

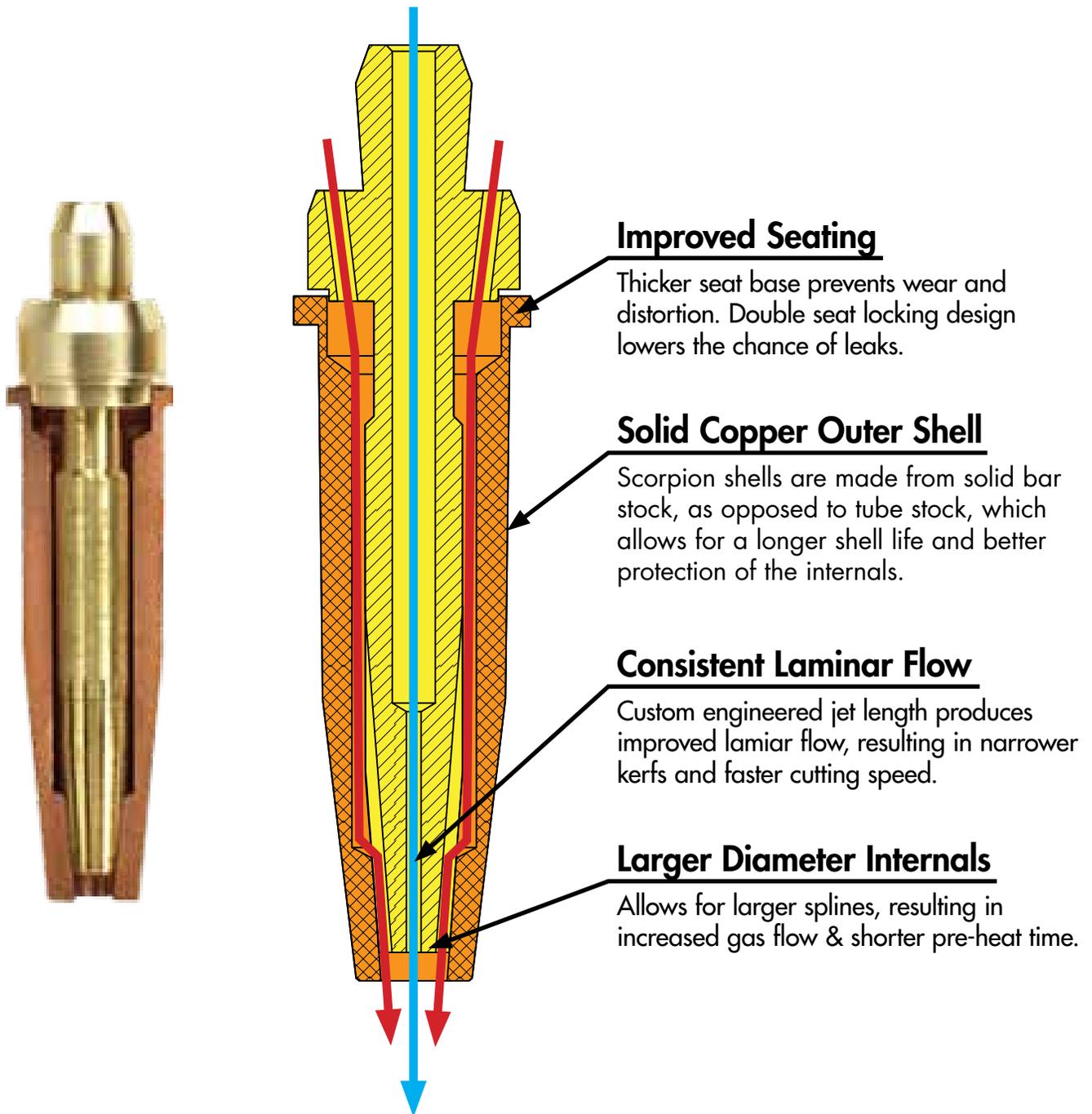
FLAME TECH[®]



**SCORPION TIP
SELECTION GUIDE**

SCORPION TIPS

Designed For Performance



WHEN YOU PURCHASE FLAME TECH

MISSION STATEMENT

Flame Technologies, Inc. is a manufacturer of high production, cost efficient gas apparatus, supplying the U.S. and international markets. Flame Tech's philosophy and commitment to the welding industry is to provide high quality, good service, competitive pricing and be responsive to the customers needs. We pride ourselves in delivering customer satisfaction since we began business in 1979.

Flame Tech offers a variety of gas apparatus products to the welding industry. We manufacture cutting tips (two different lines: Direct Replacement and our own designed "Scorpion" brand, brazing and heating equipment, regulators, hand cutting torches, welding nozzles, and Steel Industry Products (SIP). We found that by incorporating the latest designs from around the world and developing our own cost saving production methods, we could "*take from the best and share with the rest.*"

Flame Tech manufactures **Direct Replacement** acetylene and fuel gas tips designed specifically for use with Original Equipment Manufacturer (OEM) apparatus. Direct Replacement cutting tips use the same part numbers and sizes as the OEM to simplify ordering. Flame Tech products are made from high quality copper and brass bar stock instead of thin copper tubing. All products are performance tested prior to shipment.

Flame Tech's SCORPION cutting tips are designed for use with the Original Equipment Manufacturer torches. These products are unique in design and are made specifically to increase productivity: cut faster, last longer, and at competitive pricing. The Scorpion line is sold through "select distributors" qualified to support the user with product selection, technical assistance and inventory.

Flame Tech has a complete line of **Steel Industry Products** including the latest state of the art, caster cut-off carriage, torch and nozzle. Flame Tech's steel industry products are designed to increase productivity by reducing waste, increasing cutting speeds, reducing cost with less down time.

INNOVATIVE DESIGN

In many cases **FLAME TECH** has chosen to deviate from the Original Equipment Manufacturer's design in order to produce a superior product. Whether the product is a duplication or a **FLAME TECH** improvement, the object is always to produce a product which will yield higher productivity at competitive prices.

WORKMANSHIP

FLAME TECH products are manufactured from high quality copper and brass bar stock which is machined on specially designed machinery by skilled craftsmen.

QUALITY CONTROL

Inspection begins with the raw material and continues through each phase of production. The final assurance of quality is the performance testing of each product prior to sale.

PERFORMANCE

FLAME TECH recognizes the tremendous importance of the cutting oxygen stream or "stinger", and set out to engineer the best stingers in the industry. Our emphasis on excellent stingers and quality products led us to name our tip line after the **SCORPION** which is synonymous with "Stinger."

FLAME TECH'S design, workmanship, and quality control assure the user of products that will perform better and last longer on the job.

BROAD SELECTION

FLAME TECH products are available in a wide selection of types and sizes to cover the many requirements of the metal working industry.

RESPONSIVENESS

Tell us your needs and we will respond with a product designed for the specific application.

DISTRIBUTION

FLAME TECH products are sold through selected distributors qualified to support the user with product selection, technical assistance, and inventory. Support your distributor - he supports you.

FLAME TECH manufactures a complete line of replacement cutting tips, welding tips, heating equipment, flame hardening heads and custom products to your specifications. Contact your distributor for a price list containing our current offering.

THE FLAME TECH SCORPION TIP IDENTIFICATION SYSTEM

SCORPION two (2) piece tips have been designed with some truly innovative features to increase productivity, and offer a much broader selection than any Original Equipment Manufacturer (OEM). Therefore, a unique nomenclature was necessary for easy identification. This identification system clearly identifies the make of the torch (OEM), the fuel gas, and function of the tip. This simple system eliminates the chaos of meaningless letters and numbers presently used in the industry.

The **Flame Tech SCORPION** identification system consists of letter codes to identify the tip and number codes to identify the size. All letter codes are based on words commonly used to describe torch tips. The number codes represent tip sizes most commonly used in the industry.

The **FIRST CODE**: The Original Equipment Manufacturer (OEM) of the torch or seat. The first letter always identifies the seat:

U = Universal Style	P = Purox® Style
A = Airco®, Koike®, Tonaka® Style	R = Rego® Style
H = Harris® Style	S = Smith® Style
M = Meco® Style	V = Victor® Style
O = Oxweld® Style	3V = 3Victor® Style

The **SECOND CODE**: The fuel gas, spline, and recess: The second letter identifies the fuel for which the tip was designed. This in turn identifies the type of spline (coarse , fine) and the internal recess (deep or shallow).

N = **Course, Rectangular, Deep recess for N**atural Gas, Propane, L.P.G., Butane, Flamex, Chemolene, Chemtane, and Chemtane II.

NF = **Fine spline, Deep recess for N**atural Gas, Propane, L.P.G., Butane, Flamex, Chemolene, Fine splines used with the gases mentioned above, may slightly improve speeds but have a tendency to clog faster and are harder to clean.

NV = **Deep recess for V** Spline.

P = **Fine spline, Medium recess for P**ropylene based gases, HPG, FG 2 and APACHE.

M = **Fine spline, Medium recess for M**PS (Methylacetylene, Propodine -stabilized), MAPP, and LAF.

The codes shown above are the only ones required when ordering general purpose tips.

The **THIRD CODE**: The special purpose code. This code is used to give additional information regarding the type of tip, the shell, or the spline.

H = **H**igh Pressure, high speed machine or hand cutting tip

B = **B**ull Barrel, heavy shell for durability

X = **E**Xtra Preheat for faster starts; scaly, rusty, or coated plate

CS = **S**uper **C**oarse **S**pline for easy cleaning

R = **R**osebud Heating tip for cutting torches

RX = **R**osebud **E**Xtra preheat for cutting torches

RB = **R**ivet-**B**ulkhead bent cutting tip with wear shoe

STUB = **S**tub tip for tight places and pipe cutting

GB = **G**ouging, **B**ent

GS = **G**ouging, **S**traight

8, 10, 14 = long cutting tips

SCRAPPER = Bull barrel, heavy shell, V-spline, deep recess for scrap cutting with all fuel gases

More on GB and GS codes: There are three types of gouging or washing tips. Each type of gouger is identified by a number following its letter code:

- Type 2: A gouging and washing tip with a counterbored oxygen orifice. This design gives the gouger the versatility to become three tips in one (See Page 10).
- Type 4: A fast rivet blowing and heavy washing tip.
- Type 5: A washing and cutting tip with a counterbored oxygen orifice for fast action washing and non-precision cutting. Same configuration as cutting tip available in straight only.

The **FOURTH CODE** is the Size Code: The number following the tip nomenclature identify the size of the tip. **Scorpion** tips offer the broadest range of cutting orifice sizes in the industry. Please refer to the "Comparison Chart of Cutting Tip Numbers by Oxygen Orifice Drill Size" and the "**Scorpion** to OEM Tip Size Cross-reference" which follow in this section, for guidelines in size selection **Scorpion** tip sizes are as follows:

FLAME TECH SCORPION TIP SIZE SELECTION CHART																							
METAL THICKNESS* - TIP SIZE - SELECTOR CHART																							
Simply determine the material thickness then select the proper SCORPION standard or high pressure tip.																							
Metal Thickness	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/2	2	2 1/2	3	4	5	6	7	8	9	10	12	14	16	18
Tip Size Standard Pressure	5/0	4/0	000	00	001/2	0	01/2	1	1 1/2	2	2 1/2	3	4	5	5	6	6	7	8	9	10	11	12
Tip Size High Pressure	5/0	4/0	000	00	001/2	0	01/2	1	1	1	1 1/2	1 1/2	2	2	2 1/2	3	4	5	6				
* DATA COMPILED USING MILD STEEL, STRAIGHT CUTS, FOR LOW ALLOY AND/OR BEVELS, ADD ONE SIZE.																							
SCORPION TIP SIZES																							
Tip	5/0	4/0	000	00	001/2	0	01/2	1	1 1/2	2	2 1/2	3	4	5H	5	6H	6	7	8	9	10	11	12
Drill Size	74	71	68	64	62	60	58	56	54	52	50	48	44	42	39	39	31	28	25	19	13	9	5

In addition to **SCORPION** tips, Flame Tech also manufactures direct replacement acetylene, and fuel gas tips for all major Original Equipment Manufacturers (OEM's) under the OEM nomenclature. See the Flame Tech "Direct Replacement Price List" for complete product offering.

NOTE: THE HIGHLIGHTED TIPS SIZES ARE THE MOST POPULAR AND COVER MOST APPLICATIONS

SCORPION TIP STYLE CROSS REFERENCE

This cross reference is designed to be a substitution guide only. Scorpion tips are designed for performance and durability using only the Original Equipment style seat as the starting point. In most cases, Scorpion tips offer the user definite design advantages over the tips they replace.

	O.E.M.	SCORPION
AIRCO	229	ANX
	261	AN
	263	ANF
	275 Stinger	ANF
	297	ANGS-4
	361	ANH
	363	ANFH
	375 Stinger	ANFH
	CHT	ANXH
	AIRCO MAPP BRAND	A-FS
245 Stinger		AP
A-FH		APH
345 Stinger		APH
H-FS		HP
259 Stinger		HP
H-FH		HPH
359 Stinger		HPH
M-FS		N/A
M-FH		N/A
O-FS		OP
265 Stinger		OP
O-FH		OPH
365 Stinger		OPH
P-FS		PP
288 Stinger		PP
P-FH		PPH
R-FS		N/A
R-FH		N/A
S-FS		SP
S-FH		SPH
2V-FS		VP
255 Stinger		VP
2V-FH		VPH
355 Stinger		VPH
3V-FS		3VP
278 Stinger		3VP
3V-FH		3VPH
HARRIS	2490	UA
	2490S	UAX
	2490G	UAG
	2490-NX	UN
	2490-NFF	UNF
	2490-VVC	UNH

	O.E.M.	SCORPION
HARRIS	2490-NXM	UP
	2490-VVCM	UPH
	2490-GG	UNGB-2
	6290NX	HN (000-6)
	6290NH	HN (5-8)
	6290NFF	HNF
	6290VVC	HNH
	6290NXM	HP (000-6)
	6290NHM	HP (5-8)
	6290VVCM	HPH
	6290GG	HNGB-2
	6290-2NFFR	HNRB
	6290-NFW	HNGS-4-20
	6290-8NFW	HNGS-4-25
	6290-NFFL	HN-8
KOIKE	H-62-1P	HNR
	H-62-3P	HNRX
	103	AP
	103D7	APH
	106	ANF
	106D7	ANFH
	106M	ANFX
	106M7	ANFXH
	107	AN
	107D7	ANH
	161	ANGS-2
	163	ANGB-2
MECO	LM	N/A
	LMM	N/A
OXWELD	1503FH	ONFH
	1534L	ON
	1534M	OP
	1534S	OP
	1567L	ON
	1567M	OP
	1567S	OP
	1535L	ONH
	1535M	OPH
	1535S	OPH
	1566L	ONH
	1566M	OPH
	1566S	OPH

	O.E.M.	SCORPION
PUROX	4217	PNF
	4213L	PN
	4213M	PP
	4213S	PP
REGO	KX-105	N/A
	KXM-105	N/A
	KX-205	N/A
SMITH	SC-40	SNF
	SC-50	SNX
	SC-21A	SNXH
	SC-22	SNGS-4
	SC-33	SNGB-2
	SC-24	SNRB
	SC112	SNR
	SC-90	SP
	SC-23M	SPGB-2
	SC-22M	SPGS-4
	SC-24M	SPRB
	SC-113	SPR
	SC-60	SP
VICTOR	GPN	VN
	3GPN	3VN
	MTHN	VNH
	HPN (1-9)	VNX
	HPN (10-12)	VN
	BTN	VNXH
	RWTN	VNGS-4
	HTN	VNR
	HTMP	VPR
	GPP	VP
	3GPP	3VP
	MTHP	VPH
	HPP (1-9)	VPX
	HPP (10-12)	VP
	BTMP	VPXH
GPM	VP	
3GPM	3VP	
MTHM	VPH	
HPM (1-9)	VPX	
HPM (10-12)	VP	
CSN	VNCS	

In addition to Scorpion tips, **Flame Tech** also manufactures direct replacement acetylene and fuel gas tips for all major Original Equipment Manufacturers (**OEM's**) under the **OEM** nomenclature. See the **Flame Tech "Direct Replacement Price List"** for complete product offering.

**STANDARD PRESSURE TIP SIZE CROSS-REFERENCE:
O.E.M. SIZE VS. SCORPION SIZE**

O.E.M. size to corresponding oxygen orifice drill size

SELECT THE O.E.M TIP AND SIZE, READ CORRESPONDING **SCORPION** TIP SIZE CHART AT TOP OF CHART

O.E.M.	TIP STYLE	OXYGEN ORIFICE DRILL SIZE																		
		74	71	68	64	62	60	58	56	54	52	50	48	44	39	31	28	25	19	13
SCORPION	All Styles	5/0	4/0	000	00	001/2	0	0 1/2	1	1 1/2	2	2 1/2	3	4	5	6	7	8	9	10
AIRCO	261			0			1		2	3				5	7	8			10	
	263	00			0		1		2			4		5	7	8			10	
	Mapp (FS)			68	65		60		56	54	52		49	44	38	31	29		10	
	Stinger		00	0		1			2	3	4		5		6	7			8	
HARRIS	NX (M)			000	00		0		1		2		3	4	5	6	7	8		
	NFF								1	2	3		4		5	6				
	NH (M)														5	6	7	8		
KOIKE	103			00		0	1			2	3		4	5	6		7		8	
	106			00		0	1			2	3		4	5	6		7		8	
	107			00		0	1			2	3		4	5	6		7		8	
MECO	LM					0			1	2	3		4		5					
OXWELD	1534	2		3			4			5				8	10	12			16	20
	1567	1/8		1/4	1/2		3/4			1	2	3			5	10		14		
PUROX	4213			3			4			5			7	8	10					
REGO	KX105			68		62			56	53	51		46	42	35	30		25	18	
SMITH	SC40, 50, 60, 90			00		0			1	2	3			4	5	6	7		8	
VICTOR	GP (N, P, M)		000	00			0		1	2		3	3	4	5	6	7		8	10
	BT (N, P, M)													4	5	6				
	HP (N, P, M)								1	2		3	3	4	5	6	7		8	10
	3GP (N, P, M)		000	00			0		1	2		3	3	4	5					

**HIGH PRESSURE (DIVERGED) TIP SIZE CROSS-REFERENCE:
O.E.M. SIZE VS. SCORPION SIZE**

O.E.M size to corresponding oxygen orifice drill size

O.E.M.	TIP STYLE	OXYGEN ORIFICE DRILL SIZE																		
		74	71	68	64	62	60	58	56	54	52	50	48	44	42	39				
SCORPION	All Styles	5/0	4/0	000	00	001/2	0	0 1/2	1	1 1/2	2	2 1/2	3	4	5	6				
AIRCO	361	0		1	2				3	4	6		8							
	363							1		2	3	4		5	6					
	Mapp (FH)			68	65		60		56	54	52		49	44	38					
	Stinger (375)			0		1		1	2	3	4		5							
HARRIS	WC (M)	5/0		4/0	000		0	0 1/2	1	1 1/2	2	2 1/2	3	4	5	5 1/2				
KOIKE	103D7		00	0	1				2	3	4	5	6		7	8				
	106D7		00	0	1				2	3	4	5	6		7	8				
	107D7		00	0	1				2	3	4	5	6		7	8				
OXWELD	1535			31			40	43	47	52	60		80		100	120				
	1566			1/2	3/4		1		1 1/2	2	4		6	8	10	14				
REGO	KX205			68			60			53										
SMITH	SC21A	00		0	1				2	3	4		6	6	8					
VICTOR	MTH (N,P,M)		000	00			0		1		2		3	4	5					

GENERAL OPERATION AND PERFORMANCE DATA FOR FLAME TECH TIPS

Standard Pressure

METAL THICKNESS INCHES	TIP SIZE		DRILL CLEANER SIZE	WYPO CLEANER NUMBER	OXYGEN		** FUEL GAS P.S.I.	* SPEED I.P.M.	KERF WIDTH INCHES
	NO.	CUTTING OXYGEN ORIFICE			CUTTING P.S.I.	PREHEAT P.S.I.			
1/8	5/0	74	75	7	20-30	5-9	2-5	18-26	.035
3/16	4/0	71	72	8	30-40	5-9	2-5	18-25	.04
1/4	000	68	69	10	30-40	5-9	3-5	17-24	.05
3/8	00	64	65	14	35-45	5-10	3-5	17-23	.06
1/2	1/2	62	63	15	35-45	5-10	3-6	16-22	.06
5/8	0	60	61	15	35-45	5-10	3-6	15-20	.07
3/4	0 1/2	58	59	17	35-50	5-10	3-6	15-19	.07
1	1	56	57	18	35-50	5-10	3-6	14-18	.08
1 1/2	1 1/2	54	55	22	40-55	10-17	4-8	12-16	.09
2	2	52	53	24	40-55	10-17	4-8	10-14	.10
2 1/2	2 1/2	50	51	26	40-55	10-17	5-9	9-13	.11
3	3	48	49	28	45-60	10-17	6-10	8-11	.11
4	4	44	45	32	50-65	10-17	6-10	7-10	.13
4	4	44	45	32	50-65	10-17	6-10	6-9	.13
5	5	39	36	42	60-75	10-17	8-12	5-8	.15
6	6	31	32	44	60-85	30-43	9-15	4-6	.19
7	7	28	29		30-60	30-43	9-15	3-5	.22
8	8	25	26		25-55	30-43	9-15	3-4	.24
9	9	19	20		25-55	30-43	9-15	2-3	.26
10	10	13	14		25-50	30-43	10-18	2-3	.34
11	11	9	10		25-50	30-43	10-18	1 1/2-2 1/2	.37
12	12	5	6		25-45	30-43	10-18	1-2	.40

High Pressure (Diverged)

METAL THICKNESS INCHES	TIP SIZE		DRILL CLEANER SIZE	WYPO CLEANER NUMBER	OXYGEN		** FUEL GAS P.S.I.	* SPEED I.P.M.	KERF WIDTH INCHES
	NO.	CUTTING OXYGEN ORIFICE			CUTTING P.S.I.	PREHEAT P.S.I.			
1/8	5/0	74	75	7	40-50	5-10	2-5	24-30	.035
3/16	4/0	71	72	8	50-60	5-10	2-5	23-29	.040
1/4	000	68	69	10	70-80	8-15	2-5	21-28	.045
3/8	00	64	65	14	80-90	8-15	3-5	19-26	.050
5/8	1/2	62	63	15	80-90	8-15	3-5	19-26	.050
3/4	0	60	61	15	80-100	8-15	3-5	18-26	.055
7/8	1/2	58	59	17	80-100	8-15	3-5	17-25	.060
1	1	56	57	18	80-100	8-15	3-6	16-24	.060
1 1/2	1	56	57	18	80-100	8-15	3-6	15-20	.060
2	1 1/2	54	57	18	80-100	8-15	3-6	12-16	.060
2 1/2	1 1/2	54	55	22	80-100	10-20	4-8	10-15	.070
3	2	52	55	22	80-100	10-20	4-8	9-13	.070
4	2	52	53	24	80-100	15-25	4-8	9-12	.080
5	2 1/2	50	53	24	80-100	15-25	4-8	8-11	.080
5 1/2	2 1/2	50	51	26	80-100	15-25	5-9	8-11	.09
6	3	48	49	28	80-100	15-25	6-10	8-10	.10
8	4	44	45	32	80-100	20-30	8-12	6-8	.11
9	5H	42	43	34	80-100	25-35	8-12	5-7	.13
10	6H	39	40	37	80-100	25-40	9-15	4-6	.17

** Acetylene not to exceed 15 P.S.I.

The highlighted sizes will cover most applications.

* If using propylene or MGP gas, use high side range of this chart. If using natural gas use low side of range.

NOTE: Data was compiled using mild steel as test material. This data should be used as a guide only. Your specific job may require slightly different pressures and speeds. However, the data will provide you with an excellent starting point if you begin on the low side and work up to the optimum speeds for maximum production. For thin plate through 3/8", slightly feathered or carburizing preheat flames are recommended. For heavy plate cutting, strong oxidizing preheat flames are recommended for piercing or starting the cut.

The data on this chart was gathered using a 3-hose torch. All pressures were measured at the regulator using 25' of 1/4" diameter hose for sizes 5/0 through 5 and 25' of 3/8" hose for sizes 6 and larger. For hose lengths longer than 25', the drop is about 3 PSI per 25'. Therefore, pressures at the regulator must be adjusted accordingly.

Values shown are for optimum results with FLAME TECH® tips. Check for the actual requirements of your torch in that they vary for equal pressure versus injector type design and from one OEM to another.

THE FLAME CUTTING PROCESS

Flame cutting of steel is performed by preheating the material to its ignition temperature, which is normally 1600°F to 1800°F, and then adding a high purity oxygen jet. The introduction of high purity oxygen, commonly referred to as the "cutting jet", chemically combines with the steel to form oxides of iron with a resultant liberation of a tremendous amount of energy in the form of heat. It is the combination of the oxidation of the steel and the liberation of heat which performs the actual cutting of the steel.

There are basically four main functions performed by the preheat flame:

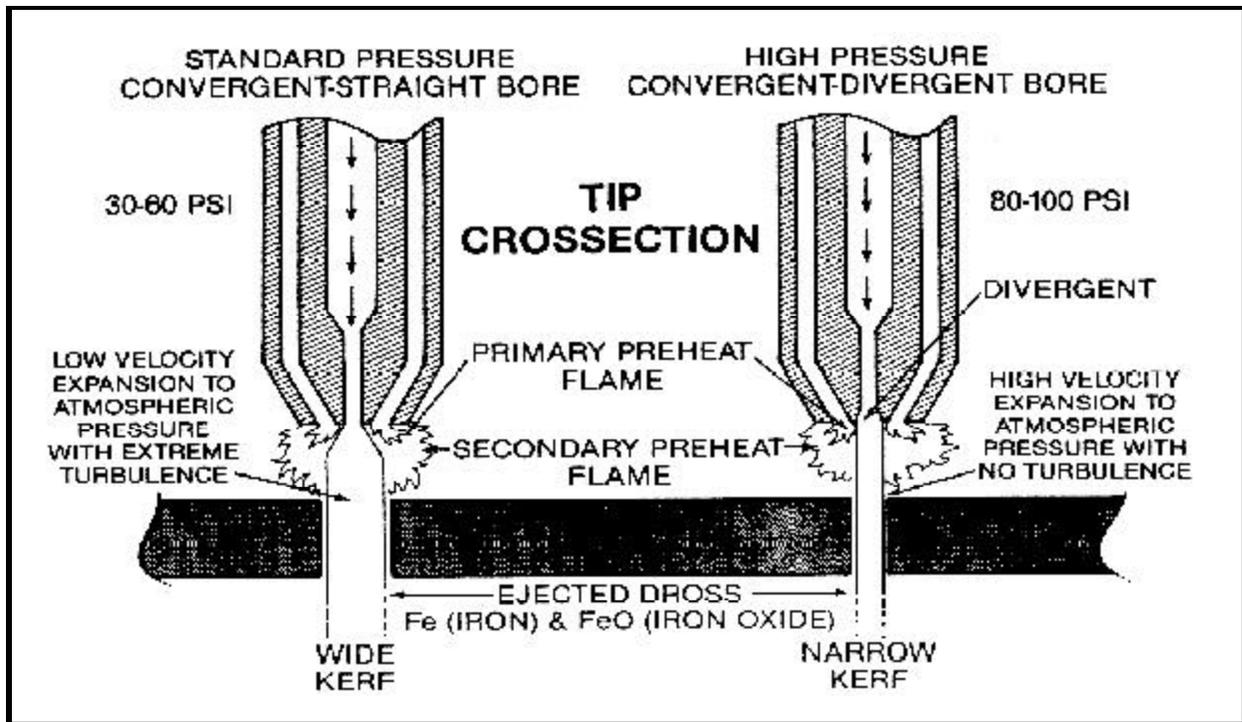
1. Preheat the steel to the ignition temperature.
2. Maintain a protective envelope around the center jet oxygen, and also preheat the oxygen jet.
3. Maintain the reaction temperature of the new material constantly being presented to the center jet oxygen.
4. Penetrate any foreign substance on the steel's surface such as rust, scale, dirt, etc.

The preheating functions can be obtained from any fuel gas, in combination with oxygen, which has the following properties.

1. Sufficient heat content to rapidly heat the surface of the steel to the combustion temperature.
2. High flame temperature to concentrate the heat transfer to a small area.

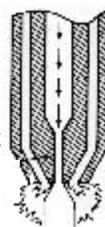
The only function performed by the cutting oxygen is that it performs all of the work during the cutting operation. Combination of oxygen with steel at the combustion temperature is a pure chemical reaction and the rate at which the reaction proceeds is governed by several distinct factors.

1. **PURITY OF OXYGEN.** Oxygen must be 99.5% pure or higher. Every 1% decrease in the purity level will decrease cutting speed by 25% and will increase oxygen consumption by 25%. At about 95% purity, all cutting action stops and is replaced by a melt and wash action.
2. **CHEMICAL ANALYSIS OF THE STEEL.** Elements such as chromium, nickel, molybdenum, and carbon reduce the reaction rates as their content in the steel increases. At various limits - 7% nickel, 5% chromium, etc. - the reaction with oxygen stops with the standard cutting process.
3. **CENTER JET OXYGEN TIP DESIGN.** High speed tips of convergent - divergent design will force the reaction rate to maximum. This design introduces the maximum amount of oxygen per unit time to the steel at the combustion temperature. At the same time, the cutting jet stream remains coherent which produces a square smooth cut edge.



STANDARD PRESSURE TIPS

SCORPION STANDARD PRESSURE tips have converged straight bore oxygen jets for general purpose cutting with hand and machine torches. All tips feature shells machined from solid copper bar stock for increased tip life, rather than the thin upset tubing used by several leading **OEM's**. **SCORPION** tips offer four diameters of splined internals to assure optimum amount of preheat for thickness of material being cut. Most **OEM's** offer only two or three diameters of internals to cover all sizes.



Cross Section of Standard Pressure Tip



Cutting oxygen pressures for **SCORPION** general purpose tips range from 15-60 psi depending on tip size.

Straight Bore

HIGH PRESSURED TIPS

SCORPION HIGH PRESSURE tips have converged-diverged bores that yield extremely high velocity cutting oxygen jets. These high velocity cutting oxygen jets increase cutting speeds up to 20% and decrease kerf widths. All high pressure tips are hand diverged and tested at cutting oxygen pressures between 70-100 psi depending on tip size. High pressure tips are ideal for machines capable of running smooth at the increased speeds.



Cross Section of High Pressure Tip

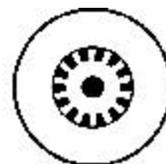


Divergent

BULL BARREL

The extra heavy shell of the **SCORPION BULL BARREL** cutting tip is specially designed to last longer under heavy use. The **SCORPION BULL BARREL** is widely used in scrap yards and rail yards and is ideal for any job where cutting tips receive abusive treatment.

The **SCORPION BULL BARREL** shell is machined from solid copper bar stock making it considerably heavier than the leading **O.E.M** shell, which is swagged from copper tubing and tends to deteriorate faster especially under tough conditions. **SCORPION BULL BARRELS** are available in all fuel gases for Airco, Harris, Smith, Victor, etc. torches. Other brands of torches may utilize the benefits of the **SCORPION BULL BARREL** with the **UNIVERSAL TIP**.



Bull Barrel



Standard Shell

EXTRA PREHEAT TIPS

The **SCORPION EXTRA PREHEAT** tip features a larger diameter internal than the same size in a general purpose tip. The larger preheat diameter decreases preheat time and increases cutting speeds up to 25% over most **O.E.M.'s**. The **EXTRA** preheat is ideal for cutting plate from 3/8" to 3" thick, for ripping and as a lead tip in single or double beveling.

The **SCORPION EXTRA PREHEAT** tip is not recommended for material thickness less than 3/8" or over 4", nor for piercing or cutting dirty material that would tend to prematurely clog the larger exposed area of preheat.

		.225	.255	.312	.375
STANDARD PREHEAT	TIP SIZE	5/0 3	4,5,6	7,8,9	10,11,12
EXTRA PREHEAT	TIP SIZE		000 - 3	4,5,6	7,8,9

SUPER COARSE SPLINE

SUPER COARSE SPLINE tip is ideal for cutting rusty, painted and dirty plate by hand. The internal has 12 large V-shaped splines to accommodate a tremendous amount of fuel. The very coarse spline configuration does not easily clog from slag, paint and rust. Clogged splines may be cleaned quickly and easily with a pocket knife. The **SUPER COARSE SPLINE** is designed to eliminate considerable downtime and replacement cost.



ROSEBUD

The **ROSEBUD** heating tip is ideal for preheating plate, descaling, and paint burning. The tip is, two piece with no center oxygen hole, is made like a cutting tip for use in a cutting torch and yields 150,000 B.T.U.s.

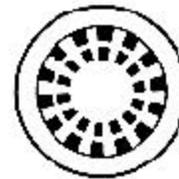
Fuel Gas 9-15 psi



ROSEBUD EXTRA PREHEAT

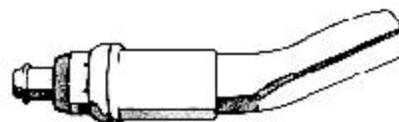
The **ROSEBUD EXTRA PREHEAT** heating tip features two rows of preheat rather than one for faster preheating of heavy plate, paint burning or descaling. The tip is two piece with no center hole, is made like a cutting tip for use in a cutting torch and yields 250,000 B.T.U.s.

Fuel Gas 10-20 psi



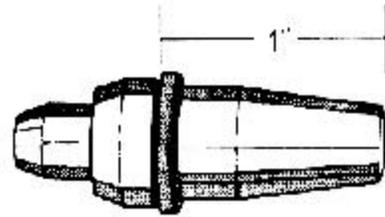
RIVET BULKHEAD TIPS

The **RIVET BULKHEAD** tip is used for cutting bulkheads and rivets on close, flat surfaces. The **RIVET BULKHEAD** tip features a stainless steel wear shoe for increased tip life. The unique design allows cutting a perpendicular plate to within 3/32" of a flat surface.



STUBBY TIP

The short design of the **SCORPION STUBBY** is great for pipe beveling, boiler tube cutting and other close work. This "thimble size" tip makes for easy maneuvering in tight and hard to reach places.



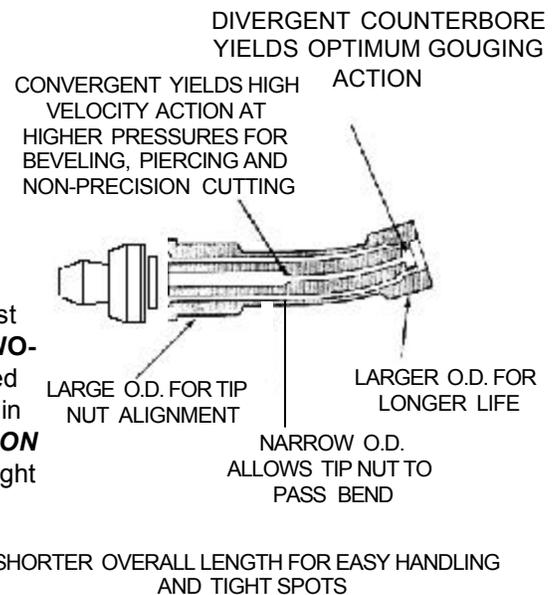
MULTIPURPOSE GOUGER

The **SCORPION** two-piece gouger, with its converged and counterbored design, performs as three different gougers simply by changing the oxygen pressure setting.

1. At 50-65 psi the **SCORPION GOUGER** has an easy to control, slow metal removing action. This is ideal for removing metal from rusty, dirty, and painted material.
2. At 65-80 psi a distinct "whistle" is heard. The resulting rapid yet still controllable metal removing action is ideal for gouging clean plate, cutting off risors, and beveling plates for welding.
3. At 90-110 psi the **SCORPION TWO-PIECE GOUGER** is an aggressive metal removing tool, removing bulk heads, piercing, beveling plate, revolving rivets, and non-critical plate cutting.

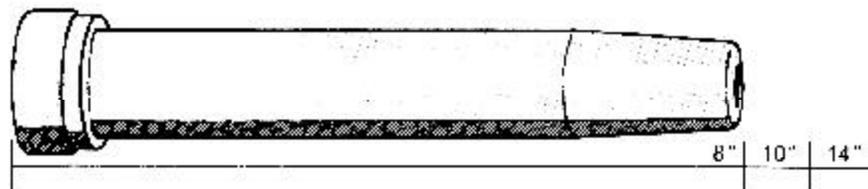
The **SCORPION GOUGER** performs multiple jobs while most competitor's gougers have limited use. The **SCORPION TWO-PIECE GOUGER** features brass internals and shells machined from solid copper bar stock for increased preheat and durability in rugged applications. The shorter length of the **SCORPION GOUGER** is easy to use in tight places and comes bent or straight

Fuel Gas 9-15 psi



EXTRA LONG TIPS

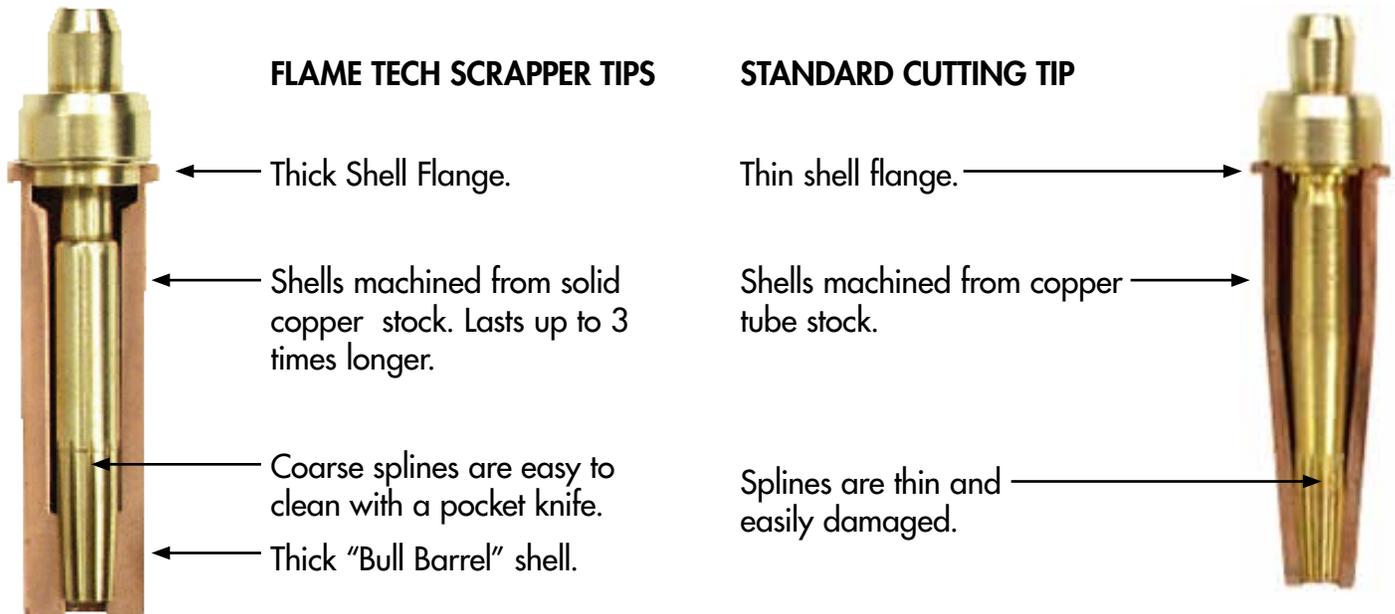
SCORPION EXTRA LONG tips are designed for cutting in hard to reach areas, where standard tips can not reach. Extra **LONG** tips are available in standard lengths of 8", 10", and 14" or special order any requested length.



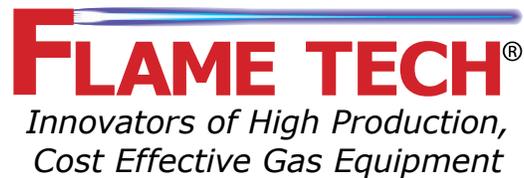
FLAME TECH® SCRAPPER TIPS—6000, 6500 & 7500 SERIES TORCHES

SEE THE DIFFERENCE YOURSELF WITH FLAME TECH'S FAMOUS "SCRAPPER" CUTTING TIPS

- Larger preheats reduce start time and help to "maintain the cut."
- Coarse "V" internal splines do not clog easily and can be cleaned with a pocket knife.
- Ideal for working on rusty, scaly, painted surfaces.
- Compatible with standard OEM torches.



METAL THICKNESS (INCHES)	TIP SIZE		OXYGEN		FUEL GAS PSI	SPEED IPM	KERF WIDTH
	TIP NO.	DRILL SIZE	CUTTING PSI	PREHEAT PSI			
1/8	5/0	74	20-30	5-9	2-5	18-26	.035
3/16	4/0	71	30-40	5-9	2-5	18-25	.04
1/4	000	68	30-40	5-9	3-5	17-24	.05
3/8	00	64	35-45	5-10	3-5	17-23	.06
1/2	00½	62	35-45	5-10	3-6	16-22	.065
5/8	0	60	35-45	5-10	3-6	15-20	.07
3/4	0½	58	35-50	5-10	3-6	15-19	.075
1	1	56	35-50	5-10	3-6	14-18	.08
1½	1½	54	40-55	10-17	4-8	12-16	.09
2	2	52	40-55	10-17	4-8	10-14	.10
2½	2½	50	40-55	10-17	5-9	9-13	.105
3	3	48	45-60	10-17	6-10	8-11	.11
4	4	44	50-65	10-17	6-10	7-10	.13
6	5	39	60-75	10-17	8-12	5-8	.15
8	6	31	60-75	30-43	9-15	4-6	.19
9	7	28	55-65	30-43	9-15	3-5	.22
10	8	25	50-65	30-43	9-15	3-4	.24
12	10	13	45-60	30-43	10-18	2-3	.34
14	12	5	40-55	30-43	10-18	1-2	.40



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