OXY-ACETYLENE TORCH SETTINGS CHART

Cutting tip sizes and regulator pressures by steel thickness for Victor, Harris and Smith acetylene tips, with the lighting and shut-down order.

VICTOR 1-101, 3-101 tips	Tip	Oxygen psi	Acetylene psi	Hole drill No.
1/8 in 3 mm	000	20-25	3-5	71
1/4 in 6 mm	00	20-25	3-5	67
3/8 in 10 mm	0	25-30	3-5	60
1/2 in 13 mm	0	30-35	3-5	60
3/4 in 19 mm	1	30-35	3-5	56
1 in 25 mm	2	35-40	3-6	53
2 in 51 mm	3	40-45	4-8	50
3 in 76 mm	4	40-50	5-11	45
4 in 102 mm	5	45-55	6-13	39

HARRIS 6290, 6290-S tips	Tip	Oxygen psi	Acetylene psi	Hole drill No.
Up to 3/16 in 5 mm	000	15-20	5-15	68
3/16-3/8 in 5–10 mm	00	20-25	5-15	64
3/8-5/8 in 10–16 mm	0	35-40	5-15	60
5/8-1 in 16–25 mm	1 or 1S	35-40	5-15	56
1-2 in 25–51 mm	2 or 2S	40-45	5-15	52
2-3 in 51–76 mm	3 or 3S	45-50	5-15	48

SMITH SC12 tips	Tip	Oxygen psi	Acetylene psi	Hole drill No.
3/16 in 5 mm	SC12-00	20	10	68
1/4 in 6 mm	SC12-0	30	10	62
3/8 in 10 mm	SC12-0	35	10	62
1/2 in 13 mm	SC12-1	35	10	56
5/8 in 16 mm	SC12-1	40	10	56
3/4 in 19 mm	SC12-2	36	10	54
1 in 25 mm	SC12-2	41	10	54
1 1/4 in 32 mm	SC12-2	51	10	54
1 1/2 in 38 mm	SC12-3	42	10	51
2 in 51 mm	SC12-3	47	10	51
2 1/2 in 64 mm	SC12-4	38	10	45
3 in 76 mm	SC12-4	44	10	45
4 in 102 mm	SC12-4	54	10	45

TIP NUMBERS DIFFER BY MAKER

A size 00 cutting tip has a No. 67 hole from Victor, a No. 64 from Harris and a No. 68 from Smith. Another brand? Match the cutting hole's drill size, then use that brand's chart.

Regulator settings for acetylene cutting tips, by inches of steel with mm beside them. The chart or manual for your own torch and tips wins. Plate over 4 in (Victor, Smith) or 3 in (Harris) needs a heavier torch, 3/8 in hose or a bigger cylinder: see the full charts online.

ACETYLENE NEVER ABOVE 15 PSI. OSHA's limit is 15 psig. Victor's guide says the gas turns unstable above that.

BEFORE YOU LIGHT

Flashback arrestors, check valves

Fit both if your torch handle has none built in (Victor). A check valve stops gas flowing backwards; a flashback arrestor stops a flame.

Cylinders upright and chained

To a cart, wall, bench or post.

No oil or grease near oxygen

It can react violently with oxygen.

Open cylinder valves slowly

Leave the wrench on the acetylene valve so you can shut it fast.

Leak test, then purge both lines

Every time, one gas at a time.

LIGHTING THE TORCH

The order in Victor's guide, for acetylene.

1. With the cylinder valves open, set one gas at a time: open the torch oxygen valve, turn the regulator screw in to the chart pressure, close the torch valve. Then the acetylene.
2. Open the torch acetylene valve a little and light the gas with a spark lighter, never a match, pointed away from people and anything that burns.
3. Never open and light the acetylene and the oxygen at the same time.
4. Open the acetylene further until the flame stops smoking.
5. Add oxygen until the acetylene feather is gone and the inner cone is sharp: a neutral flame.

SHUTTING DOWN

1. Close the torch oxygen valve first, then the torch acetylene valve.
2. Close both cylinder valves.
3. Open the torch oxygen valve to let the pressure out, close it, and back the oxygen regulator screw out.
4. Do the same on the acetylene side.
5. Check the gauges after a few minutes: no pressure should be left in the system.

Sources: Victor tips, lighting and shut-down from the Victor "Cutting, Heating and Welding Guide", 0056-3260 rev. AG (2017). Harris tips from "Harris Cutting Tip Charts", PN 9500593 rev. E (2017). Smith tips from Miller Electric's pocket guide OM-271256D (2024). Rules from OSHA 29 CFR 1910.253 and 1926.350. Compiled by Welding Tribe, November 2026. Free to print for your shop or class.