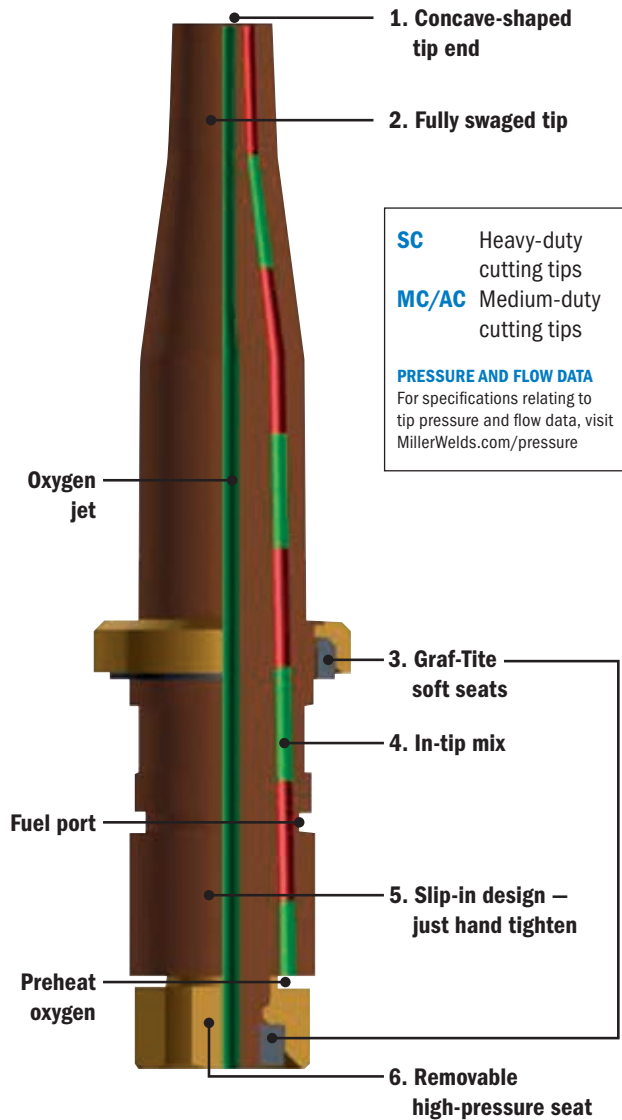


Cutting Tips



Our tips are 100-percent tested and inspected and are the longest lasting tips you can buy.

Whatever your application, whatever your fuel gas, we have a tip that provides fast, economical and quality cutting. Select the tip to match the job. It's faster, gives a cleaner cut, cuts expensive labor time, and saves on cleanup, machining and gas. Select from quality tips for dependable performance with acetylene, natural gas (city gas), propane and propylene-based fuels.

Authentic Miller | Smith tips must be used. To qualify for warranty repair, Miller | Smith torches *must be returned with tip*. Aftermarket tips are often the cause of poor performance or malfunction.

Construction features

- 1 Concave-shaped tip end**
Reduces backfire and resists flameout when making accidental contact with base metal during cutting operations.
- 2 Fully swaged tip**
Mirror-smooth gas passages minimize turbulence to deliver stable gas flows for fast starts and precision cuts. Also minimizes slag build-up and reduces clean-up time.
- 3 Graf-Tite® soft seats**
Resilient Graf-Tite® seat material protects tip seatings areas from nicking to maintain positive seating. Requires less replacement than metal-to-metal seat designs. Compressible soft seats are practically indestructible and withstand extremely high temperatures, resulting in longer tip life.
- 4 In-tip mix**
Each tip is a precision engineered mixer for combining preheat oxygen and fuel gas to attain maximum efficiency. Adds resistance to flashback.
- 5 Slip-in tip design – just hand tighten**
After the first tightening with a wrench, only hand tightening is required to seat the tip, saving time when changing tips. Quick and easy tip changes encourage use of right tip for the job.
- 6 Removable high-pressure seat**
Allows cleaning from back of tip.

Fuel Gas Chart

Generic Name	Trade Name
Acetylene	—
Propane and Propane-Based Mixtures	Propane-butane, Flamex, Acetogen, Chem-O-Lene, Florida Industrial Gas, Hy-Temp, Fuel Gas, I.G. Gas, Chem-Gas, Lingas, Chemtone
Propylene	HPG, Apachi, B-Plus, Gulf HP Gas, HEF, Liquifuel, B.T.U.
Natural Gas (Methane)	Natural Gas, City Gas

Tip Usage Chart

Tip Series	Applications and Characteristics
SC12, MC12	General cutting operations, medium preheat.
SC46, SC36	Dirty, heavily coated metal. Rugged use (scrapping, heavy construction). Used where excessive reflected heat is present.
SC56	Dirty, coated metal. Heavy preheat for faster starts. CAUTION: Manifolding may be necessary for large tips with acetylene.
SC50	Coated metal. Heavy preheat for faster starts. Excellent for scrapping.
SC40, SC60 MC40, MC60	General cutting operations, medium preheat.

CAUTION: Liquid oxygen
When using liquid oxygen, tips may require greater gas volume than a single cylinder is capable of producing. External evaporators or manifolding multiple cylinders may be necessary to supply sufficient gas flows.

CAUTION: Manifolding cylinders
When required flows (cubic feet per hour – SCFH) exceed the recommended withdrawal rate from one cylinder, then additional cylinders must be manifolded to provide safe and efficient operation.

CAUTION: Hoses
Do not use excessively long hoses or hoses with many hose unions; either will restrict gas flow and pressure causing lower cutting efficiency and possibly leading to dangerous operating conditions.

Heavy-Duty Cutting Tips

SC12 Series



Acetylene

Preheat cutting tips for general hand and machine cutting. This series provides excellent preheat characteristics required for machine cutting.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (maximum size SC12-5)
- All SC and DG Series hand torches and machine torches

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Acetylene Preheat	
		Cutting	Preheat		
SC12-00	3/16 (5)	24	7	6.5	68
SC12-0	1/4 (6)	40	7.5	7	62
SC12-0	3/8 (10)	50	7.5	7	62
SC12-1	1/2 (13)	75	11	9.5	56
SC12-1	5/8 (16)	85	11	9.5	56
SC12-2	3/4 (19)	105	12	10.5	54
SC12-2	1 (25)	115	12	10.5	54
SC12-2	1-1/4 (32)	135	12	10.5	54
SC12-3	1-1/2 (38)	170	14	12	51
SC12-3	2 (51)	180	14	12	51
SC12-4	2-1/2 (64)	240	15	13	45
SC12-4	3 (76)	265	15	13	45
SC12-4	4 (102)	315	16	14	45
SC12-5	5 (127)	420	30	26	41
SC12-5	6 (152)	485	30	26	41
SC12-5	8 (203)	550	30	26	41
SC12-6	10 (254)	750	32	28	32
SC12-6	12 (305)	975	32	28	32

CAUTION: High gas withdrawal rates require cylinder manifolding. Consult gas supplier.

SC56 Series Heavy Preheat



Acetylene

Heavy preheat cutting tips designed for cutting coated metals, heavy piercing, fast preheating and cutting thick steel sections up to 24 inches.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (maximum size SC56-5)
- All SC and DG Series hand torches
- Two-hose machine torches (maximum size SC56-7)
- Three-hose machine torch

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Acetylene Preheat	
		Cutting	Preheat		
SC56-1	1/2 (13)	75	33	30	56
SC56-1	5/8 (16)	85	33	30	56
SC56-2	3/4 (19)	105	33	30	54
SC56-2	1 (25)	115	33	30	54
SC56-2	1-1/4 (32)	135	33	30	54
SC56-3	1-1/2 (38)	170	43	39	51
SC56-3	2 (51)	180	50	45	51
SC56-5	2-5 (127)	420	57	52	41
SC56-5	6 (152)	485	66	60	41
SC56-5	8 (203)	550	72	65	41
SC56-7	8-14 (356)	1250	110	100	28
SC56-9	14-20 (508)	2150	145	130	3
SC56-9	24 (610)	2600	175	160	3

*Metal thicknesses up to 2 inches: one 350-cu.-ft. cylinder required.

*Metal thicknesses from 2 to 14 inches: two 350-cu.-ft. cylinders required.

*Metal thicknesses from 14 to 20 inches: three 350-cu.-ft. cylinders required.

*Metal thicknesses from 20 to 24 inches: four 350-cu.-ft. cylinders required.

CAUTION: High gas withdrawal rates require cylinder manifolding. Consult gas supplier.

SC40 Series (Two-Piece)



Propane or Natural Gas

Two-piece medium preheat cutting tips for general hand and machine cutting with propane, propane-based fuel gases and natural gas.

Compatible cutting attachments and torches

- All SC and DG Series cutting attachments, hand torches and machine torches

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Fuel Preheat	
		Cutting	Preheat		
SC40-0	1/4 (6)	40	38	8	62
SC40-0	3/8 (10)	50	38	8	62
SC40-1	1/2 (13)	75	38	8	56
SC40-1	5/8 (16)	85	38	8	56
SC40-2	3/4 (19)	105	38	8	54
SC40-2	1 (25)	115	38	8	54
SC40-2	1-1/4 (32)	135	38	8	54
SC40-3	1-1/2 (38)	170	38	8	51
SC40-3	2 (51)	180	38	8	51
SC40-4	2-1/2 (64)	240	65	15	45
SC40-4	3 (76)	265	65	15	45
SC40-4	4 (102)	315	65	15	45

SC36 Series Rugged Duty



Propylene

One-piece cutting tips designed for cutting dirty or heavily coated metals. For rugged duty including scrapping, heavy construction, or where excessive reflected heat is present.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (maximum size SC36-4)
- All SC and DG Series hand torches and machine torches

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Propylene Preheat	
		Cutting	Preheat		
SC36-1	1/2 (13)	75	70	15	56
SC36-1	5/8 (16)	85	70	15	56
SC36-2	3/4 (19)	105	70	15	54
SC36-2	1 (25)	115	70	15	54
SC36-2	1-1/4 (32)	135	70	15	54
SC36-3	1-1/2 (38)	170	70	15	51
SC36-3	2 (51)	180	70	15	51
SC36-4	2-1/2 (64)	240	70	15	45
SC36-4	3 (76)	265	70	15	45
SC36-4	4 (102)	315	70	15	45
SC36-6	10 (254)	750	105	22	32
SC36-6	12 (305)	975	105	22	32

Heavy-Duty Cutting Tips

SC50 Series Heavy Preheat (Two-Piece)



Propane or Natural Gas

Heavy preheat two-piece cutting tip series for hand and machine cutting up to 20-inch thick steel.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (maximum size SC50-5)
- All SC and DG Series hand torches
- Two-hose machine torches (maximum size SC50-6)
- Three-hose machine torch

CAUTION: When using liquid oxygen, tips may require greater gas volume than a single cylinder is capable of producing. External evaporators or manifolding multiple cylinders may be necessary to supply sufficient gas flows.

Tip Number	Metal Thickness Inches (mm)	Oxygen/Propane Consumption (SCFH)			Oxygen/Natural Gas Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Propane Preheat*	Oxygen		Natural Gas Preheat	
		Cutting	Preheat		Cutting	Preheat		
SC50-00	3/16 (5)	24	47	13	24	58	36	68
SC50-0	1/4 (6)	40	47	13	40	62	38	62
SC50-0	3/8 (10)	50	47	13	50	62	38	62
SC50-1	1/2 (13)	75	70	15	75	70	40	56
SC50-1	5/8 (16)	85	70	15	85	70	40	56
SC50-2	3/4 (19)	105	70	15	105	70	40	54
SC50-2	1 (25)	115	70	15	115	70	40	54
SC50-2	1-1/4 (32)	135	75	16	135	70	40	54
SC50-3	1-1/2 (38)	170	75	16	170	70	40	51
SC50-3	2 (51)	180	75	16	180	70	40	51
SC50-4	2-1/2 (64)	240	75	16	240	75	45	45
SC50-4	3 (76)	265	75	16	265	75	45	45
SC50-4	4 (102)	315	80	17	315	75	45	45
SC50-5	5 (127)	420	80	17	420	82	50	41
SC50-5	6 (152)	485	80	17	485	82	50	41
SC50-5	8 (203)	550	90	20	550	82	50	41
SC50-6	10 (254)	750	230	50	750	120	75	32
SC50-6	12 (305)	975	280	60	975	165	100	32
SC50-7	14 (354)	1250	330	62	1250	200	120	28
SC50-8	16 (406)	1500	375	80	1500	220	135	17
SC50-8	18 (457)	1800	400	85	1800	250	150	17
SC50-9	20 (508)	2150	420	90	2150	250	150	3

*Metal thicknesses up to 8 inches: one 100-lb. cylinder required (approximately 120 SCFH at 70°).
Metal thicknesses greater than 8 inches: two 100-lb. cylinders required (approximately 120 SCFH at 70°).

SC46 Series Rugged Duty



Propane or Natural Gas

One-piece cutting tips designed for cutting dirty or heavily coated metals. For rugged duty including scrapping, heavy construction, or where excessive reflected heat is present.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (maximum size SC46-4)
- All SC and DG Series hand torches and machine torches

Tip Number	Metal Thickness Inches (mm)	Oxygen/Propane Consumption (SCFH)			Oxygen/Natural Gas Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Propane Preheat	Oxygen		Natural Gas Preheat	
		Cutting	Preheat		Cutting	Preheat		
SC46-2	3/4 (19)	105	70	15	105	70	41	56
SC46-2	1 (25)	115	70	15	115	70	41	56
SC46-2	1-1/4 (32)	135	70	15	135	70	41	56
SC46-4	2-1/2 (64)	240	70	15	240	70	41	56
SC46-4	3 (76)	265	70	15	265	70	41	56
SC46-4	4 (102)	315	70	15	315	70	41	56
SC46-5	5 (127)	420	105	22	420	52	52	54
SC46-5	6 (152)	485	105	22	485	52	52	54
SC46-5	8 (203)	550	105	22	550	52	52	54
SC46-6	10 (254)	750	105	22	750	52	52	54
SC46-6	12 (305)	975	105	22	975	52	52	54

SC60 Series Medium Preheat (Two-Piece)



Propylene

Two-piece medium preheat cutting tips designed to provide optimum performance with propylene or propylene-based fuel gases.

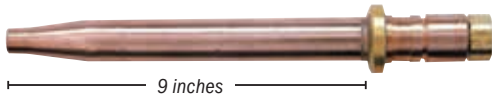
Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (maximum size SC60-5)
- All SC and DG Series hand torches
- Two-hose machine torches (maximum size SC60-6)
- Three-hose machine torch

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)				Drill Size Cutting Jet
		Oxygen		Propylene Preheat		
		Cutting	Preheat			
SC60-1	1/2 (13)	75	38	9	56	
SC60-1	5/8 (16)	85	38	9	56	
SC60-2	3/4 (19)	105	38	9	54	
SC60-2	1 (25)	115	38	9	54	
SC60-2	1-1/4 (32)	135	38	9	54	
SC60-3	1-1/2 (38)	170	38	9	51	
SC60-3	2 (51)	180	38	9	51	
SC60-4	2-1/2 (64)	240	58	15	45	
SC60-4	3 (76)	265	58	15	45	
SC60-4	4 (102)	315	58	15	45	
SC60-5	5 (127)	420	58	15	41	
SC60-5	6 (153)	485	58	15	41	
SC60-5	8 (203)	550	58	15	41	
SC60-6	10 (254)	750	58	15	32	
SC60-6	12 (305)	975	58	15	32	

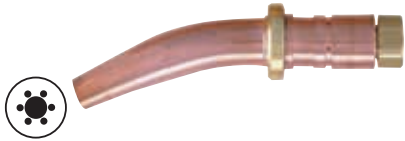
Heavy-Duty Special-Purpose Tips

Acetylene



Extra Long Cutting SC12-4X9

Tip for hard-to-reach areas. Size 4.



Gouging SC13-3 and SC13-5

For edge preparation, removal of welds or gouging cracked metals.



Rivet/Riser Cutting SC14-3

Cuts heads of bolts and rivets. It can also be used in 180-degree head cutting torch to cut out boiler tubes. Works equally well for cutting risers and bulk heads.



Rivet Blowing and Metal Washing – SC15-2

Quickly removes large quantities of metal. Heavy preheat primarily used as a rivet blowing tip, but can be used for stud removal, metal washing, gouging, veeing and groove cutting.



Plate Cutting – SC17-0

“Drag”-style step tip cuts thin sheet metal with absolute minimum burn over and plate warpage.



Heating – SC83

Delivers large volume of heat quickly for bending, straightening, shrinking, forming and other heating applications. It allows heating with a one-piece cutting torch. *Not recommended for use with cutting attachments.*

Tip Number	Purpose	Capacity Inches (mm)	Consumption (SCFH)	
			Oxygen	Acetylene
SC12-4x9	Cutting	4 (102)	331	14
SC13-3	Gouging	3/8 (10) wide 1/4 (6) deep	151	35
SC13-5	Gouging	1/2 (13) wide 3/8 (10) deep	246	50
SC14-3	Riser	1-1/2 (38) rivets	190	20
SC15-2	Washing	1/2 (13) wide 3/8 (10) deep	336	40
SC17-0	Plate or Thin Cutting	3/8 (10)	55	4

Tip Number	Purpose	Average BTU/Hour	Consumption (SCFH)	
			Oxygen	Acetylene
SC83	Heating	83,000	58	52*

*Two 350-cu.-ft. cylinders required.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (except SC83)
- All SC and DG Series hand torches and machine torches

Tips

Propane or Natural Gas Propylene



General Gouging (Propane) SC2-2 and SC2-4

For removing old welds or cracks, veeing and groove cutting.



Heavy-Duty Gouging SC23-3 (Propane) SC23-3M (Propylene)

For removing old welds or cracks, veeing and groove cutting.



Heating (Propane) SC112

Provides lots of heat fast with economical LP gas and oxygen. *Not recommended for use with cutting attachments.*

Tip Number	Purpose	Capacity Inches (mm)	Consumption (SCFH)	
			Oxygen	Fuel
SC2-2	Gouging	5/16 (8) wide 1/8 (3) deep	389	53
SC2-4	Gouging	3/8 (10) wide 1/4 (6) deep	564	53
SC23-3	Gouging	3/8 (10) wide 1/4 (6) deep	174	31
SC23-3M	Gouging	1/4 (6) wide 3/8 (10) deep	174	31

Tip Number	Purpose	Average BTU/Hour	Consumption (SCFH)	
			Oxygen	Propane
SC112	Heating	289,000	495	125*

*Two 100-lb. cylinders required.

Compatible cutting attachments and torches

- SC200 and DG200 Series attachments (except SC112)
- All SC and DG Series hand torches and machine torches

Medium-Duty and Standard-Duty Tips

MC12 Series



Acetylene

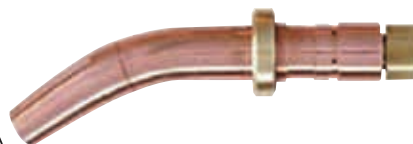
Slip-in cutting tips for general medium-duty hand cutting. Use with medium pressure acetylene and oxygen.

Compatible cutting attachments

- MC509, CC509P, DG109A, AC309 (AC309: maximum size MC12-4)

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Acetylene Preheat	
		Cutting	Preheat		
MC12-00	1/8 (3)	30	7	6	68
MC12-00	3/16 (5)	30	7	6	68
MC12-0	1/4 (6)	40	7	6	62
MC12-0	3/8 (10)	46	7	6	62
MC12-1	1/2 (13)	75	9	7	55
MC12-1	5/8 (16)	81	9	7	55
MC12-2	3/4 (19)	107	11	9	54
MC12-2	1 (25)	118	11	9	54
MC12-3	1-1/2 (38)	170	12	10	51
MC12-3	2 (51)	181	12	10	51
MC12-4	2-1/2 (64)	249	14	12	45
MC12-4	3 (76)	267	14	12	45
MC12-4	4 (102)	320	15	13	45
MC12-5	5 (127)	420	15	13	41
MC12-5	6 (152)	485	15	13	41

MC13-3 Gouging



Acetylene

For edge preparation, removal of old welds or defects in steel. Heavy preheat.

Compatible cutting attachments

- MC505, MC509, CC509P, AC309 and DG109A

Tip Number	Purpose	Capacity Inches (mm)	Consumption (SCFH)	
			Oxygen	Acetylene
MC13-3	Gouging	3/8 (10) wide 1/4 (6) deep	115	24*

*One 350-cu.-ft. cylinder required.

MC40 Series (Two-Piece)



Propane

Two-piece medium preheat cutting tips for hand cutting with propane and propane-based fuel gases.

Compatible cutting attachments

- MC505, MC509, CC509P, AC309 and DG109A

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Propane Preheat	
		Cutting	Preheat		
MC40-00	3/16 (5)	24	35	7	68
MC40-0	1/4 (6)	40	35	7	62
MC40-0	3/8 (10)	46	35	7	62
MC40-1	1/2 (13)	75	35	7	55
MC40-1	5/8 (16)	81	35	7	55
MC40-2	3/4 (19)	107	35	7	54
MC40-2	1 (25)	118	35	7	54
MC40-2	1-1/4 (32)	133	35	7	54
MC40-3	1-1/2 (38)	170	35	7	51
MC40-3	2 (51)	181	35	7	51
MC40-4	2-1/2 (64)	249	35	7	51
MC40-4	3 (76)	267	35	7	51
MC40-4	4 (102)	320	35	7	51

See data note at right.

MC60 Series (Two-Piece)



Propylene

Two-piece medium preheat cutting tips for hand cutting with propylene or propylene-based fuel gases.

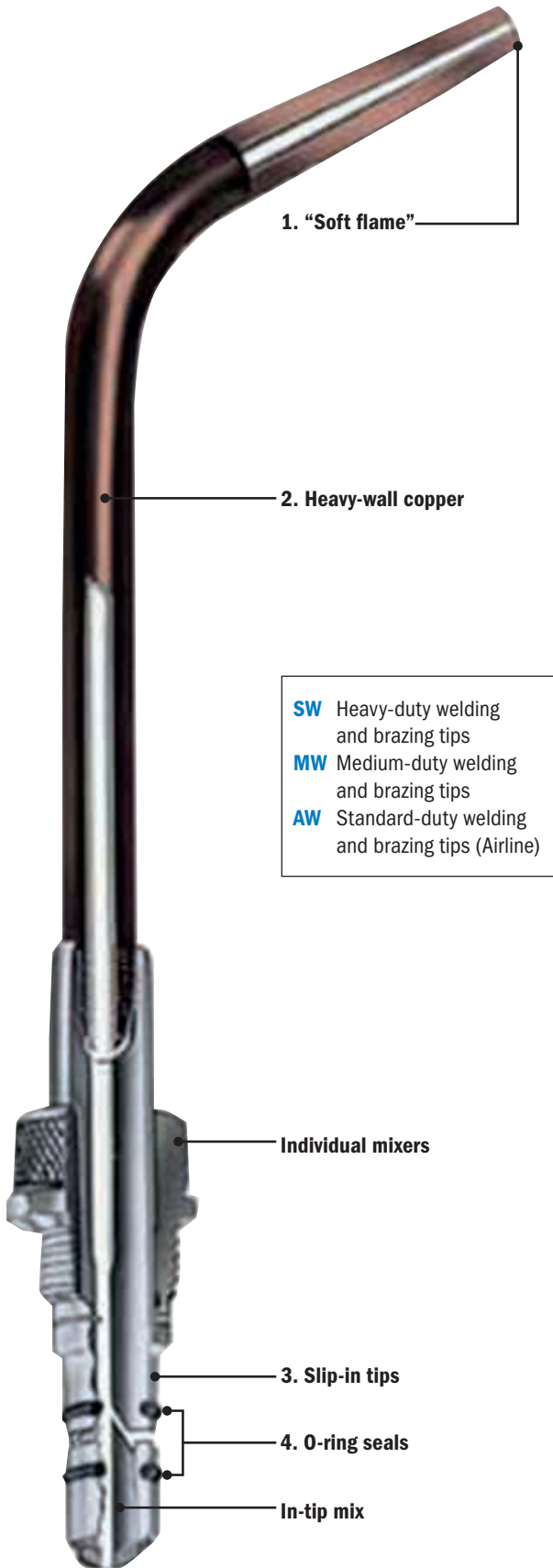
Compatible cutting attachments

- MC505, MC509, CC509P, AC309 and DG109A

Tip Number	Metal Thickness Inches (mm)	Consumption (SCFH)			Drill Size Cutting Jet
		Oxygen		Propylene Preheat	
		Cutting	Preheat		
MC60-1	1/2 (13)	75	26	7	55
MC60-1	5/8 (16)	81	26	7	55
MC60-2	3/4 (19)	107	26	7	54
MC60-2	1 (25)	118	26	7	54
MC60-2	1-1/4 (32)	133	26	7	54
MC60-3	1-1/2 (38)	170	42	11	51
MC60-3	2 (51)	181	42	11	51
MC60-4	2-1/2 (64)	249	42	11	45
MC60-4	3 (76)	267	42	11	45
MC60-4	4 (102)	320	42	11	45

Data based on 25-ft. (7.6 m) of 3/16-in. (5 mm) ID hose for cutting up to 1-1/2-inch (38 mm) steel and 25-ft. (7.6 m) of 1/4-in. (6 mm) ID hose for cutting 2-in. (51 mm) steel and above.

Welding Tips



1. "Soft flame"

2. Heavy-wall copper

- SW** Heavy-duty welding and brazing tips
- MW** Medium-duty welding and brazing tips
- AW** Standard-duty welding and brazing tips (Airline)

Individual mixers

3. Slip-in tips

4. O-ring seals

In-tip mix

Our "soft flame" welding tips are 100-percent tested and inspected, and make welding easier.

Our welding tips are quality engineered to provide easy handling, high performance and added protection in welding, brazing and soldering operations. Each tip is individually tested on our automatic testing machines and must pass stringent requirements for flame characteristics, gas flow and resistance to backfire or flashback.

Construction features

1 "Soft flame"

Our "soft flame" welding tips provide concentrated heat for better "puddle" control – the turbulent-free flame eliminates puddle chasing. Soft flame provides deep, even penetration without burning through base metal for strong, dependable welds. Molten metal is protected from atmospheric oxidation by smooth, even flame envelope.

2 Heavy-wall copper

Heavy-wall copper gives greater resistance to reflected heat, permits cooler operation, and dissipates more heat than thin-wall copper. Heat-absorbing tips provide longer life, and the long straight-away design permits tip refacing after excessive wear or abuse.

3 Slip-in tips

Tips may be rotated 360 degrees for convenient positioning, eliminating hose resistance during operation. Slip-in tips can be changed in just seconds. Hand tighten, no wrench needed. O-rings provide gas-tight seal keeping gases separate until they mix in the tip.

4 O-ring seals

O-rings provide gas-tight seal with no metal seating surface to damage if dropped. Gases are kept separate until entering the mixing chamber.

Fuel Gas Chart

Generic Name	Trade Name
Acetylene	–
Propane and Propane-Based Mixtures	Propane-butane, Flamex, Acetogen, Chem-O-Lene, Florida Industrial Gas, Hy-Temp, Fuel Gas, I.G. Gas, Chem-Gas, Lingas, Chemtone
Propylene	HPG, Apachi, B-Plus, Gulf HP Gas, HEF, Liquifuel, B.T.U.
Natural Gas (Methane)	Natural Gas, City Gas

CAUTION: Manifolding cylinders

When required flows (cubic feet per hour – SCFH) exceed the recommended withdrawal rate from one cylinder, then additional cylinders must be manifolded to provide safe and efficient operation. Acetylene must not be withdrawn at more than 1/7 of the cylinder capacity per hour (50 SCFH for a 350 cu. ft. cylinder). Consult your gas supplier for manifolding instructions for the gases and cylinders supplied to you.

Heavy-Duty Tips

SW200 Series



Acetylene

The SW200 Series is for general and heavy welding and brazing. Swaged construction provides greater heat concentration for improved “puddle” control. Tips are bent to 63.5-degree angle. O-ring replacement: LW15 (package of 25).

Compatible torch handles

- WH200A, WH200, SW1B, SW1A and SW1

Fuel gases

These tips may also be used for brazing with acetylene-based fuels and propylene-based fuel gases. When using these gases, select a tip two sizes larger than recommended for the same work as acetylene.

Tip Number	Welding Capacity Inches (mm)	Consumption (SCFH)*		Drill Size
		Oxygen	Acetylene	
SW201	1/32 (0.7)	2.3	2.3	71
SW203	5/64 (1.9)	3.2	3.2	67
SW205	1/8 (3)	6	6	57
SW207	3/16 (5)	12	12	54
SW209	3/8 (10)	23	23	49
SW210	1/2 (13)	36	36	44

*Consumption (SCFH: cubic feet per hour) figures represent the average volumes of gases consumed when acetylene is added until sooty smoke just disappears from the acetylene flame prior to opening the oxygen valve and adjusting to a neutral flame.

Medium-Duty Tips

MW200 Series



Acetylene

The MW200 Series is for general purpose medium-duty welding which features our “soft flame” for easier puddle control and better penetration. Tips are bent to 63.5-degree angle. O-ring replacement: MW15 (package of 25).

Compatible torch handles

- WH100, MW5A and CW5A

Fuel gases

These tips may also be used for brazing with acetylene-based fuels and propylene-based fuel gases. When using these gases, select a tip two sizes larger than recommended for the same work as acetylene.

Tip Number	Welding Capacity Inches (mm)	Consumption (SCFH)*		Drill Size
		Oxygen	Acetylene	
MW201	1/32 (0.7)	2.3	2.3	71
MW203	5/64 (1.9)	3.2	3.2	67
MW205	1/8 (3)	6	6	57
MW207	3/16 (5)	12	12	54
MW209	3/8 (10)	23	23	49

*Consumption (SCFH: cubic feet per hour) figures represent the average volumes of gases consumed when acetylene is added until sooty smoke just disappears from the acetylene flame prior to opening the oxygen valve and adjusting to a neutral flame.

Medium-Duty Tips

MW411



Propane or Natural Gas

General-purpose medium-duty brazing tips designed specifically for use with propane or propane-based mixture fuel gases with oxygen. Used for brazing applications and casting platinum. O-ring replacement: MW15 (package of 25).

Compatible torch handles

- WH100, MW5A and CW5A

Tip Number	Welding Range Inches (mm)	Consumption (SCFH)	
		Oxygen	Fuel
MW411	1/2-5/8 (13-16)	51.9	13

Standard-Duty Tips

AW200 Airline™ Series



Acetylene

General-purpose standard-duty welding/brazing tips. Shorter, lighter and easier to handle. O-ring replacement: AW15 (package of 25).

Compatible torch handles

- AW1A and AW10A

Fuel gases

These tips may also be used for brazing with acetylene-based fuels and propylene-based fuel gases. When using these gases, select a tip two sizes larger than recommended for the same work as acetylene.

Tip Number	Welding Capacity Inches (mm)	Consumption (SCFH)*		Drill Size
		Oxygen	Acetylene	
AW201	Up to 1/32 (0.7)	2.3	2.3	71
AW203	5/64 (1.9)	3.2	3.2	67
AW205	1/8 (3)	6	6	57
AW207	3/16 (5)	12	12	54
AW209	3/8 (10)	23	23	49
AW210	1/2 (13)	36	36	44

*Consumption (SCFH: cubic feet per hour) figures represent the average volumes of gases consumed when acetylene is added until sooty smoke just disappears from the acetylene flame prior to opening the oxygen valve and adjusting to a neutral flame.

Heating Tips

Heating tips used in torch handles provide significant cost savings in many applications.

Heating tips do jobs faster and cut labor time to a minimum by providing great amounts of quick, concentrated heat. For proper performance, use the recommended pressures for each tip and an adequate gas supply.

- ST** Heavy-duty heating tips
- MT** Medium-duty heating tips
- AT** Standard-duty heating tips

Fuel Gas Chart

Generic Name	Trade Name
Acetylene	—
Propane and Propane-Based Mixtures	Propane-butane, Flamex, Acetogen, Chem-O-Lene, Florida Industrial Gas, Hy-Temp, Fuel Gas, I.G. Gas, Chem-Gas, Lingas, Chemtone
Propylene	HPG, Apachi, B-Plus, Gulf HP Gas, HEF, Liquifuel, B.T.U.
Natural Gas (Methane)	Natural Gas, City Gas

CAUTION: Manifolding cylinders

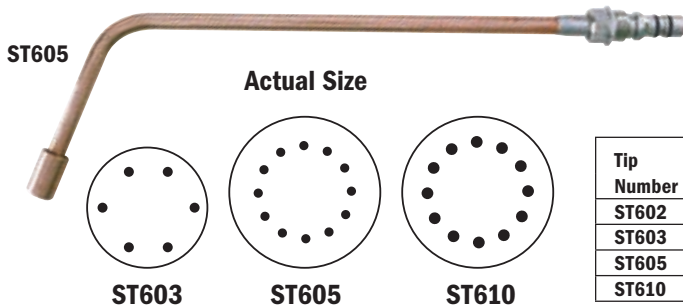
When required flows (cubic feet per hour – SCFH) exceed the recommended withdrawal rate from one cylinder, then additional cylinders must be manifolded to provide safe and efficient operation. Acetylene must not be withdrawn at more than 1/7 of the cylinder capacity per hour (50 SCFH for a 350-cu.-ft. cylinder). Consult your gas supplier for manifolding instructions for the gases and cylinders supplied to you.

CAUTION: Flashback arrestors

Heating tips must be used in conjunction with high-flow flashback arrestors. It may be necessary to increase outlet pressures to compensate for flow restrictions that may be created by flashback arrestors.

Heavy-Duty Tips

ST600 Series



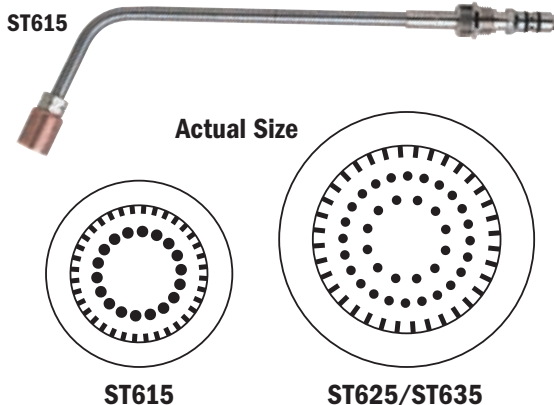
Acetylene

Multi-flame heating tips for our heavy-duty torch handles. Used for heat treating, bending, straightening, pre-heating, brazing, shrinking, forming, etc. Heads are manufactured from solid copper.

Compatible torch handles

- WH200A, WH200, SW1B, SW1A and SW1

Tip Number	Average BTU/ Hour	Consumption (SCFH)		Drill Size	350 Cu. Ft. Fuel Cylinders Required	Overall Length Inches (mm)
		Oxygen	Acetylene			
ST602	40,125	31	28	64	1	16 (406)
ST603	71,750	55	50	56	1	16 (406)
ST605	124,670	96	87	57	2	19 (483)
ST610	194,890	150	136	54	3	19 (483)



Propane or Natural Gas

Medium pressure oxy-propane or propane-based heating tips provide high heating performance with low-cost fuel gases including natural gas and propane-based gases.

Propylene

Compatible torch handles

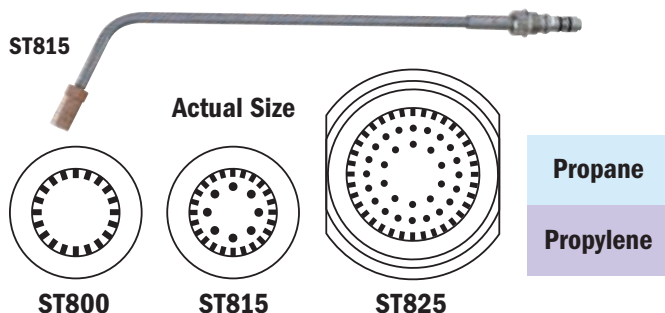
- WH200A, WH200, SW1B, SW1A and SW1

Tip Number	Average BTU/ Hour	Consumption (SCFH)		Overall Length Inches (mm)	Torch Head Number
		Oxygen	Fuel Gas		
ST615	244,000	225-535	70-160 (propane)	16 (406)	1495
	155,145	175-450	96-267 (natural gas)		
	280,000	235-430	100-160		
ST625	455,000	480-1000	140-280 (propane)	31.5 (800)	1504
	313,950	390-785	200-450 (natural gas)		
ST635*	614,195	670-1580	185-480 (propane)	31.5 (800)	1499

*ST635 requires 3/8-inch (10 mm) I.D. hose and 40-50-510 propane cylinder regulator.

Heavy-Duty Tips

ST800 Series



Medium pressure oxy-propane or propane-based heating tips provide high heating performance with low-cost fuel gases including natural gas and propane-based gases.

Compatible torch handles

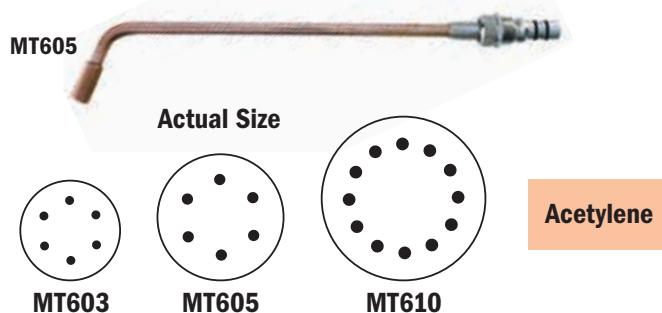
- WH200A, WH200, SW1B, SW1A and SW1

Tip Number	Average BTU/Hour	Consumption (SCFH)		Overall Length Inches (mm)	Torch Head Number
		Oxygen	Fuel Gas		
ST800	58,000	107-108	22-24	15.5 (394)	16317
	75,000	118-138	31-34		
ST815	273,000	390-655	120-235	16 (406)	4642
ST825	830,000	580-1500	225-525	31 (787)	4639

Note: Use 3/8-inch (10 mm) I.D. hose.

Medium-Duty Tips

MT600 Series



Versatile multi-flame heating tips for the popular medium-duty torch handles. Used for general heating of metals, brazing, hard surfacing, etc. Heads are manufactured from solid copper.

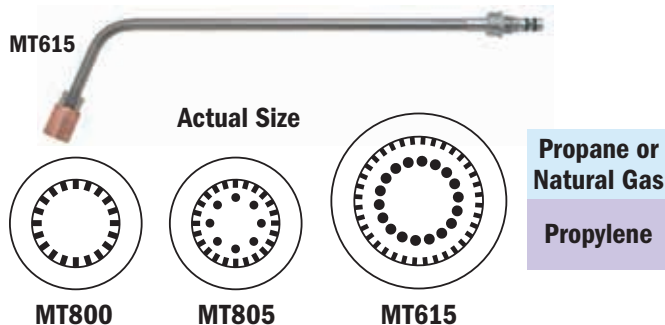
Compatible torch handles

- WH100, MW5A and CW5A

Tip Number	Average BTU/Hour	Consumption (SCFH)		Drill Size	350 Cu. Ft. Fuel Cylinders Required	Overall Length Inches (mm)
		Oxygen	Acetylene			
MT603	40,125	31	28	64	1	10 (254)
MT605	73,085	57	51	56	1	16 (406)
MT610	128,970	100	90	57	2	18 (457)

Medium-Duty Tips

MT800 Series and MT615



Medium pressure oxy-propane or propane-based heating tips provide high heating performance with low-cost fuel gases including natural gas and propane-based gases.

Compatible torch handles

- WH100, MW5A and CW5A

Tip Number	Average BTU/Hour	Consumption (SCFH)		Overall Length Inches (mm)	Torch Head Number
		Oxygen	Fuel Gas		
MT800	93,000	119-121	36-38 (propane)	12.5 (318)	16317
	123,000	135-146	51-56		
MT805	208,000	206-230	80-100 (propane)	15 (381)	4642
	280,000	242-270	120-135		
MT615	269,000	225-535	70-160 (propane)	15 (381)	1495
	182,000	175-450	96-267 (natural gas)		
	280,000	235-430	100-160		

Standard-Duty Tips

AT605



Handy light-duty multi-flame tip for heating, brazing and applying hard facing metals. Uses medium pressure acetylene and oxygen. Heads are manufactured from solid copper.

Compatible torch handles

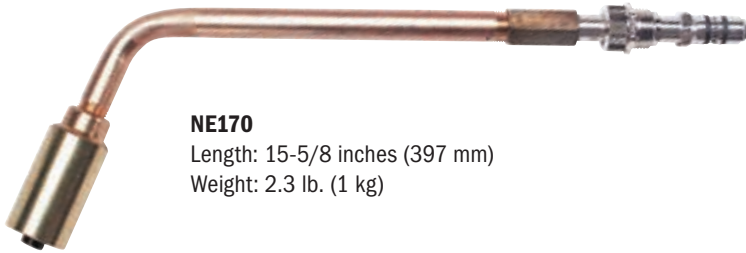
- AW1A and AW10A

Tip Number	Average BTU/Hour	Consumption (SCFH)		Drill Size	200 Cu. Ft. Fuel Cylinders Required	Overall Length Inches (mm)
		Oxygen	Acetylene			
AT605	41,550	32	29	64	1	10 (254)

Note: Tips may also be used with oxygen/hydrogen.

Heavy-Duty Special-Purpose Heating Tips

Compressed Air Heating Tip



NE170
Length: 15-5/8 inches (397 mm)
Weight: 2.3 lb. (1 kg)

Propane or Natural Gas

Produces concentrated flame not normally possible with low-cost natural gas. Ideal for a wide range of heating applications including die casting. Produces temperatures of 3400 degrees Fahrenheit with natural gas and 3500 degrees Fahrenheit with propane. Operates on gas pressures of 2-10 PSIG and 10-100 PSIG compressed air. For maximum heat output, a minimum of 30 PSIG air is required.

Compatible torch handles

- WH200A, WH200, SW1B, SW1A and SW1

Tip Number	Consists of		
	Gas Mixer	Tip Head	Gooseneck
NE170	ST625B	NE171 86,000 BTU/hour	NE171-1

Note: Hex tip tube adaptor is part number **15855**.

Railroad Heating Tip (Preheat for Thermite Rail Welding)



15674
Length: 15-1/2 inches (394 mm)
Weight: 2.3 lb. (1 kg)

Propane

Five-minute-style preheating tip for rail welding. May also be used for additional heating applications.

Compatible torch handles

- WH200A, WH200, SW1B, SW1A and SW1

Tip Number	Average BTU/Hour	Consumption (SCFH)	
		Oxygen	Propane
15674	150,000	275	70

⚠ CAUTION: Liquid oxygen

When using liquid oxygen, tips may require greater gas volume than a single cylinder is capable of producing. External evaporators or manifolding multiple cylinders may be necessary to supply sufficient gas flows.

⚠ CAUTION: Manifolding cylinders

When required flows (cubic feet per hour – SCFH) exceed the recommended withdrawal rate from one cylinder, then additional cylinders must be manifolded to provide safe and efficient operation.

⚠ CAUTION: Flashback arrestors

Heating tips must be used in conjunction with high-flow flashback arrestors. It may be necessary to increase outlet pressures to compensate for flow restrictions that may be created by flashback arrestors.