved TIG weld quality.

Productivity: Sit down, finish the job, and stay in the Zone. Portable functionality reduces frequent stops & starts to head across the shop to sharpen tungsten.

Value: No other portable tungsten grinder offers a comparable electrode grind and machine quality. Serving welders for over 20 years, the Sharpie™ keeps getting better. Enhanced features are a direct result of feedback from veteran TIG welders.

Three grinding wheel options:

A-PTG-002 (Coarse)

A-PTG-002A (Medium / Standard)

A-PTG-002B (Fine / Premium)



The Fastest Way To Improve Your TIG Welding

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A-PTGK-DXCLTM

*SHARPIE DELUXE CORDLESS GRINDER
ADJUSTABLE 15°-45° GRIND ANGLE*



A-PTGK-SDCLTM

*SHARPIE STANDARD CORDLESS GRINDER
FIXED 20° GRIND ANGLE*



A-PTGK-DXTM

*SHARPIE DELUXE GRINDER
ADJUSTABLE 15°-45° GRIND ANGLE*



A-PTGK-SDTM

*SHARPIE STANDARD GRINDER
FIXED 20° GRIND ANGLE*



A-PTGK-DHDTM

*SHARPIE DELUXE HEAD ONLY
ADJUSTABLE 15°-45° GRIND ANGLE*



SD = 20° Grind Angle

PARTS LIST



A-PTG-002
Coarse Diamond Wheel



A-PTG-002A (Blue)
Medium Diamond Wheel



A-PTG-002B (Red)
Premium Diamond Wheel



A-PTG-006
Upper Housing



A-PTG-008
Collet Disc



A-PTG-005-LBK
Lower Housing



A-PTG-0051
O-Ring for
Lower Body



A-PTG-0051CL
O-Ring for
Corded Motor



A-PTG-0051
O-Ring for
Cordless Motor



A-PTG-005-K
Wheel Mandrel Kit



A-PTG-004 (2 req'd)
Lower Housing Screws



A-PTG-007
Collet Disc Screw



A-PTG-116
1/16" (1.6mm) Collet



A-PTG-332
3/32" (2.4mm) Collet



A-PTG-125
1/8" (3.2mm) Collet



A-PTG-040
0.040" (1.0mm) Collet



A-PTG-010 / A-PTG-010-564
Allen Wrench



A-PTG-001-D
Motor



A-PTG-001CL
Cordless Motor

DX = 15° - 45° Grind Angle

PARTS LIST



A-PTG-002
Coarse Diamond Wheel



A-PTG-002A (Blue)
Medium Diamond Wheel



A-PTG-002B (Red)
Premium Diamond Wheel



A-PTG-020
Upper Housing (Adjustable Angle)



A-PTG-022
Adjustable Collet Disc



A-PTG-021
Adjustable Arm



A-PTG-023
Set Screw



A-PTG-005-LBK
Lower Housing



A-PTG-0051
O-Ring for
Lower Body



A-PTG-0051CL
O-Ring for
Corded Motor



A-PTG-0051
O-Ring for
Cordless Motor



A-PTG-005-K
Wheel Mandrel Kit



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Lower Housing Screws



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0.040" (1.0mm) Collet



A-PTG-010 / A-PTG-010-564
Allen Wrench



A-PTG-001-D
Motor



A-PTG-001CL
Cordless Motor

CORDLESS SHARPIE SD™ TUNGSTEN GRINDER 20° GRIND ANGLE



HIGH QUALITY TOOL

Each Sharpie™ portable tungsten grinder is engineered, assembled, tested, and packaged with care by a U.S. team of welding tool experts. The Sharpie™ is built to demanding specifications, using high quality, globally-sourced motors and machined parts from both international and local machine shops. Each grinder is designed to deliver years of service.

CORDLESS SHARPIE DX™ TUNGSTEN GRINDER ADJUSTABLE 15° - 45° GRIND ANGLE



MAINTENANCE PARTS & UPGRADES

There's nothing more frustrating than investing in a tool, only to learn that the manufacturer does not offer replacement parts. Sharpie™ maintenance kits, grinding wheels, head kits, collets, and other parts are available and affordably priced. Grinder refurbishment is offered on a case-by-case basis.

Installation Guide

Sharpie Head Kit Assembly

(Milwaukee Cordless Only)



Upper Housing



Mandrel Screw



Grinding Wheel



Lower Housing



Mandrel



O-ring



Step #1



Install **flat gasket** spacer to threads on motor.
"Screw" all the way down, till contact is made to the base of motor.

Step #2



Insert **Mandrel** into collet. Leave a 1/8" (3.2mm) gap from the bottom of **Mandrel** shank.
Depress lock button on motor, use 3/8" (9.5mm) open end wrench to tighten collet nut. **DO NOT OVER TIGHTEN.**

Step #3



With the small allen wrench (included in kit), remove **Mandrel Screw** from the **Mandrel**. Thread on **Lower Housing** and snug down fairly tight. Align Sharpie logo with lock button on motor.
Test run motor to ensure smooth operation.

Step #4



Remove **ONLY** the **2 side screws** from **Upper Housing** using the large allen wrench (included in kit) to detach the **Upper Housing** from the **Lower Housing**.

Installation Guide

Sharpie Head Kit Assembly

(Milwaukee Cordless Only)



Upper Housing

Mandrel Screw

Grinding Wheel

Lower Housing

Mandrel

O-ring



Step #5



Install **Grinding Wheel** while pressing the motor shaft lock button on motor.

Step #6



Install **Upper Housing** press down to check the grinding wheel height. It should be flush with the lower edge of the side window in the **Housing**.
(To adjust the **Mandrel** height, see step #2).

Step #7



Thread in one side screw and leave loose.
Thread in 2nd side screw and tighten each screw evenly .

Step #8



Test run motor to ensure smooth operation.

Inspect Before You Grind

- Visually inspect the grinder to ensure the motor, power cord, grinding head and related components are all in good working condition.
- Ensure the proper collet size is selected for the diameter of tungsten to be ground; for your convenience, two collets are stored in the top of the head assembly.
- Take care when grinding tungsten electrodes to ensure your safety and the safety of others in adjacent areas.

Safety Information

Avoid breathing grinding dust. Use a mask while grinding or cleaning the machine.



Wear safety glasses and gloves when grinding or cutting tungsten.



Avoid electric shock. Do not operate grinder in or around water.



Dispose of tungsten dust regularly and at an approved location.



Grinder is designed to grind tungsten electrodes only.



Do not plug grinder into an electrical outlet if cord is frayed or cut.



Do not unscrew grinder head while the machine is in operation.



Remove plug from electrical outlet when changing the diamond wheel or cleaning the grinder.



Use qualified electrical technicians only to repair the unit.



Adjusting the Tungsten Contact Point on the Wheel

- Make sure the unit is unplugged and loosen the disc screw.
- Rotate the collet disc so the tungsten will contact another spot on the diamond wheel.
- To locate the spot where the tungsten meets the wheel, insert tungsten and look through the viewing slot located in the lower housing.
- When the tungsten contact position has been set, tighten the disc screw to lock the disc in place.
- When the top diamond surface of the wheel has been worn-out, flip the wheel over and adjust as noted above.

Replacing or Flipping the Wheel

- Make sure the motor is unplugged or battery disengaged.
- Remove the two lower housing screws and lift the upper housing assembly off the lower housing, exposing the diamond wheel.
- Lock head stock in place and loosen mandrel screw.
- Remove the screw and washer from the mandrel, reverse sides or replace wheel as needed.
- Tighten mandrel screw, replace the upper housing and tighten head screws.

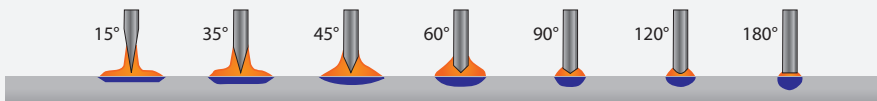
Regular Maintenance Tips

- Use compressed air to clean the grinder head of tungsten dust or debris after every 8 hours of use.
- Be sure all screws and collets are tight.
- Check the power cord for wear or breakage periodically.
- Check collets for excessive wear.

Selecting the Grind Angle

Follow your equipment supplier's suggested grind angle specifications or perform tests to determine the optimal electrode preparation for your application.

Refer to the chart below for general guidelines.



Sharper Electrode (Narrow Angle)		Blunter Electrode (Wider Angle)	
◇ Wider weld bead	◇ Improved arc stability	◇ Narrower weld bead	◇ Increased potential for arc wander
◇ Easier arc starting	◇ Less weld penetration	◇ Harder arc starting	◇ Better weld penetration
◇ Less amperage	◇ Shorter electrode life	◇ More amperage	◇ Longer electrode life

Grinding the Electrode Angle/Taper

Insert tungsten electrode into the guide collet until it contacts the diamond wheel (SEE FIGURE-1). Rotate 360° while maintaining consistent pressure as you grind to avoid flat spotting the electrode.

Release pressure from grinding wheel after each rotation of the tungsten electrode, to allow the wheel to cool. Consistently rotating & releasing greatly extends wheel life. Repeat until tungsten has desired angle/taper.

Changing Tungsten Guide Collets

Your grinder was supplied with 3 Guide Collets in sizes 1/16" (1.6mm), 3/32" (2.4mm) and 1/8" (3.2mm). Note: .040" (1.0mm) collet sold separately.

Identify the proper size collet from the two stored in the top of the head, and one in the grind port on the head.

Remove collet(s) using the 1/8" hex wrench supplied with your grinder.

Select and install the desired collet in the grind port. Gently tighten as needed.

FIGURE-1



Adjusting Grind Angle/Taper

Adjustable Grind Angle/Taper from 15° to 45° (DX Model Only)

Loosen 1/8" set screw on the head assembly to allow the brass collet holder bar to pivot for grinding different taper angles. (SEE FIGURE-2)

Gently tighten set screw, and grind a test piece of tungsten. Once you have the desired angle, tighten set screw in the collet holder bar and grind!

Note: For long angle tapers, adjust the guide collet so the tungsten contacts the outer most diameter of the wheel.

FIGURE-2



Fine Tuning Grind Angle/Taper at Fixed 20° (SD Model Only)

Loosen the collet disc screw on the side of the head and lower the collet disc so the point of entry of the tungsten is closer to the diamond wheel. (SEE FIGURE-3)

Note: The lower the disc, the longer the grind angle/taper. Conversely, the higher the disc, the more blunt the grind angle/taper.

FIGURE-3



Grinding a Tip Flat/Land

Electrodes with tip flats deliver longer tip life, improved arc starting, and reduced weld contamination. Common tip flats are .010" - to - .015".

The top of the grinding head has four guide holes: .040" (1.0mm), 1/16" (1.6mm), 3/32" (2.4mm) and 1/8" (3.2mm) tungsten electrodes. The holes are designed to produce a tip flat on the end of the tungsten electrode.

How To Grind a Tip Flat:

Insert the tungsten into the correct size hole in the top of the housing. (SEE FIGURE-4)

Gently press the tungsten into the diamond wheel and rotate while exerting light pressure on the wheel. Remove electrode and check for desired tip flat. Repeat as needed.

Note: If your Tip Flat is too blunt, simply regrind taper.

FIGURE-4



Cutting the Tungsten

Your grinder is equipped with an angle slot on the side of the machine designed for cutting tungsten to length or for cutting off contaminated portions of tungsten.

To ensure the highest-quality welds, cut contaminated portions of the electrode prior to sharpening so as not to contaminate the diamond wheel.

How to Cut Tungsten

Place the electrode in the angle slot so the portion of the tungsten to be cut lines up with the edge of the diamond wheel. (SEE FIGURE-5)

Gently press electrode into angle slot until it contacts the grinding wheel, and rotate it to form a groove completely around the tungsten. While you can cut completely through the electrode it causes excessive wheel wear and greatly shortens wheel life.

For best results, we suggest cutting a groove around the electrode approximately half the thickness of the material. Turn grinder off, insert electrode into the appropriate size guide collet on the machine head and gently snap the tungsten in two.

Done properly, this procedure won't splinter or damage the integrity of the electrode material.

Note: When cutting electrodes, point the machine head down towards the floor so the cut-off portion of tungsten falls out of the grinder head and does not get wedged between the wheel and the machine housing. If that happens it can cause damage to the mandrel and high speed guide bearing.

FIGURE-5



Tungsten Selection



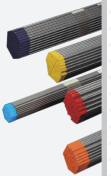
MAXIMIZE ARC STARTS AND IMPROVE ARC TIME
WITH HIGH-QUALITY TUNGSTEN ELECTRODES

Selecting the proper tungsten electrodes greatly improves weld quality and productivity while lowering costs for your Gas Tungsten Arc Welding (GTAW/TIG) and Plasma Arc Welding (PAW) operations.

Choose Electrodes from a Trusted Source

Although tungsten electrodes may look the same from one company to another, high-quality tungsten has been manufactured to ensure a dense grain structure which allows for better migration of oxides to the tip of the electrode.

With high-quality tungsten, you'll experience easier arc starting, improved arc time and better weld quality with minimized contamination. Arc-Zone.com's ArcTime™ and Amplify™ brand electrodes are sourced from the world's finest producers and meet or exceed ISO 6848 and AWS A5.12 standards. Arc-Zone.com® delivers the industry's most complete line of premier tungsten electrodes including: ArcTime™, Amplify™, CK Worldwide™, DGP® Multi-Strike™, Miller®, and Wolfram®.



Determine the Best Tungsten for Your Application

Since the development of the TIG welding process, many improvements have been made in the production of electrodes. Most significant is the addition of oxides to pure tungsten, creating tungsten alloys that provide the same level of emission as pure tungsten at much lower temperatures, improving starting performance of the electrode, arc stability, and tip life.

Each oxide has a different physical characteristic affecting tungsten performance. Electrodes are color coded, indicating the type of oxide used in the mix. Note: Color-coding is not standardized for all mixes, and it varies from the U.S., Europe, and Japan.

For most hand-held welding operations, Arc-Zone® recommends the ArcTime™ Hybrid Tungsten Electrode. For other applications, particularly automated welding, the best way to determine which tungsten alloy is best suited for your application is through testing. The list on the following page is provided as a guide.



ArcTime™

Hybrid All Purpose Tungsten Electrodes

This non-radioactive performance proven formula combines rare earth materials with tungsten to produce the best all-purpose tungsten electrode on the market. Experience reliable arc starting even after numerous ignitions.

Color Code: Sky Blue™ (US). Not std in Europe or Japan.



2% CERIATED

Suitable for low-amp, DC orbital tube, pipe, thin sheet, and small part applications. This formula offers low current capacity, low arc ignition, good arc stability and is non-radioactive.

Color Code: Gray
(US, Europe and Japan)



2% ICE-T™

Radioactive tungsten formula for easy arc starting, good arc stability and current capacity, and resistance to weld pool contamination. Vapors, grinding dust and disposal of thorium dioxide raise health, safety and environmental concerns. Use only when contractually required by FAR specification.

Color Code: Pink



1.5% LANTHANATED

Another good general purpose non-radioactive replacement for 2% Thoriated, and similar in performance to 2% lathanated. It features excellent ignition and re-ignition properties and good service life.

Color Code: Gold (US).
Not std. in Europe or Japan.



2% LANTHANATED

This formula is a good general purpose non-radioactive replacement for 2% Thoriated. It has excellent ignition performance, low-burn-off rate, excellent re-ignition, and good service life.

Color Code: Blue (US).
Not std. in Europe. Yellow-Green (Japan).



2% THORIATED

This formula is a popular general purpose electrode due to the excellent arc behavior and good tip life. This is a radioactive formula, however. Vapors, grinding dust and disposal of thorium dioxide raise health, safety and environmental concerns. Use only when contractually required by FAR specification.

Color Code: Red
(US, Europe and Japan).



1% ZIRCONIATED

Used for radiographic-quality welding where tungsten contamination must be minimized. Balls-up easily in AC applications, good arc starting and current capacity. Non-Radioactive.

Color Code: Brown (US) White (Europe).
Not std. in Japan.



PURE TUNGSTEN

Pure tungsten has a high work-function which makes it difficult to start and maintain a stable arc. High burn-off rate results in short service life.

Color Code: Green
(US, Europe and Japan)



Determining the Proper Tungsten Size

Tungsten is generally sold in packages of 10 pieces in a variety of standard diameters from .020" (0.5mm) to .250" (6.4mm). The most common length is 7.00"(175mm) in the U.S. and 6.00" (152mm) in Europe. The most common diameters are: 1/16" (1.6mm), 3/32" (2.4mm), 1/8" (3.2mm). Electrode diameter affects welding performance and weld bead shape. Again, testing is the best way to determine which tungsten is suited for your application. However, the following chart may serve as a general guide.

Tungsten Electrode Diameter Rating for Welding Currents

Electrode Diameter	Direct Current		Alternating Current	
	Straight Polarity	Reverse Polarity	Unbalanced Wave	Balance Wave
	DCEN	DCEP		
.020" (0.5 mm)	5-2	n/a	5-15	10-20
.040" (1.0 mm)	15-80	n/a	10-60	20-30
1/16" (1.6 mm)	70-150	10-20	50-100	30-80
3/32" (2.4 mm)	150-250	15-30	100-160	60-130
1/8" (3.2 mm)	250-400	25-40	150-210	100-180
5/32" (4.0 mm)	400-500	40-55	200-275	160-240
3/16" (4.8 mm)	500-750	55-80	250-350	190-300
1/4" (6.4 mm)	750-1100	80-125	325-450	325-450

Different electrode materials will vary slightly from these guidelines. Use of gases other than Argon will also change the recommended currents. Use this chart as a general guide. Also keep in mind that for a given amount of amperage, larger diameter electrodes will last longer but will be harder to start. Excessive current will cause the electrode to melt and drop off. Insufficient current will lead to an unstable arc.

For further assistance in selecting the correct tungsten electrode for your welding application, refer to the Arc Zone Pro TIG Calculator, or contact an Arc-Zone.com® technician via email at sales@arc-zone.com, or call worldwide: **760-931-1500**.



#WELDLIKEAPRO
#SHARPIETUNGSTENGRINDER

ARC-ZONE
PREMIUM PRODUCTS

Thank you for your purchase and
for putting your trust in Arc-Zone.
Our goal is to supply the best welding
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Tungsten Grinder, tell a friend, give
use a shout out on social media, and
leave a review!

100% Satisfaction Guaranteed!

Monster™



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