OM-271256B
2018–01

Processes

Oxy-Fuel

Cutting
Heating
Welding

Tips

Cutting, Heating, Welding

Oxy-Acetylene

Protect yourself and others from injury – read and follow the safety precautions supplied with the equipment and in Gas Equipment Safety Manual 262659 (available at MillerWelds.com).

POCKET GUIDE

File: Accessory

SAFETY PRECAUTIONS – READ BEFORE USING

Protect yourself and others from injury – read and follow the safety precautions supplied with the equipment and in Gas Equipment Safety Manual 262659 (available at MillerWelds.com).

Do not use long gas hoses or hoses with multiple connections. Long hoses and multiple connections restrict gas flow and reduce gas pressure. These conditions can cause backfires and flashbacks, and reduce equipment efficiency.

When required gas flow exceeds the recommended withdrawal rate from one cylinder, connect additional cylinders by means of a manifold to achieve the required flow rate.

When using liquid oxygen, tips may require higher gas volume than is attainable from one cylinder. Use external evaporators or connect multiple cylinders by means of a manifold to achieve the required flow rate.

Do not use acetylene above 15 psi (103 kPa) flowing. It is acceptable to use acetylene regulators that indicate a static pressure up to 22 psi (151 kPa).

Do not withdraw acetylene from a cylinder at a rate exceeding 1/7 of the cylinder capacity per hour.

Table 1. SC12 Series Heavy-Duty Cutting Tips – Acetylene (One Piece)

⚠ **High gas withdrawal rates will require cylinder manifolding. Consult your gas supplier.**

Tip Number	Metal Thickness		Pressure – psig				Kerf Width	Consumption – scfh			Speed IPM	Drill Size	
			Cutting Oxygen		Preheat			Oxygen		Acetylene Preheat		Cutting Jet	Preheat
	in.	mm	Reg.	Torch	Oxygen	Acetylene		Cutting	Preheat				
SC12-00	3/16	5	20	20	10†	10	.050	24	7	6.5	26	68	75
SC12-0	1/4	6	30	30	10†	10	.055	40	7.5	7	22	62	74
SC12-0	3/8	10	35	35	10†	10	.055	50	7.5	7	20	62	74
SC12-1	1/2	13	35	35	10†	10	.080	75	11	9.5	19	56	71
SC12-1	5/8	16	40	40	10†	10	.080	85	11	9.5	17	56	71
SC12-2	3/4	19	36	35	10†	10	.095	105	12	10.5	16	54	70
SC12-2	1	25	41	40	10†	10	.095	115	12	10.5	14	54	70
SC12-2	1-1/4	32	51	50	10†	10	.095	135	12	10.5	13	54	70
SC12-3	1-1/2	38	42	40	10†	10	.100	170	14	12	12	51	68
SC12-3	2	51	47	45	10†	10	.100	180	14	12	10	51	68
SC12-4	2-1/2	64	38	35	10†	10	.125	240	15	13	9	45	62
SC12-4	3	76	44	40	10†	10	.125	265	15	13	8	45	62
SC12-4	4	102	54	50	10†	10	.125	315	16	14	7	45	62
SC12-5	5	127	56	50	10†	10	.150	420	30	26*	7	41	57
SC12-5	6	152	67	60	10†	10	.150	485	30	26*	6	41	57
SC12-5	8	203	78	70	10†	10	.150	550	30	26*	5.5	41	57
SC12-6	10	254	83	70	10†	10	.230	750	32	28*	5	32	57
SC12-6	12	305	125	90	10†	10	.230	975	32	28*	4.5	32	57

† Listed pressure for 3-hose machine cutting torches only. * Minimum of one 350 cubic ft. cylinder

Table 2. SC56 Series Heavy-Duty, Heavy-Preheat Cutting Tips – Acetylene (One Piece)

Tip Number	Metal Thickness		Pressure – psig				Kerf Width	Consumption – scfh			Speed IPM	Drill Size		Recm'd No. Of Cylinders*
			Cutting Oxygen		Preheat			Oxygen		Acetylene Preheat		Cutting Jet	Preheat	
	in.	mm	Reg.	Torch	Oxygen	Acetylene		Cutting	Preheat					
SC56-1	1/2	13	35	35	10†	10	.080	75	33	30	19	56	65	1
SC56-1	5/8	16	40	40	10†	10	.080	85	33	30	17	56	65	1
SC56-2	3/4	19	36	35	10†	10	.095	105	33	30	16	54	60	1
SC56-2	1	25	41	40	10†	10	.095	115	33	30	14	54	60	1
SC56-2	1-1/4	32	51	50	10†	10	.095	135	33	30	13	54	60	1
SC56-3	1-1/2	38	42	40	10†	10	.100	170	43	39	12	51	57	1
SC56-3	2	51	47	45	10†	10	.100	180	50	45	10	51	57	1
SC56-5	2-5	127	56	50	10†	10	.150	420	57	52	7	41	54	2
SC56-5	6	152	67	60	10†	10	.150	485	66	60	6	41	54	2
SC56-5	8	203	78	70	10†	10	.150	550	72	65	5.5	41	54	2
SC56-7	8–14	356	100	85	10†	10	.250	1250	110	100	4	28	54	2
SC56-9	14–20	508	110	70	14†	12	.350	2150	145	130	3	3	54	3
SC56-9	24	610	130	85	15†	13	.360	2600	175	160	2.5	3	54	4

† Listed pressure for 3-hose machine cutting torches only. Pressures shown are for 25 ft (7.6 m) or less of 3/8 in. (10mm) I.D. hose. Increase pressures if longer hose is used. Use1/2 in. (13mm) I.D. hose when hose length exceeds100 ft (31 m).

* Cylinders required, based on 350 cubic ft. cylinder.

Table 3. MC12 Series Medium Duty Cutting Tips – Acetylene (One Piece)

Tip Number	Metal Thickness		Pressure – psig		Kerf Width	Consumption – scfh			Drill Size	
						Oxygen		Acetylene Preheat		
	in.	mm	Oxygen	Acetylene		Cutting	Preheat		Cutting Jet	Preheat
MC12-00	1/8	3	20*	10	.050	30	7	6	68	75
MC12-00	3/16	5	20*	10	.050	30	7	6	68	75
MC12-0	1/4	6	35*	10	.055	40	7	6	62	75
MC12-0	3/8	10	40*	10	.055	46	7	6	62	75
MC12-1	1/2	13	45*	10	.080	75	9	7	55	74
MC12-1	5/8	16	50*	10	.080	81	9	7	55	74
MC12-2	3/4	19	50*	10	.095	107	11	9	54	71
MC12-2	1	25.4	55*	10	.095	118	11	9	54	71
MC12-3	1-1/2	38	55*	10	.100	170	12	10	51	70
MC12-3	2	51	60*	10	.100	181	12	10	51	70
MC12-4	2-1/2	64	65*	10	.125	249	14	12	45	70
MC12-4	3	76	70*	10	.125	267	14	12	45	70
MC12-4	4	102	65	10	.125	320	15	13	45	70
MC12-5	5	127	80	10	.150	420	15	13	41	70
MC12-5	6	152	90	10	.150	485	15	13	41	70

* Increase pressure 10–15 psig when using AC309 cutting attachments.

Table 4. SC And MC Series Special Purpose Tips For Hand Torches And Cutting Assemblies – Acetylene

Tip Number	Purpose	Capacity (Width x Depth)		Pressure – psig At Regulator		Consumption – scfh		Drill Size	
		in.	mm	Oxygen	Acetylene	Oxygen	Acetylene	Cutting Jet	Preheat
SC13-3	Gouging	3/8 x 1/4	10 x 6	20	10	151	35	50 29	59
SC13-5	Gouging	1/2 x 3/8	13 x 10	25	10	246	50	39 10	55
SC14-3	Riser	1-1/2 Rivets	38 mm Rivets	35–40	10	190	20	51	56
SC15-2	Washing	1/2 x 3/8	13 x 10	30	10	336	40	3	57
SC17-0	Plate Or Thin Sheet Cutting	3/8	10	20	10	55	4	62	62
SC83	Heating	83,000 BTUs	N/A	15	10	58	52*	N/A	56
MC13-3	Gouging	3/8 x 1/4	10 x 6	20	10	115	24*	50 29	60
SC12-4x9	Cutting	4	102	50	10	331	14	45	62

* 2 cylinders required; based on 350 cubic ft. cylinders.

Table 5. Heating Tips – Acetylene

NOTICE *When using add-on flashback arrestors, make sure the unit can supply enough gas flow to support the tip being used. Insufficient gas flow can cause equipment failure.*

Stock Number	No. Of Flames	Drill Size	Pressure – psig		Consumption – scfh		Average BTU/Hr	Recommended Number Of Cylinders*	Overall Length	
			Oxygen	Fuel Gas	Oxygen	Fuel Gas			in.	mm
ST602	6	64	15	15	31	28	40,125	1	16	406
ST603	6	56	15	15	55	50	71,750	1	16	406
ST605	12	57	15	15	96	87	124,670	2	19	483
ST610	12	54	15	15	150	136	194,890	3	19	483
MT603	6	64	15	15	31	28	40,125	1	10	254
MT605	6	56	15	15	57	51	73,085	1	16	406
MT610	12	57	15	15	100	90	128,970	2	18	457
AT605	6	64	15	15	32	29	41,550	1	10	254

☞ *Data is based on 25 ft (7.6 m) of 1/4 in. (6 mm) I.D. hose. Pressure must be increased if hose unions, longer hose, or smaller ID hose is used. All pressure settings are flowing pressures. Pressures shown are optimum settings for all regulators and not minimal operating pressures for torch equipment.*

* Cylinders required, based on 350 cubic ft. cylinder.

Table 6. Welding/Brazing Tips– Acetylene

Tip Number	Welding Range		Drill Size	Pressure Of Each Gas At Regulator – psig	Consumption – scfh
	in.	mm			
SW201	1/32	0.7	71	10	2.3
SW203	5/64	1.9	67	10	3.2
SW205	1/8	3	57	10	6
SW207	3/16	5	54	10	12
SW209	3/8	10	49	10	23
SW210	1/2	13	44	15	36
MW201	1/32	0.7	71	10	2.3
MW203	5/64	1.9	67	10	3.2
MW205	1/8	3	57	10	6
MW207	3/16	5	54	10	12
MW209	3/8	10	49	10	23
AW201	Up to1/32	0.7	71	10	2.3
AW203	5/64	1.9	67	10	3.2
AW205	1/8	3	57	10	6
AW207	3/16	5	54	10	12
AW209	3/8	10	49	10	23
AW210	1/2	13	44	10	36

Table 7A. Effect Of Hose Diameter And Length On Flow And Pressure At Torch

Hose Diameter in. (mm)	Hose Length ft (m)	Cutting Tip Size	Regulator Pressure Static – psig	Regulator Pressure Flowing – psig	Torch Inlet Pressure – psig	Pressure Drop In Hose – psig	Flow – scfh
3/16 (5)	50 (15.2)	3	50	47	37–1/2	9–1/2	169
	100 (30.4)*	3	51	47	26	21	129
	50 (15.2)	5	84–1/2	78	44	34	370
	100 (30.4)*	5	83–1/2	78	22	56	215
	50 (15.2)	7	108	100	24	76	510
	100 (30.4)*	7	106–1/2	100	9	91	270
	50 (15.2)	9	138–1/2	130	19–1/2	110–1/2	735
	100 (30.4)*	9	136–1/2	130	7	123	405

* Two 50 ft (15.2 m) lengths of hose connected together with standard hose unions.

(Continued)

Table 7B. Effect Of Hose Diameter And Length On Flow And Pressure At Torch

Hose Diameter in. (mm)	Hose Length ft (m)	Cutting Tip Size	Regulator Pressure Static – psig	Regulator Pressure Flowing – psig	Torch Inlet Pressure – psig	Pressure Drop In Hose – psig	Flow – scfh
1/4 (6)	50 (15.2)	3	50–1/2	47	44–1/2	2–1/2	194
	100 (30.4)*	3	50	47	42–1/2	4–1/2	188
	50 (15.2)	5	86	78	68–1/2	9–1/2	540
	100 (30.4)*	5	85	78	58–1/2	19–1/2	470
	50 (15.2)	7	114	100	68	32	1140
	100 (30.4)*	7	110	100	49	51	870
	50 (15.2)	9	149–1/2	130	65	65	2010
	100 (30.4)*	9	144	130	36–1/2	93–1/2	1290
	100 (30.4)**	3	50	47	36	11	164
	100 (30.4)**	5	84–1/2	78	42	36	360
	100 (30.4)**	7	108	100	25	75	560
	100 (30.4)**	9	140	130	18	112	795

* Two 50 ft (15.2 m) lengths of hose connected together with standard hose unions.

** Four 25 ft (6.1 m) lengths of hose connected together with standard hose unions.

(Continued)

Table 7C. Effect Of Hose Diameter And Length On Flow And Pressure At Torch

Hose Diameter in. (mm)	Hose Length ft (m)	Cutting Tip Size	Regulator Pressure Static – psig	Regulator Pressure Flowing – psig	Torch Inlet Pressure – psig	Pressure Drop In Hose – psig	Flow – scfh
3/8 (10)	50 (15.2)	3	51	47	46	1	190
	50 (15.2)	5	86	78	74–1/2	3–1/2	580
	50 (15.2)	7	117	100	86	14	1400
	50 (15.2)	9	163–1/2	130	89–1/2	40–1/2	2700
	100 (30.4)*	3	51	47	46	1	198
	100 (30.4)*	5	86	78	72	6	570
	100 (30.4)*	7	115	100	77	23	1280
	100 (30.4)*	9	155	130	75	55	2280

* Two 50 ft (15.2 m) lengths of hose connected together with standard hose unions.

Safety Pack

Order No. 270 129

This Kit Includes:

30 “37 Violations Safety Quiz” Brochures
30 Safety Meeting Guides (English, French, Spanish)
1 41 Minute Oxy-Fuel Safety Video
1 Set of 6 Miller Cartoon Safety Posters
1 Post-Safety Video Test and Answer Key (may be duplicated)
1 Gas Equipment Product Catalog

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