

# Direct Replacement Cutting Tips



Currently there is no standard method among Original Equipment Manufacturers (OEM) to designate tip sizes. The following charts are designed to provide operational data for the user, regardless of OEM, by utilizing the common denominators, "Oxygen Orifice Drill Size" and "Metal Thickness." Using information you have available, the following charts can help find information you need.

**You Know the Tip Size:** Use the Cross Reference Chart to find drill size of OEM tip to be used, and then refer to Operation and Performance Chart to determine operating parameters. Check "Metal Thickness" column to be sure tip is correct size for the cut.

**You Know the Metal Thickness:** Use the Operational and Performance Chart to determine drill size needed to cut specific thickness of metal. Select OEM tip and size from Cross Reference Chart.

**STANDARD PRESSURE TIP SIZE CROSS-REFERENCE (OEM SIZE TO OXYGEN ORIFICE DRILL SIZE)**

| O.E.M.                | TIP STYLES         | OXYGEN ORIFICE DRILL SIZES |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
|-----------------------|--------------------|----------------------------|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
|                       |                    | 74                         | 71  | 68  | 64  | 62  | 60  | 58 | 56 | 54 | 52 | 50 | 48 | 44 | 39 | 31 | 28 | 25 | 19 | 13 |   |
| Airco®                | 144                |                            |     | 00  |     | 0   |     |    | 1  | 2  | 3  |    | 4  | 5  | 6  |    |    |    |    |    |   |
|                       | 164                |                            |     | 00  |     | 0   |     |    | 1  | 2  | 3  |    | 4  | 5  | 6  | 8  | 9  |    | 10 |    |   |
|                       | 261                | 00                         |     | 0   |     |     | 1   |    | 2  | 3  |    |    |    | 5  | 7  | 8  |    |    | 10 |    |   |
|                       | 263                |                            |     |     | 0   |     | 1   |    | 2  |    |    | 4  |    | 5  | 7  | 8  |    |    |    | 10 |   |
|                       | AFS                |                            |     | 68  | 65  |     | 60  |    | 56 | 54 | 52 |    | 49 | 44 | 38 | 31 | 29 |    |    | 19 |   |
|                       | Stinger 200 Series |                            | 00  | 0   |     | 1   |     |    | 2  | 3  | 4  |    | 5  |    | 6  | 7  |    |    |    |    | 8 |
| Harris®               | NX                 |                            |     | 000 | 00  |     | 0   |    | 1  |    | 2  |    | 3  | 4  | 5  | 6  | 7  | 8  |    |    |   |
|                       | NFF                |                            |     |     |     |     |     | 1  | 2  | 3  |    | 4  |    | 5  | 6  |    |    |    |    |    |   |
|                       | NH                 |                            |     |     |     |     |     |    |    |    |    |    |    | 5  | 6  | 7  | 8  |    |    |    |   |
|                       | 6290, 2490         |                            |     | 00  | 00  |     | 0   |    | 1  |    | 2  |    | 3  | 4  |    |    |    |    |    |    |   |
|                       | 6290S, 2490S       |                            |     |     |     |     |     |    | 1  |    | 2  |    | 3  | 4  | 5  | 6  |    |    |    |    |   |
| 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®               | 1502               |                            |     | 3   |     |     | 4   |    |    | 6  |    |    | 8  | 10 | 12 |    |    |    | 16 |    |   |
|                       | 1534               | 2                          |     | 3   |     |     | 4   |    |    | 5  |    |    | 8  | 10 | 12 |    |    |    | 16 | 20 |   |
|                       | 1564               |                            |     |     |     |     | 4   |    |    |    | 6  |    |    | 8  |    | 10 |    |    | 12 |    |   |
|                       | 1567               | 1/8                        |     | 1/4 | 1/2 |     | 3/4 |    |    | 1  | 2  | 3  |    |    |    | 10 |    |    | 14 |    |   |
| Purox®                | 4202               |                            |     | 3   |     |     | 4   |    |    | 5  |    | 7  |    | 9  |    | 13 |    |    |    |    |   |
|                       | 4213               |                            |     | 3   |     |     | 4   |    |    | 5  |    | 7  | 8  | 10 |    |    |    |    |    |    |   |
|                       | 4216               |                            |     | 3   |     |     | 4   |    |    |    | 6  |    | 8  |    | 10 | 12 |    |    |    |    |   |
| Rego®                 | KX105              |                            |     | 68  |     | 62  |     |    | 56 | 53 | 51 |    | 46 | 42 | 35 | 30 |    |    | 25 | 18 |   |
| Flame Tech® Scorpion® | All Styles         | 5/0                        | 4/0 | 000 | 00  | 00½ | 0   | 0½ | 1  | 1½ | 2  | 2½ | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 |   |
| Smith®                | SC40, 50, 60, 90   |                            |     | 00  |     | 0   |     |    | 1  | 2  | 3  |    |    | 4  | 5  | 6  | 7  |    | 8  |    |   |
| Victor®               | GP (N, P)          |                            | 000 | 00  |     | 0   |     |    | 1  | 2  |    | 3  | 3  | 4  | 5  | 6  | 7  |    | 8  | 10 |   |
|                       | BT (N, P)          |                            |     |     |     |     |     |    |    |    |    |    |    | 4  | 5  | 6  |    |    |    |    |   |
|                       | HP (N, P)          |                            |     |     |     |     |     |    | 1  | 2  |    | 3  | 3  | 4  | 5  | 6  | 7  |    | 8  | 10 |   |
|                       | 3GP (N, P)         |                            | 000 | 00  |     | 0   |     |    | 1  | 2  |    | 3  | 3  | 4  | 5  |    |    |    |    |    |   |
|                       | 1-101              |                            | 000 | 00  |     | 0   |     |    | 1  |    | 2  |    | 3  | 4  | 5  | 6  | 7  | 8  |    |    |   |
|                       | 3-101, 303M        |                            |     | 00  |     | 0   |     |    | 1  |    | 2  |    | 3  | 4  | 5  | 6  |    |    |    |    |   |

**HIGH PRESSURE (DIVERGED) TIP SIZE CROSS-REFERENCE (OEM SIZE TO OXYGEN ORIFICE DRILL SIZE)**

| O.E.M.                | TIP STYLES    | OXYGEN ORIFICE DRILL SIZES |     |     |     |     |    |    |    |    |    |    |    |    |     |     |  |  |  |  |
|-----------------------|---------------|----------------------------|-----|-----|-----|-----|----|----|----|----|----|----|----|----|-----|-----|--|--|--|--|
|                       |               | 74                         | 71  | 68  | 64  | 62  | 60 | 58 | 56 | 54 | 52 | 50 | 48 | 44 | 42  | 39  |  |  |  |  |
| Airco®                | 361           | 0                          |     | 1   | 2   |     |    |    | 3  | 4  | 6  |    |    | 8  |     |     |  |  |  |  |
|                       | 363           |                            |     |     |     |     | 1  |    | 2  | 3  | 4  |    |    | 5  | 6   |     |  |  |  |  |
|                       | AFH           |                            |     | 68  | 65  |     | 60 |    | 56 | 54 | 52 |    | 49 | 44 | 38  |     |  |  |  |  |
|                       | Stinger (375) |                            |     | 0   |     | 1   |    |    | 1  | 2  | 3  | 4  |    |    | 5   |     |  |  |  |  |
| Harris®               | VVC           | 5/0                        |     | 4/0 | 000 |     | 0  | 0½ | 1  | 1½ | 2  | 2½ | 3  | 4  | 5   | 5½  |  |  |  |  |
| 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  |     |     | 4  | 43 | 47 | 52 | 60 |    | 80 |    | 100 | 120 |  |  |  |  |
|                       | 1566          |                            |     | 1/2 | 3/4 |     | 1  |    | 1½ | 2  | 4  |    | 5  | 8  | 10  | 14  |  |  |  |  |
| Rego®                 | KX205         |                            |     | 68  |     |     | 60 |    |    |    | 53 |    |    |    |     |     |  |  |  |  |
| Flame Tech® Scorpion® | All Styles    | 5/0                        | 4/0 | 000 | 00  | 00½ | 0  | 0½ | 1  | 1½ | 2  | 2½ | 3  | 4  | 5   | 6   |  |  |  |  |
| Smith®                | SC12A         | 00                         |     | 0   | 1   |     |    |    | 2  | 3  | 4  |    | 6  | 6  | 8   |     |  |  |  |  |
| Victor®               | MTH (N, P)    |                            | 000 | 00  |     |     | 0  |    |    | 1  |    | 2  |    | 3  | 4   | 5   |  |  |  |  |

\*\*\* MAPP gas is no longer produced. Flame Tech does not make MAPP specific tips. Propylene tips may be used if needed. \*\*\*

## 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 |
|------------------------|----------|------------------------|--------------------|---------------------|----------------|----------------|--------------------|----------------|-------------------|
|                        | NUMBER   | 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          | 0.035             |
| 3/16                   | 4/0      | 71                     | 72                 | 8                   | 30-40          | 5-9            | 2-5                | 18-25          | 0.04              |
| 1/4                    | 000      | 68                     | 69                 | 10                  | 30-40          | 5-9            | 3-5                | 17-24          | 0.05              |
| 3/8                    | 00       | 64                     | 65                 | 14                  | 35-45          | 5-10           | 3-5                | 17-23          | 0.06              |
| 1/2                    | 1/2      | 62                     | 63                 | 15                  | 35-45          | 5-10           | 3-6                | 16-22          | 0.06              |
| 5/8                    | 0        | 60                     | 61                 | 15                  | 35-45          | 5-10           | 3-6                | 15-20          | 0.07              |
| 3/4                    | 1/2      | 58                     | 59                 | 17                  | 35-50          | 5-10           | 3-6                | 15-19          | 0.07              |
| 1                      | 1        | 56                     | 57                 | 18                  | 35-50          | 5-10           | 3-6                | 14-18          | 0.08              |
| 1 1/2                  | 1 1/2    | 54                     | 55                 | 22                  | 40-55          | 10-17          | 4-8                | 12-16          | 0.09              |
| 2                      | 2        | 52                     | 53                 | 24                  | 40-55          | 10-17          | 4-8                | 10-14          | 0.1               |
| 2 1/2                  | 2 1/2    | 50                     | 51                 | 26                  | 40-55          | 10-17          | 5-9                | 9-13           | 0.11              |
| 3                      | 3        | 48                     | 49                 | 28                  | 45-60          | 10-17          | 6-10               | 8-11           | 0.11              |
| 4                      | 4        | 44                     | 45                 | 32                  | 50-65          | 10-17          | 6-10               | 7-10           | 0.13              |
| 5                      | 4        | 44                     | 45                 | 32                  | 50-65          | 10-17          | 6-10               | 6-9            | 0.13              |
| 6                      | 5        | 39                     | 36                 | 42                  | 60-75          | 10-17          | 8-12               | 5-8            | 0.15              |
| 8                      | 6        | 31                     | 32                 | 44                  | 60-85          | 30-43          | 9-15               | 4-6            | 0.19              |
| 10                     | 7        | 28                     | 29                 |                     | 30-60          | 30-43          | 9-15               | 3-5            | 0.22              |
| 12                     | 8        | 25                     | 26                 |                     | 25-55          | 30-43          | 9-15               | 3-4            | 0.24              |
| 14                     | 9        | 19                     | 20                 |                     | 25-55          | 30-43          | 9-15               | 2-3            | 0.26              |
| 15                     | 10       | 13                     | 14                 |                     | 25-50          | 30-43          | 10-18              | 2-3            | 0.34              |
| 16                     | 11       | 9                      | 10                 |                     | 25-50          | 30-43          | 10-18              | 1 1/2-2 1/2    | 0.37              |
| 18                     | 12       | 5                      | 6                  |                     | 25-45          | 30-43          | 10-18              | 1-2            | 0.4               |

The highlighted sizes will cover most applications.

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

### 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 |
|------------------------|----------|------------------------|--------------------|---------------------|----------------|----------------|-----------------|--------------|-------------------|
|                        | NUMBER   | 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        | 0.035             |
| 3/16                   | 4/0      | 71                     | 72                 | 8                   | 50-60          | 5-10           | 2-5             | 23-29        | 0.04              |
| 1/4                    | 000      | 68                     | 69                 | 10                  | 70-80          | 8-15           | 2-5             | 21-28        | 0.045             |
| 3/8                    | 00       | 64                     | 65                 | 14                  | 80-90          | 8-15           | 3-5             | 19-26        | 0.05              |
| 5/8                    | 1/2      | 62                     | 63                 | 15                  | 80-90          | 8-15           | 3-5             | 19-26        | 0.05              |
| 3/4                    | 0        | 60                     | 61                 | 15                  | 80-100         | 8-15           | 3-5             | 18-26        | 0.055             |
| 7/8                    | 1/2      | 58                     | 59                 | 17                  | 80-100         | 8-15           | 3-5             | 17-25        | 0.06              |
| 1                      | 1        | 56                     | 57                 | 18                  | 80-100         | 8-15           | 3-6             | 16-24        | 0.06              |
| 1 1/2                  | 1        | 56                     | 57                 | 18                  | 80-100         | 8-15           | 3-6             | 15-20        | 0.06              |
| 2                      | 1 1/2    | 54                     | 57                 | 18                  | 80-100         | 8-15           | 3-6             | 12-16        | 0.06              |
| 2 1/2                  | 1 1/2    | 54                     | 55                 | 22                  | 80-100         | 10-20          | 4-8             | 10-15        | 0.07              |
| 3                      | 2        | 52                     | 55                 | 22                  | 80-100         | 10-20          | 4-8             | 9-13         | 0.07              |
| 4                      | 2        | 52                     | 53                 | 24                  | 80-100         | 15-25          | 4-8             | 9-12         | 0.08              |
| 5                      | 2 1/2    | 50                     | 53                 | 24                  | 80-100         | 15-25          | 4-8             | 8-11         | 0.08              |
| 5 1/2                  | 2 1/2    | 50                     | 51                 | 26                  | 80-100         | 15-25          | 5-9             | 8-11         | 0.09              |
| 6                      | 3        | 48                     | 49                 | 28                  | 80-100         | 15-25          | 6-10            | 8-10         | 0.1               |
| 8                      | 4        | 44                     | 45                 | 32                  | 80-100         | 20-30          | 8-12            | 6-8          | 0.11              |
| 9                      | 5H       | 42                     | 43                 | 34                  | 80-100         | 25-35          | 8-12            | 5-7          | 0.13              |
| 10                     | 6H       | 39                     | 40                 | 37                  | 80-100         | 25-40          | 9-15            | 4-6          | 0.17              |

\* NOTE: If using propylene, 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.