



YOUR ULTIMATE GUIDE
TO OXY-FUEL



WELCOME TO YOUR ULTIMATE GUIDE TO OXY-FUEL!

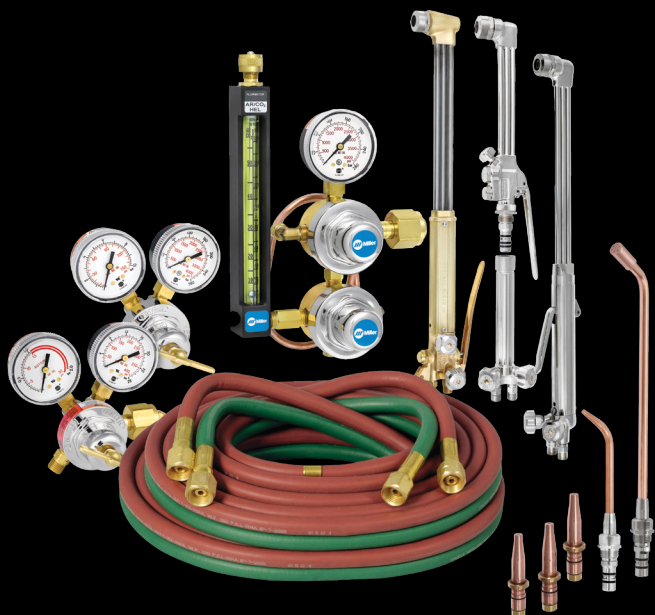
Over the next few pages, you'll gain valuable insights into oxy-fuel equipment, safety protocols, and best practices. Whether you're selecting the perfect torch or ensuring safety measures, we've got you covered.

Get ready to ignite your knowledge and maximize your oxy-fuel operations.

Read and follow the safety information, all labels and the owner's manual carefully before installing, operating or servicing equipment.



Watch our **Smith™ Oxy-Fuel Safety video series** for expert tips on handling oxy-fuel equipment.



CHOOSING THE PERFECT TORCH

Choosing the right oxy-fuel torch is crucial for safety, efficiency, and quality.

Follow these steps to make the best choice:

Determine the Application Type

Cutting, welding, heating, or brazing?
Choose a torch that aligns with your needs.

Consider Metal Thickness

Select a torch with a cutting capacity greater than your typical material thickness.

Determine the Fuel Gas Type

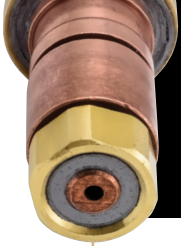
Choose a torch compatible with your fuel gas.
Smith™ torches can be used with any fuel gas and prioritize safety.



TORCH COMPARISON	Toughcut™ Combination Torch	Medium-Duty Combination Torch	Heavy-Duty Combination Torch	Hand Cutting Torch	Gas Axe™ Extra Heavy-Duty Torch
	CC509P + WH100 Handle	MC Series Cutting Attachment + WH100 Handle	SC Series Cutting Attachment + WH200 Handle	SC 200 & 300 Series	SC 900 Series
Cutting Capability	Up to 6 in.	Up to 6 in.	Up to 8 in.	Up to 12 in.	Up to 24 in.
Heating Capability	Up to 128,970 BTU	Up to 128,970 BTU	Up to 194,890 BTU	None	None
Welding Capability	Up to 3/8"	Up to 3/8"	Up to 1/2"	None	None
Typical Applications	Occasional medium-duty cutting, heating or welding applications including Farm and Ranch, Metal Fabrication, and Auto-Repair	Everyday medium-duty cutting, heating or welding applications including Shipbuilding, Railroad, Salvage, Pipeline, Metal Fabrication and Construction and Demolition	Everyday heavy-duty cutting, heating or welding applications including Shipbuilding, Railroad, Salvage, Pipeline, Metal Fabrication, Construction and Demolition	Everyday heavy-duty cutting applications including Shipbuilding, Railroad, Metal Fabrication and Construction	Extra heavy-duty cutting applications including Salvage and Demolition
FEATURES					
In-Tip Mixing	X	X	X	X	X
Three-Tube Design	X	X	X	X	X
Nickel-Plating	X	X	X	X	
Flo-Trol Check Valve		X	X		
Reversible Cutting Lever				X	X
360-Degree Torch Head Rotation	X	X	X		

GRAF-TITE® SOFT SEAT TIPS

Some manufacturers use Metal-to-Metal or Hard Seat Tip designs while our Smith™ torch tips have an exclusive Graf-Tite® Soft Seat Tip design, allowing the tip to adapt seamlessly to imperfect surfaces. Even in cases of accidental drops or damage, our Smith™ Graf-Tite® tip remains operational, maintaining its seal and functionality, a clear advantage over competitor tips that become non-serviceable.



SMITH - GRAF-TITE® SOFT SEAT TIPS

- Use pliable seat material and stands up to rough handling
- Remains functional after being dropped or damage occurs
- Durable and cost-effective

VS

COMPETITOR - METAL-TO-METAL HARD SEAT TIPS

- Rely on accurately machined seating surfaces
- No longer serviceable after being dropped or damage occurs
- Easily damaged and not cost-effective



Watch how **Smith™ tips** maintain their seal even after damage occurs compared to **competitor tips**.



PICKING THE IDEAL OXY-FUEL TIP

Before you fire up your oxy-fuel cutting torch, it's crucial to get your tip selection right. The tip you choose can make all the difference in the quality, safety, and efficiency of your cutting process.

Here's a quick guide on how to make the perfect choice

1. KNOW YOUR APPLICATION

Different tasks require different tips. Whether you're cutting, heating, gouging, brazing, or welding, each process demands a specific tip style.

2. CONSIDER METAL THICKNESS

Thicker metal calls for a larger cutting tip. Consult your torch manufacturer's tip charts for size recommendations based on the metal thickness you're working with. Proper sizing ensures optimal results.

3. QUALITY MATTERS

Using the correct tip prevents wasted gas and unnecessary heat and sparks. Choosing a tip designed for the thickness you're cutting creates cleaner cuts and a safer working environment.

4. MATCH THE FUEL GAS

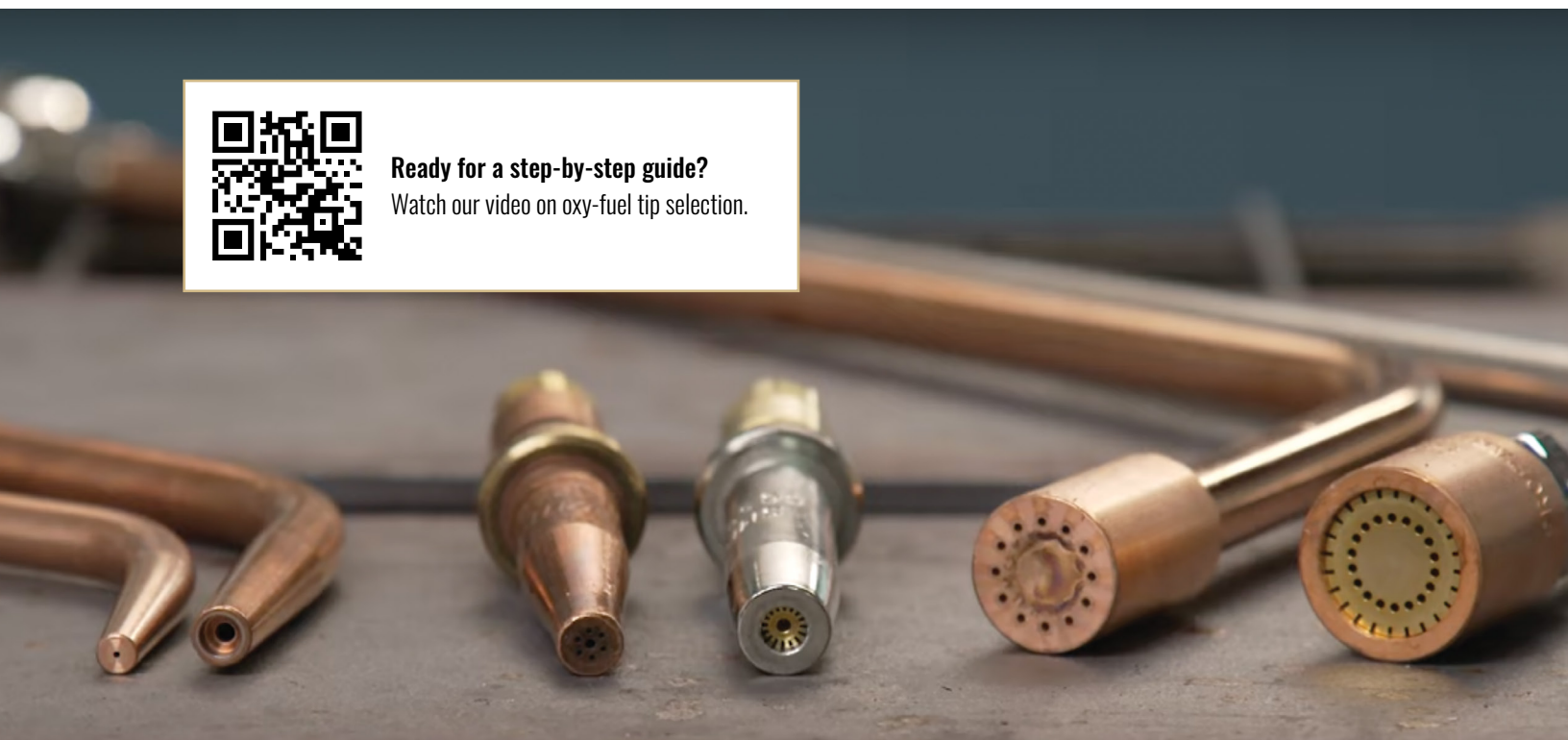
Always select a tip designed for the fuel gas you're using. Mismatched tips can lead to overheating, faster tip wear, and potential backfires.

5. CHECK GAS SUPPLY

Ensure your gas supply meets the minimum requirements for your torch and tip. A torch can't deliver more gas than it receives, so proper supply is essential.



Ready for a step-by-step guide?
Watch our video on oxy-fuel tip selection.



SETTING UP YOUR OXY-FUEL TORCH OUTFIT

Safety is our top priority. We'll guide you through the proper setup of an oxy-fuel torch outfit.



Discover essential safety tips and a detailed **setup guide** for your oxy-fuel torch outfit.

1. CYLINDER CHECK

Inspect cylinder valves for damage and any presence of oils or grease. Securely fasten cylinders and check regulator connections and torch for damage, dust, debris or any type of oil or grease. Do not use if they are present.

2. SAFETY MEASURES

Consider or flashback arrestors and work in a well-ventilated area. Ensure no one is in the gas stream path.

3. CYLINDER PRECAUTION

For all cylinders except acetylene stand to one side of valve and slowly open the cylinder valve slightly to clear any dust or debris. Then close the valve.

4. ATTACH REGULATORS

Attach and tighten the oxygen and fuel regulators to the positioning regulators slightly upward to divert any escaping gas away from the cylinder.

5. HOSE INSTALLATION

Inspect hoses for damage, match fittings, and use appropriate hoses for your application. Connect hoses to regulator and torch.

T-Grade hose is for all fuel gases, R-Grade hose if for acetylene gas

6. LEAK TESTING

1. Verify regulator adjusting handles are turned counter-clockwise to the off position.
2. Close both the fuel and oxygen valve on the torch handle
3. While standing to the side slowly open oxygen cylinder valve completely. Acetylene do not open more than 1/2 turn.
4. Adjust regulator by turning in the adjusting handle to 20 psig. With acetylene turn in the handle only to 10 psig.
5. Perform a leak test on all connections using an approved leak test solution. If leaks are detected eliminate them before proceeding.

9. ADJUST REGULATOR PRESSURES

Finally, adjust the regulator delivery pressures to match the tip being used.

PURGING THE SYSTEM

Before lighting the torch, it's essential to purge the system to eliminate any mixed gases in the hoses. Here's how:

1. Open the torch fuel valve and let fuel run through the system for a few seconds
2. Close the fuel valve and repeat the process for the oxygen side of the system

SAFE TORCH LIGHTING AND SETTING THE FLAME

Once the system is set up and properly purged, your torch is safe and ready to light. Ensure the oxygen preheat valve on the cutting attachment is closed. Open the torch handle's oxygen valve, check for combustibles, and ignite the fuel with a striker.



FOR A COMBINATION TORCH

Close all valves and open the oxygen valve all the way. Next, open the fuel valve and light the torch. Adjust the fuel valve until the soot goes away. Lastly, increase oxygen until a neutral flame is achieved.



FOR A HAND CUTTING TORCH

Close all valves. Then open the fuel valve and light the torch. Adjust the fuel valve until soot goes away. Lastly, increase oxygen until a neutral flame is achieved.



NEUTRAL FLAME
Ideal for complete combustion



OXIDIZING FLAME
Too much oxygen, sharp, hissing flame



CARBURIZING FLAME
Too much fuel or little oxygen, long, bushy flame

SHUTDOWN PROCEDURE

To shut down, turn off the oxygen valve, then fuel valve.

After extinguishing the flame, close the cylinder valves and bleed the gases from the system.



Watch in action **how to light, set and extinguish** an oxy-fuel flame.

CRAFTING EXCELLENCE SINCE 1916

Experience cutting, heating, and welding like never before with Smith™ – your trusted name for oxy-fuel solutions. Our torches, tips, and regulators redefine industry standards, delivering unmatched performance and durability.

Designed for safety, built for reliability, Smith is the choice for those who demand quality equipment that stands the test of time.



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