



## Welding Tip Size Comparison Chart

Click [here](#) to download an Excel file with this info.

<http://bikesmithdesign.com>

Thanks to:  
Attila Kokeny for the European manufacturers, Messer and CGE Rhona. They are not exactly the same sizes as the US tips they are aligned with, but close enough for comparison.  
He also provided the Welding Thickness/Tip Size chart.

Aaron Novak supplied the #6, #7 and 1/2 size Meco Midget tip sizes.

Peter F. informs me that in Australia the big name in gas welding equip. is CIG. Their tip sizes, 6 thru 32, correspond to 0.6 to 3.2mm orifices.

Far too logical.

| Welding Thickness |       | Tip Size   |        |      |
|-------------------|-------|------------|--------|------|
| Inches            | mm    | Drill Size | Inches | mm   |
| 1/64              | 0.38  | 76         | 0.020  | 0.51 |
| 1/32              | 0.78  | 72         | 0.025  | 0.64 |
| 1/16              | 1.59  | 68         | 0.031  | 0.79 |
| 3/32              | 2.38  | 62         | 0.038  | 0.96 |
| 1/8               | 3.18  | 56         | 0.047  | 1.19 |
| 3/16              | 4.76  | 54         | 0.055  | 1.40 |
| 1/4               | 6.35  | 51         | 0.067  | 1.70 |
| 5/16              | 7.94  | 48         | 0.076  | 1.93 |
| 3/8               | 9.53  | 44         | 0.086  | 2.18 |
| 1/2               | 12.70 | 40         | 0.098  | 2.49 |
| 5/8               | 15.88 | 35         | 0.110  | 2.79 |
| 3/4               | 19.05 | 30         | 0.128  | 3.25 |

### Welding vs. Brazing

High gas velocities are important when welding. So you need to match the tip size to the material/joint.

Brazing bicycle frames is different. Some builders, myself included, will build an entire frame, from fillets to braze ons, with a single, large tip. Just by varying gas flow with the valves. (Maybe using a bit more pressure than my usual 4-5psi for larger fillets.)

I own every tip ever made for the Smith's AW1A, but I could get along just fine with just an AW205, which is big enough to weld 1/8" steel.

Other builders get good results using a tip as small as an AW201 for braze ons.

| Wire Drill | Decimal Inch | Smiths AW1A | Little Torch | Harris | Victor | Meco Midget | Messer | GCE Rhona | Metric Equiv. |
|------------|--------------|-------------|--------------|--------|--------|-------------|--------|-----------|---------------|
| 97         | 0.0059       |             | #2           |        |        |             |        |           | 0.15          |
| 85         | 0.011        |             | #3           |        |        |             |        |           | 0.279         |
| 80         | 0.0135       |             |              |        |        | #00         |        |           | 0.343         |
| 76         | 0.02         | AW200       | #4           |        |        | 0           | 00     | 00        | 0.508         |
| 75         | 0.022        |             |              | 0      | #000   |             |        |           | 0.559         |
| 74         | 0.0225       | AW20        |              |        |        |             | 0      | 0         | 0.572         |
| 73         |              |             |              |        |        | 0.5         |        |           | 0.572         |
| 71         | 0.026        | AW201       |              | 1      |        |             | 1      | 1         | 0.66          |
| 70         | 0.028        |             |              |        | #00    | 1           |        |           | 0.711         |
| 69         | 0.0292       | AW202       | #5           |        |        |             | 2      | 2         | 0.742         |
| 67         | 0.032        | AW203       |              |        |        | 1.5         |        |           | 0.813         |
| 65         | 0.035        |             |              | 2      | 0      | 2           |        |           | 0.889         |
| 63         | 0.037        | AW204       | #6           |        |        | 2.5         |        | 2E        | 0.94          |
| 60         | 0.04         |             |              |        | 1      |             |        |           | 1.016         |
| 58         | 0.042        |             |              | 3      |        | 3           |        |           | 1.067         |
| 57         | 0.043        | AW205       |              |        |        |             |        |           | 1.092         |
| Wire Drill | Decimal Inch | Smiths AW1A | Little Torch | Harris | Victor | Meco Midget | Messer | GCE Rhona | Metric Equiv. |
| 56         | 0.0465       | AW206       | #7           |        | 2      | 4           | 3      | 3         | 1.181         |
| 55         | 0.052        |             |              | 4      |        |             |        |           | 1.321         |
| 54         | 0.055        | AW207       |              |        |        | 4.5         | 3.5    | 3E        | 1.397         |
| 53         | 0.0595       |             |              | 5      | 3      |             |        |           | 1.511         |
| 52         | 0.0635       | AW208       |              |        |        | 5           | 4      | 4         | 1.613         |
| 51         | 0.067        |             |              | 6      |        |             |        |           | 1.702         |
| 49         | 0.073        | AW209       |              |        | 4      | 5.5         |        | 4E        | 1.854         |
| 48         | 0.076        |             |              | 7      |        |             |        |           | 1.93          |
| 47         | 0.076        |             |              |        |        | 6           |        |           | 1.93          |
| 45         | 0.082        |             |              | 8      |        |             |        |           | 2.083         |
| 44         | 0.086        | AW210       |              |        |        |             | 5      | 5         | 2.184         |
| 43         | 0.089        |             |              | 9      | 5      |             |        |           | 2.261         |
| 42         |              |             |              |        |        | 7           |        |           | 2.261         |
| 40         | 0.098        |             |              | 10     |        |             |        |           | 2.489         |
| 36         | 0.106        |             |              |        | 6      |             |        |           | 2.692         |
| 35         | 0.11         |             |              | 13     |        |             |        |           | 2.794         |
| Wire Drill | Decimal Inch | Smiths AW1A | Little Torch | Harris | Victor | Meco Midget | Messer | GCE Rhona | Metric Equiv. |