



**THE UNIVERSAL
HEATING TIP
FOR ANY GAS**

**ISO 9001
Certified**

The Universal Heating Tip

Order five instead of twenty

Using CONCOA's Universal Heating Tips saves money by reducing present tip inventory, tip maintenance and replacement costs.

Traditionally, a 20 tip inventory was required to use four gases, five tip sizes for each gas. With our Universal Heating Tips, order and use five tip sizes for all four gases, reducing tip inventory and associated costs.

Our proven Universal Heating Tips operate equally well on all four major fuels -- oxyacetylene, oxy-MAPP® (propylene gas), oxy-propane and oxy-natural gas. They are available in sizes 5 through 18 in five convenient styles. (Note: the three largest sizes are not for use with acetylene. Oxyacetylene flames that big require acetylene pressures above allowable safe limits.)

In addition to fewer tips, our quality-first tip construction ensures minimal tip maintenance without sacrificing fuel economy for production. The Universal Heating Tips are constructed with square, clean flame heads (skirts have been eliminated), and designed to not countersink holes

Finally, CONCOA's Universal Heating Tips not only burn the four major industrial fuels, but they burn them better. We have calibrated each tip size and style for optimum fuel flow.

Limit maintenance and replacement costs

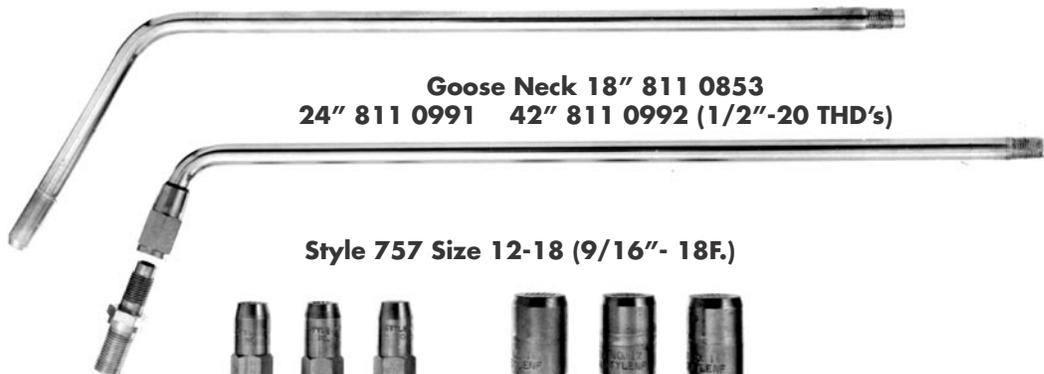
The Universal Heating Tips are the result of customer service inquiries. Our customers were tired of burning tips, tips overheating, and maintaining high inventories of conventional tips. They asked us to find a solution to their problems.

Our solution is the Universal Heating Tips. These tips are designed to meet the most severe working conditions. They have a substantial margin for back wash, or operation at reduced flowrates. And, because overheating causes conventional tips lose mechanical strength, our Universal Heating Tips are designed for maximum cooling at optimum conditions.

The Universal Heating Tips are constructed from solid copper, or parts welded together to minimize failure. They have been thoroughly tested with all major fuels.

We rammed an oxyacetylene flame up against an incandescent brick, the tips didn't flashback or burn up. We tried oxy-natural gas at high flowrates attempting to blow off the flames, but the flames didn't blow off. We even ran MAPP Gas through the tips at a 4-1 oxygen-to-fuel ratio to burn out the ports, but failed to do so. In every worse case scenario we could think to test these tips, the Universal Heating Tips passed successfully.

Style 756 Sizes 10, 12, 13, 14 (1/2"-20 THD's)



Goose Neck 18" 811 0853

24" 811 0991 42" 811 0992 (1/2"-20 THD's)

Style 757 Size 12-18 (9/16"- 18F.)

Adapter
811 1410

(1/2"-20M - 9/16"- 18M)

Tips on tips

The best heating results require the right size regulator, adequate gas supply, and the right size tip. Adjust settings according to operating charts for maximum fuel economy.

Gas Supply: High velocity flames use fuel pressures of at least 10 PSIG. Big tips and big heating jobs may need up to 35 PSIG (15 PSIG maximum for acetylene). If single cylinders will not deliver the required flow rate, use manifolds and regulators with adequate capacity for the job. Where flowrates are unusually high, use a short, 3/8 -in dia. hose with the minimum number of couplings, and size "B" hose fittings with a flow passage of at least 1/4 in. dia.

Safety: All CONCOA gas equipment can safely and efficiently operate the styles and sizes of the heating tip outlined (using the proper procedures and settings).

The CONCOA "B" size check valves meet the required flow capacity for all CONCOA equipment and heating tips. Check valves help prevent the reverse flow of gases, they are NOT fire stops. For maximum safety, follow the correct procedures and employ flashback arrestors.

CONCOA Model Super 78 Flashback Arrestors are recommended because of their superior flow capacity that ensures adequate gas supply for the full line of CONCOA heating tips. Its automatic cutoff, alerts the operator that a flashback has occurred and corrective action should be taken.

The Model 460 Torch Mounted Flashback Arrestors may be used in applications requiring less than 200 CFH* of fuel gas at 15 PSIG. The Model 53 Regulator Mounted Flashback Arrestors may be used in applications requiring no more than 250* CFH of fuel gas at 15 PSIG.

**CFH Air - Use conversion factor: Acet. x 1.04; Mapp x 0.85; Nat. Gas x 1.25; Propane x 0.80.*



Universal Jet Mixture
811 0899
(1/2"-20 FemalesTHDs)

Flow restrictions may prevent the required flow for safe operation of these high capacity heating tips. Be aware and compare the capacity of any equipment employed with the selected tip's requirements. Keep in mind, flow restrictions of any kind can cause a hazardous flashback.

Select the best tip size: With the wrong tip size, high velocity flames can burn a lot of fuel in a short time. A tip burning 200 CFH will not necessarily heat twice as fast as one burning 100 CFH. Minimize fuel costs by trying different tip sizes and comparing fuel consumption. If flow meters are unavailable, use pressure gauges with in-line adapters. Then multiply the cubic feet per hour of fuel used by the time required to complete the job.

If flowmeters or pressure gauges are unavailable, the primary flame cone lengths listed in this brochure will provide a rough check on proper flowrate for each tip. Because hoses leak or become obstructed, always check pressure at the torch, not at the regulators.

Use recommended flowrates: Flame velocity is important for optimum heat transfer to a workpiece. Our tips are rated using the high-efficiency, optimum fuel settings provided in the tables of this brochure. When using these settings for high-velocity flame, it is normal to see an outer ring flame anchored only on the inside-edge of the flame port. Use a larger tip for more heat, or a smaller tip for less.

Operating with MAPP® Gas: Begin by holding the flame at one spot, and when it maintains temperature, slowly move the torch over the rest of the area to be heated. If a large area, an occasional pass over previously heated area will be sufficient to keep the temperature.

A soft flame is needed: Low-velocity (soft) flames are best for soldering or brazing, welding or soaking heat into large casting. A soft flame results from operating at flowrates below those recommended for high-velocity flames. Universal Tips also give efficient heating with soft natural gas flames, even with low line pressure. When using a soft, bushy flame, avoid backwash over the tip. Any tip, including the Universal Heating Tip, can burn if submerged in a flame at low flowrates.

Five Tip Styles Provide Flexibility

Style 756 - Single tube, multi-flame heating tip designed for bronze brazing heavy sections, flame hardening and heavy welding. A welded tip with no threads, it has the greatest heat resistance of any tip. It provides a constant source of concentrated heat that permits fast, efficient operation. Available in sizes 10, 12, 13 and 14.

Style 757 - Separable, multi-flame heating tips ideally suited for medium to heavy-duty bronze brazing, flame heating, hardening, and heavy welding. Flame stability and heating efficiency are excellent. Available in sizes 12, 13, 14, 16, 17 and 18. (Sizes 16, 17 and 18 are too big for use with acetylene because fuel flowrates, even from manifolded cylinders, are too low).

Style 759 - Separable, multi-flame heating tips designed for light-duty heating and brazing. Heat is efficiently concentrated by seven flame ports. Available in sizes 5, 7, 8, 9 and 10.

Tip and Mixer Assemblies Heating Tips Styles 760 and 860 - The Style 760 heating tip assemblies fit the Style 750 torch handle. The Style 860 assemblies fit the Style 800 torch handle.

These Styles of heating tips are available in five sizes. The Style 761 flame ends are removable for replacement or for changing to other flame head sizes. They are usable with all four major fuel gases.

Pick the Right Tip

Style No.	Tip Size No.	No. of Holes	Drill Size No.	1.1-to 1 Acetylene		2.5-to-1 MAPP Gas		4-to-1 MAPP Gas		4-to-1 Propane		2-to-1 Natural Gas	
				CFH	BTU	CFH	BTU	CFH	BTU	CFH	BTU	CFH	BTU
759	5	7	71	30	44,000	15	34,000	12	29,000	10	24,660	10	10,460
	7	7	67	50	74,000	25	61,000	20	50,000	15	37,000	15	15,700
	8	7	63	70	104,000	35	86,000	25	61,000	25	63,000	30	31,400
	9	7	56	110	163,000	55	135,000	40	98,000	40	100,000	60	63,000
	10	7	55	140	207,000	70	168,000	50	120,000	50	123,000	80	83,700
756	12	12	56	175	260,000	100	245,000	75	184,000	70	175,000	140	146,000
757													
756	13	12	54	230	340,000	150	368,000	115	282,000	110	276,000	210	220,000
757				14	19	55	275	400,000	200	490,000	150	376,000	150
757	16	27	54	Sizes 16, 17 and 18 are too large for use with acetylene.		300	730,000	210	515,000	250	630,000	475	496,000
	17	27	53			370	900,000	260	635,000	300	750,000	575	600,000
	18	27	1/16			550	1,350,000	380	930,000	350	880,000	675	700,000
FLAME TEMP WITH O ₂				5589°F		5301°F		5301°F		4579°F		4600°F	
BTU/CU. FT.				1480		2400		2400		2466		1046	

Then Use the Right Settings

Tip Style/Tip Size	Tip Stock No.	Torch Inlet Pressures(PSIG)*										Primary Cone Lgth. (in.)	Qty. of 100 Lb. Cyl. Req'd. for Cont. Oper.**	Efficient Fuel Flow Rate (CFH)	Min. Hose Size I. D. (in.) (25-ft. lg.)	Amt. Of Hole/ Drill No.		
		Style 800 Torch & Mixer Stock No.						Style 750 Torch & Mixer Stock No. 810-0781		450/475 Torch & Mixer Stock No. 810-9201								
		811-0899		811-0891		811-0881 811-0890		Fuel	Oxy	Fuel	Oxy						Fuel	Oxy
		Fuel	Oxy	Fuel	Oxy	Fuel	Oxy											
759/7	810-0977	7	10	5	10	7	14	7	14	9	20	1/2	1	15	3/16	7-67		
759/8	810-0978	8	12	6	11	10	20	10	22	18	37	1/2	2	25	1/4	7-63		
759/9	810-0979	9	15	8	14	13	33	11	37	--	--	1/2	2	40	1/4	7-56		
759/10	810-0980	10	16	9	15	20	43	16	46	--	--	1/2	3	50	5/16	7-55		
756/10	811-1910	10	16	--	--	--	--	--	--	--	--	1/2	3	50	5/16	7-55		
756/12	811-1912	8	26	--	--	--	--	--	--	--	--	3/4	4	70	5/16	12-56		
756/13	811-1913	9	40	--	--	--	--	--	--	--	--	3/4	5	110	3/8	12-54		
756/14	811-1914	10	54	--	--	--	--	--	--	--	--	3/4	8	150	3/8	19-55		
757/12	811-2032	8	18	--	--	--	--	--	--	--	--	3/4	4	70	5/16	12-56		
757/13	811-2033	9	40	--	--	--	--	--	--	--	--	3/4	5	110	3/8	12-54		
757/14	811-2034	10	54	--	--	--	--	--	--	--	--	3/4	8	150	3/8	19-55		
757/16	811-2036	17	96	--	--	--	--	--	--	--	--	1	15	250	3/8	27-54		
757/17	811-2037	20	108	--	--	--	--	--	--	--	--	1	20	300	3/8	27-53		
757/18	811-2038	22	120	--	--	--	--	--	--	--	--	1	23	350	3/8	37-1/16		

*Torch inlet pressures given only as a guide to set regulators -- with torch valves wide open; and to check restrictions in fuel or oxygen supply systems. Oxygen/fuel ratio is set to flame appearance -- when primary cones of length listed above are the shortest obtained as ratio is varied.

** Use cylinders with manifold; Use until 10% full at 70°F.

Using Your Universal Heating Tip

OXYGEN/ PROPANE Ratio 4:1

Using Your Universal Heating Tip

OXYGEN/ NATURAL GAS (Positive Pressure) Ratio 2:1

Tip Style/Tip Size	Tip Stock No.	Torch Inlet Pressures(PSIG)*										Primary Cone Lgth. (in.)	Qty. of 100 Lb. Cyl. Req'd. for Cont. Oper.	Efficient Fuel Flow Rate (CFH)	Min. Hose Size I. D. (in.) (25-ft. lg.)	Amt. Of Hole/ Drill No.
		Style 800 Torch & Mixer Stock No.						Style 750 Torch & Mixer Stock No. 810-0781		450/475 Torch & Mixer Stock No. 810-9201						
		811-0899		811-0891		811-0881 811-0890		Fuel	Oxy	Fuel	Oxy					
759/7	810-0977	1.5	3	2	3	2	8	2	8	2	9	1/4	1	15	3/16	7-67
759/8	810-0978	3.5	8	3.5	7	4	10	4	11	8	22	1/2	1	30	1/4	7-63
759/9	810-0979	5	12	6	10	9	20	8	23	na	na	1/2	1	60	1/4	7-56
759/10	810-0980	7	15	7	12	14	30	13	35	na	na	1/2	1	80	5/16	7-55
756/10	811-1910	7	15	na	na	na	na	na	na	na	na	1/2	1	80	5/16	7-55
756/12	811-1912	8	22	na	na	na	na	na	na	na	na	3/4	1	40	5/16	12-56
756/13	811-1913	9	38	na	na	na	na	na	na	na	na	3/4	1	210	3/8	12-54
756/14	811-1914	11	50	na	na	na	na	na	na	na	na	3/4	1	280	3/8	19-55
757/12	811-2032	8	22	na	na	na	na	na	na	na	na	3/4	1	140	5/16	12-56
757/13	811-2033	9	38	na	na	na	na	na	na	na	na	3/4	1	210	3/8	12-54
757/14	811-2034	11	50	na	na	na	na	na	na	na	na	3/4	1	280	3/8	19-55
757/16	811-2036	20	88	na	na	na	na	na	na	na	na	1	1	475	3/8	27-54
757/17	811-2037	24	112	na	na	na	na	na	na	na	na	1	1	575	3/8	27-53
757/18	811-2038	26	120	na	na	na	na	na	na	na	na	1	1	675	3/8	37-1/16

*Torch inlet pressures given only as a guide to set regulators -- with torch valves wide open; and to check restrictions in fuel or oxygen supply systems. Oxygen/fuel ratio is set to flame appearance -- when primary cones of length listed above are shortest obtainable as ratio is varied.

OXYGEN/ ACETYLENE Ratio 1.1:1

Tip Style/Tip Size	Tip Stock No.	Torch Inlet Pressures(PSIG)*										Primary Cone Lgth. (in.)	Qty. of 100 Lb. Cyl. Req'd. for Cont. Oper.**	Efficient Fuel Flow Rate (CFH)	Min. Hose Size I. D. (in.) (25-ft. lg.)	Amt. Of Hole/ Drill No.
		Style 800 Torch & Mixer Stock No.						Style 750 Torch & Mixer Stock No. 810-0781		450/475 Torch & Mixer Stock No. 810-9201						
		Fuel	Oxy	Fuel	Oxy	Fuel	Oxy	Fuel	Oxy	Fuel	Oxy					
759/7	810-0977	10	12	11	13	10	14	10.5	15	15	18	1/2	1	50	3/16	7-67
759/8	810-0978	10	12	11	13	11.5	16	11.5	15	na	na	1/2	2	70	1/4	7-63
759/9	810-0979	10	12	10	12	15	21	15	22.5	na	na	1/2	2	110	1/4	7-56
759/10	810-0980	10	12	12	15	na	na	na	na	na	na	1/2	3	140	5/16	7-55
756/10	811-1910	10	12	na	na	na	na	na	na	na	na	1/2	3	140	5/16	7-55
756/12	811-1912	10	19	na	na	na	na	na	na	na	na	1/2	3	175	5/16	12-56
756/13	811-1913	10.5	20	na	na	na	na	na	na	na	na	1/2	4	230	3/8	12-54
756/14	811-1914	11	22	na	na	na	na	na	na	na	na	1/2	5	275	3/8	19-55
757/12	811-2032	10	19	na	na	na	na	na	na	na	na	1/2	3	175	5/16	12-56
757/13	811-2033	10.5	20	na	na	na	na	na	na	na	na	1/2	4	230	3/8	12-54
757/14	811-2034	11	22	na	na	na	na	na	na	na	na	1/2	5	275	3/8	19-55
Tips No. 16, 17 & 18		Not for acetylene use. They tend to overheat and burn out because they can not get enough fuel.														

*Torch inlet pressures given only as a guide to set regulators -- with torch valves wide open; and to check restrictions in fuel or oxygen supply systems. Oxygen/fuel ratio is set to flame appearance -- when feather just disappears from primary cones of length listed above (neutral flame).

** Use cylinders with manifold. Withdrawal rate for acetylene 1/10 of the cylinder content intermittent and 1/15 continuous.

OXYGEN/ MAPP @ GAS (Neutral Flame) Ratio 2.5:1

Tip Style/Tip Size	Tip Stock No.	Torch Inlet Pressures(PSIG)*										Primary Cone Lgth. (in.)	Qty. of 100 Lb. Cyl. Req'd. for Cont. Oper.**	Efficient Fuel Flow Rate (CFH)	Min. Hose Size I. D. (in.) (25-ft. lg.)	Amt. Of Hole/ Drill No.
		Style 800 Torch & Mixer Stock No.						Style 750 Torch & Mixer Stock No. 810-0781		450/475 Torch & Mixer Stock No. 810-9201						
		Fuel	Oxy	Fuel	Oxy	Fuel	Oxy	Fuel	Oxy	Fuel	Oxy					
759/7	810-0977	6	9	8	14	9	15	9	16	14	27	9/16	1	25	3/16	7-67
759/8	810-0978	9	12	10	15	11	20	11	21	22	38	9/16	1	35	1/4	7-63
759/9	810-0979	10	15	10	15	14	30	12	32	na	na	9/16	2	55	1/4	7-56
759/10	810-0980	11	18	10	16	22	38	20	38	na	na	9/16	2	70	5/16	7-55
756/10	811-1910	11	18	na	na	na	na	na	na	na	na	9/16	2	70	5/16	7-55
756/12	811-1912	9	20	na	na	na	na	na	na	na	na	3/4	3	100	5/16	12-56
756/13	811-1913	10	35	na	na	na	na	na	na	na	na	3/4	4	150	3/8	12-54
756/14	811-1914	13	44	na	na	na	na	na	na	na	na	3/4	6	200	3/8	19-55
757/12	811-2032	9	20	na	na	na	na	na	na	na	na	3/4	3	100	5/16	12-56
757/13	811-2033	10	35	na	na	na	na	na	na	na	na	3/4	4	150	3/8	12-54
757/14	811-2034	13	44	na	na	na	na	na	na	na	na	3/4	6	200	3/8	19-55
757/16	811-2036	17	72	na	na	na	na	na	na	na	na	3/4	10	300	3/8	27-54
757/17	811-2037	22	92	na	na	na	na	na	na	na	na	1	12	370	3/8	27-53
757/18	811-2038	32	120	na	na	na	na	na	na	na	na	1	25	550	3/8	37-1/16

*Torch inlet pressures given only as a guide to set regulators -- with torch valves wide open; and to check restrictions in fuel or oxygen supply systems. Oxygen/fuel ratio is set to flame appearance -- when feather just disappears from primary cones of length listed above (neutral flame).

** Use cylinders with manifold; use until 10% full.

Style 760 and 860 Universal Heating Tip Assemblies Replacement Head Style 761

Pressure and Flow Data

Fuels	Acetylene				MAPP® Gas							
Ratios	1.1:1				2.5:1				4:1			
Tip Sizes	Fuel		Oxy		Fuel		Oxy		Fuel		Oxy	
	PSIG	CFH	PSIG	CFH	PSIG	CFH	PSIG	CFH	PSIG	CFH	PSIG	CFH
5	7	30	7.5	30	6	14	7	35	8	12	9	48
7	7.5	50	8	50	6	25	7	62	7.5	20	9	80
8	10	70	10	70	8	25	10	87	7.5	25	10	100
9	14	110	14.5	110	12	55	15	138	11.5	40	15	160
10	15	128	15	128	12.5	70	16.5	175	12	50	18.5	200

Pressure and Flow Data

Fuels	Propane				Natural Gas			
Ratios	4:1				2:1			
Tip Sizes	Fuel		Oxy		Fuel		Oxy	
	PSIG	CFH	PSIG	CFH	PSIG	CFH	PSIG	CFH
5	5.5	10	6	40	1	10	1.5	20
7	4	15	5	60	1.5	15	1.5	30
8	7.5	25	10	100	3.5	30	4.5	60
9	9.5	40	16	160	7.5	60	10	120
10	10.5	50	20	200	9	80	14	160

Style MPH-HD MAPP Heating Heads

Stock Number	Catalog Number	MAPP Gas		Oxygen		Number Cylinder Manifold*	
		Operating Pressure (PSIG)	Consumption (CFH)	Operating Pressure (PSIG)	Consumption (CFH)	70 lb.	115 lb.
817-0500	MPH-HD1	15-30	100-150	30-45	300-360	2-3	2-3
817-0501	MPH-HD2	20-35	170-250	45-70	500-700	4-6	3-4
817-0502	MPH-HD3	25-35	210-300	50-80	650-900	5-7	4-5
817-0503	MPH-HD4	30-60	300-450	80-150	900-1200	8-12	5-8
817-0504	MPH-HD5	30-70	300-550	80-170	900-1400	8-bulk	8-10

MAPP Heating Heads should be operated with neutral flames at high flow rates (otherwise the heads may overheat). A large capacity mixer should be used with the heating heads.

NOTE: MAPP Heads are 1/2"-25 F.

Use Tip Adapter 817-0327 (1/2"-27M To 1/2"-20M) to Gooseneck.

FOR MAXIMUM SAFETY USE FLASHBACK ARRESTORS

FLASHBACK ARRESTORS		
Regulator Mounted	Regulator Mounted	Torch Mounted
Model-78 Resettable	Model 53	Model 460
801 0786 "B" Size for Oxygen	801 0536 "B" Size for Oxygen	801 1466 "B" Size for Oxygen
801 0789 "B" Size for Fuel Gas	801 0539 "B" Size for Fuel Gas	801 1469 "B" Size for Fuel Gas

UL Listed - Meet OSHA Requirements - Comply with ISO 5175

HEATING OPERATION INSTRUCTIONS

Safety

Install pressure regulators on cylinders (or pipeline branch). Read and follow procedures in CONCOA manual “Safe Practices in Welding & Cutting,” ADE 872, and torch and regulator instruction manuals. See ANSI/AWS Operators manual for OxyFuel Gas heating Torch Operation C4.3.

Fuel Gas Supply

Proper operation requires ample fuel and pressure. Be sure available pressure is slightly higher than shown in operating manual. To provide adequate gas flows, use:

- Manifolds for cylinders where required.
- Regulators that provide required flow capacity.
- Hose size as recommended in operating manual.
- Minimum hose lengths with minimum couplings. Use RMA-CGA Grade T Hose for fuel gas (including acetylene) to prevent hose failure. Grades R and RM are for use with acetylene only.
- Fittings (and check valves) with minimum flow passage diameter of 1/4 in. for B size.
- Manifolds for cylinders where required.

Ignition Procedure

1. Avoid ignition delays. Ensure sparklighter is in good working order.
2. Ignite with average fuel flow --- NO oxygen.
3. Increase fuel flow substantially.
4. Carefully start oxygen flow and increase until flame goes from strongly carburizing to slightly carburizing.
5. For large tips, alternately repeat steps 3 and 4 until both torch valves are wide open.
6. Trim flame to proper ratio by appearance (see guide for fuel being used) by adjusting the regulators not the torch valves.

To Prevent Tip Burnout

Keep the tip cool by using prescribed flowrates. Reducing flowrates or allowing flames to backwash over tip (by blind hole, etc.) will raise temperature. Severe back wash will burn tip.

Check Valves

Prevent the reverse flow of mixed gases, by using check valves on either regulator or torch, depending upon type of work and fuel gas in use.

Flashback Arrestors

For maximum safety, use either regulator or torch mounted flashback arrestors, depending upon type of work and fuel gas in use.



WARNING

A flashback (oxygen-fuel mixture burning inside extension tube) can cause a severe burn hazard. To avoid injury in case of flashback, immediately close the oxygen torch valve and, without delay, close the fuel torch valve tightly to extinguish flame. Close both cylinder valves. Do not touch mixer, extension tube or tip until they are cool.

For Efficient Low Cost Heating

1. Use proper size tip. A tip too small takes excessive time to reach desired temperature. A tip too large wastes fuel and oxygen without substantially reducing heating time. Make trial heats with different tips, comparing fuel consumption (CFH x elapsed time) to determine most economical tip.
2. Use the flowrate recommended in this guide. This rate gives the most efficient flame velocity, an important factor in transferring heat to the work. If heat is too small or too great, do not change flowrate, change to smaller or larger tip.

Visually Adjusting Flame

Experienced operators making frequent tip changes can take advantage of this simple method. See the recommended gas pressures and light torch as outlined above. When torch valves are wide open, alternately increase gas pressures by adjusting the regulators while observing test gauges until recommended levels are reached.

Adjusting With Test Gauges

Install test gauges between hose and torch valves. Adjust delivery pressures as recommended in guide. Follow ignition procedure steps 1-4 and adjust delivery pressures while observing test gauges until recommended levels are reached.

NOTE: The regulator gauge will always show a higher pressure than the test gauges because of loss, or drag, in the hoses. A large disparity results from too small a diameter, too long a hose or old hose with too many splices.

Make final ratio adjustment while keeping recommended flame cone length and record regulator delivery pressures for future use. After shutdown, remove test gauges and reconnect hoses and check valves.



WARNING

Use in well-ventilated area. Operation in closed area can result in oxygen deficient atmosphere.



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