The Harris Products Group was formed by combining two strong names in the welding business—Harris Calorific and J.W. Harris. The Harris Products Group is a world leader in metalworking products used in the brazing, soldering, welding, cutting and gas distribution industries. The combined company offers excellence in the manufacture of:

- Gas welding and cutting equipment
- Industrial and specialty gas regulation equipment
- Gas distribution systems
- Brazing and soldering alloys
- Welding alloys
- Pre-formed bends, rings and return bends

The Harris Products Group is a wholly-owned subsidiary of The Lincoln Electric Company. Lincoln has more than 48 manufacturing locations, including operations and joint ventures in 19 countries and a worldwide network of distributors and sales offices covering more than 160 countries.

**THE HARRIS PRODUCTS GROUP HISTORY**

- **1889** John Harris, founder, invents the first flame-cutting torch.
- **1904** Harris exhibits his invention at the World's Fair in St. Louis, Missouri (USA).
- **1905** John Harris establishes The Harris Calorific Company. Harris continued to refine its gas torches and starts manufacturing related accessories, including gas pressure regulators.
- **1914** Joseph W. Harris founds the J.W. Harris Company, specializing in the distribution and repair of specialized parts for automotive and farm vehicles. The company later expands into welding alloys and accessories.
- **1926** U.S. Welding Co. of Minnesota purchases Harris Calorific and becomes part of Emerson Electric Co. in 1973.
Both Harris companies expand around the world.

Lincoln Electric purchases Harris Calorific from Emerson Electric.

Harris Calorific and J.W. Harris combine, creating The Harris Products Group.

The Harris Products Group purchases Brastak in Brazil.

Harris purchases the brazing and soldering business of Worthington Industries.

Harris launches Aluxcor Aluminum Brazing Alloy.
WHY PROFESSIONAL TRADESMEN TURN TO THE PROS

EXPERIENCE
We know your industry. Our customers worldwide will attest that Harris products improve their processes, drive down costs and increase profits. We understand your business and the challenges you face every day.

COMMITMENT
The Harris Products Group is committed to a continuous pursuit of improvement in manufacturing excellence through the implementation of “lean manufacturing” concepts. Incorporated in our lean manufacturing initiatives are the principal concepts of continuous flow, pull demand, elimination of waste and pursuit of a system that is responsive to customers but lean in inventory, labor and manufacturing costs. Tools we currently use in this effort include Six Sigma, statistical process control, preventive maintenance, kanban and kaizen.

In addition to our lean manufacturing efforts we have also implemented automation systems, robotic systems and a incentive pay system. We use a rigorous financial planning process in conjunction with disciplined project management for the implementation of planned cost reductions for material, labor and overhead, as well as new product development.
QUALITY
The Harris Products Group is certified to ISO 9001:2000. Quality is an integral part in all processes of the company from development, planning, design and manufacturing to sales and service activities. Our quality system is regularly audited on both an internal and external basis to ensure that consistent business processes are applied.

EXPERTISE
Good companies become great companies when their employees are passionate about the company and the products they produce. We make it our business to know your company so that we can provide the right products for your processes. Our sales team is comprised of product application specialist that can complete on-site evaluations and surveys. They work closely with you to provide a total solution. This also includes support for our customers after the sale through our safety and factory training.

CERTIFICATIONS
The Harris Products Group is committed to environmental stewardship and resource conservation throughout the world. All Harris facilities are certified to ISO 14001.

The Harris Products Group is certified to ISO 9001:2000. Quality is an integral part in all processes of the company from development, planning, design and manufacturing to sales and service activities.

Many Harris industrial gas regulators and torches are certified to the UL® listed standard. Choosing to work with UL® standards demonstrates our commitment to the highest levels of safety and quality.

Harris regulators and torches are all manufactured to the applicable Compressed Gas Association (CGA) standard.
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## TRAKMAX™ Tractor

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## QUICK CONNECTS & FLASHBACK ARRESTORS

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OUR REGULATORS ARE MADE FROM THE HIGHEST QUALITY INDUSTRIAL-GRADE COMPONENTS. THEY ARE DESIGNED TO WITHSTAND THE HARSHEST ENVIRONMENTS AND ARE 100% TESTED PRIOR TO SHIPMENT FROM OUR FACILITY. WE OFFER A COMPLETE RANGE OF SINGLE-STAGE INDUSTRIAL REGULATORS TO MEET YOUR APPLICATIONS AND BUDGET.

GET CONNECTED
Go to www.facebook.com/HarrisProductsGroup

QUICK SELECTION GUIDE

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447 MODEL HEAVY DUTY PIPELINE/STATION p.12
**Model 801**

### DESCRIPTON

The model 801 is designed to be a medium duty regulator, perfect for most industrial cutting and welding applications. It features 2" gauges that are easy to read and an ergonomic adjusting knob for precise operation and a longer service life. **Notes:**

- Available clamshell packaging (CS).

### DETAILS

- **Capacity:** Medium duty
- **Cv:** 0.17
- **Gauges:** 2" Steel dual scale
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® Seat

### PART NO. | MODEL NO. | GAS | MAX. INLET PSIG | DELIVERY PRESSURE RANGE PSIG | DELIVERY PRESSURE GAUGE PSIG | SUPPLY PRESSURE GAUGE PSIG | INLET CONNECTION | OUTLET CONNECTION
---|---|---|---|---|---|---|---|---
3002195 | 801-15-300 | ACETYLENE | 500 | 0 - 15 | 30 RZ | 400 | CGA 300 | 9⁄16" - 18 LH
3002193 | 801-15-510 | ACETYLENE | 500 | 0 - 15 | 30 RZ | 400 | CGA 510 | 9⁄16" - 18 LH
3002194 | 801-145-540 | OXYGEN | 3000 | 0 - 145 | 150 | 4000 | CGA 540 | 9⁄16" - 18 RH

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**Model 25GX**

### DESCRIPTON

The 25GX is designed to be the next generation workhorse of the Harris industrial regulator line. It features larger, easier to read gauges and an ergonomic adjusting knob that also shields the adjusting mechanism from contaminants. **Notes:**

- Some models are available in clamshell packaging (CS).

### DETAILS

- **Capacity:** Medium to heavy duty
  - Cv: 0.17
- **Gauges:** 2.5" Steel dual scale
- **Pressure Regulation:** 0.2 PSIG/100 PSIG
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Certification:** UL® listed/CQA E-4

### PART NO. | MODEL NO. | GAS | MAX. INLET PSIG | DELIVERY PRESSURE RANGE PSIG | DELIVERY PRESSURE GAUGE PSIG | SUPPLY PRESSURE GAUGE PSIG | INLET CONNECTION | OUTLET CONNECTION
---|---|---|---|---|---|---|---|---
3000350 | 25GX-15-300 | ACETYLENE | 500 | 0 - 15 | 30 RZ | 400 | CGA 300 | 9⁄16" - 18 LH
3000380 | 25GX-15-510 | ACETYLENE | 500 | 0 - 15 | 30 RZ | 400 | CGA 510 | 9⁄16" - 18 LH
3000450 | 25GX-50-510P | LPG* | 500 | 0 - 50 | 60 | 400 | CGA 510P | 9⁄16" - 18 LH
3000510 | 25GX-145-540 | OXYGEN | 3000 | 0 - 145 | 200 | 4000 | CGA 540 | 9⁄16" - 18 RH
3000540 | 25GX-145-580 | Ar, He, N₂ | 3000 | 0 - 145 | 200 | 4000 | CGA 580 | 9⁄16" - 18 RH **
3000806 | 25GX-200-580 | Ar, He, N₂ | 3000 | 0 - 200 | 400 | 4000 | CGA 580 | 9⁄16" - 18 RH **

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*Regulators designed for propane service can be used with any other LPG fuel. NOT FOR USE WITH ACETYLENE.

**Supplied with 5⁄8"-18 adaptor P/N: 9000002

3000485 has 30 PSIG plain face gauge
425

**DESCRIPTION**

Model 425 is a premium, single-stage, industrial regulator that is an ideal choice for most industrial applications. This regulator incorporates a number of Harris features designed to make it a rugged, long-lasting performer, including an exclusive tamper-proof, self-reseating internal HP safety valve and a neoprene diaphragm. The 425 is also available in a multitude of pressure ranges and for all standard industry gases.* Some models are available in clamshell packaging (CS).

**DETAILS**

- **Capacity:** Heavy duty
- **Cv:** 0.17
- **Gauges:** 2.5” brass
- **Pressure Regulation:** 0.2 PSIG/100 PSIG
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Certifications:** UL® listed/CAG E-4

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>MAX. INLET PSIG</th>
<th>DELIVERY PRESSURE RANGE (PSIG)</th>
<th>DELIVERY PRESSURE GAUGE PSIG</th>
<th>SUPPLY PRESSURE GAUGE PSIG</th>
<th>INLET CONNECTION</th>
<th>OUTLET CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3000816</td>
<td>425-15-300</td>
<td>ACETYLENE</td>
<td>500</td>
<td>0 - 15</td>
<td>30RZ</td>
<td>400</td>
<td>CGA 300</td>
<td>9⁄16” - 18 LH</td>
</tr>
<tr>
<td>3000815</td>
<td>425-15-510</td>
<td>ACETYLENE</td>
<td>500</td>
<td>0 - 15</td>
<td>30RZ</td>
<td>400</td>
<td>CGA 510</td>
<td>9⁄16” - 18 LH</td>
</tr>
<tr>
<td>3000713</td>
<td>425-50-510P</td>
<td>LPG**</td>
<td>3000</td>
<td>0 - 50</td>
<td>60</td>
<td>400</td>
<td>CGA 510P</td>
<td>9⁄16” - 18 LH</td>
</tr>
<tr>
<td>3000714</td>
<td>425-125-540</td>
<td>OXYGEN</td>
<td>3000</td>
<td>0 - 125</td>
<td>200</td>
<td>400</td>
<td>CGA 540</td>
<td>9⁄16” - 18 RH</td>
</tr>
<tr>
<td>3000762</td>
<td>425-125-346</td>
<td>MEDICAL AIR</td>
<td>3000</td>
<td>0 - 125</td>
<td>200</td>
<td>400</td>
<td>CGA 346</td>
<td>9⁄16” - 18 RH</td>
</tr>
<tr>
<td>3000764</td>
<td>425-200-346</td>
<td>MEDICAL AIR</td>
<td>3000</td>
<td>0 - 200</td>
<td>400</td>
<td>400</td>
<td>CGA 346</td>
<td>9⁄16” - 18 RH</td>
</tr>
<tr>
<td>3000837</td>
<td>425-15-580</td>
<td>Ar, He, N₂</td>
<td>3000</td>
<td>0 - 15</td>
<td>30</td>
<td>400</td>
<td>CGA 580</td>
<td>9⁄16” - 18 RH</td>
</tr>
<tr>
<td>3000773</td>
<td>425-200-580</td>
<td>Ar, He, N₂</td>
<td>3000</td>
<td>0 - 200</td>
<td>400</td>
<td>400</td>
<td>CGA 580</td>
<td>9⁄16” - 18 RH</td>
</tr>
<tr>
<td>3000775</td>
<td>425-125-320</td>
<td>CO₂</td>
<td>3000</td>
<td>0 - 125</td>
<td>200</td>
<td>400</td>
<td>CGA 320</td>
<td>9⁄16” - 18 RH</td>
</tr>
</tbody>
</table>

* Models with “CS” suffix are clamshell packaged.
**Regulators designed specifically for propane service can be used with any of the other welding grade liquid petroleum gases. NOT FOR USE WITH ACETYLENE.
***Models with anti-vibrator “A” for He and H₂ applications feature the standard Harris internal safety.

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**PRO INFO**

**CHOOSE THE RIGHT HARRIS FLOW CONTROL DEVICES**

One of the most common uses for gas flow control devices in the industrial gas market is to control shielding gases for GTAW (TIG) and GMAW (MIG) welding. No other manufacturer in the industry offers a more complete line of shielding gas equipment than Harris. Harris offers many designs and models of flow meters, flow meter regulators and flow gauge regulators for all gas supply systems, high-pressure cylinders, liquid cylinders and pipelines.

**CONTACT YOUR LINCOLN ELECTRIC OR HARRIS REPRESENTATIVE FOR THE FEATURES AND BENEFITS THAT BEST FIT YOUR APPLICATION(S).**
**Performance = Pressure Regulation**

There is a reason they are called "pressure" regulators. Regulators take unusable high pressure, for example, from a cylinder and break it down into a lower usable pressure. This is the true function of a regulator. How well a regulator maintains the lower pressure, despite the changes in pressure upstream, is the true measure of a regulator. The more constant the set pressure is held, the better the regulator. The Harris Model 450 offers superior pressure regulation over competitive models.

**Pressure Comparison**

Both of the competitive models, delivery pressure rises twice as fast as the Harris Model 450. This is important because the Harris Model 450 user will get a better, more constant delivery pressure, as the cylinder empties. Additionally, the user won’t have to adjust the regulator as much, meaning more time spent working.

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Pressure Rise PSI / 100 PSI</th>
<th>Change In Delivery Pressure</th>
<th>Final Outlet Pressure</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harris Model 450</td>
<td>0.30</td>
<td>+ 7.65</td>
<td>37.65</td>
<td>25%</td>
</tr>
<tr>
<td>Competitive Model 1a</td>
<td>0.56</td>
<td>+ 14.28</td>
<td>44.28</td>
<td>47%</td>
</tr>
<tr>
<td>Competitive Model 1b</td>
<td>0.70</td>
<td>+ 17.85</td>
<td>47.85</td>
<td>60%</td>
</tr>
</tbody>
</table>

Calculations were performed per the Compressed Gas Association (CGA) E-4 standard. It is the most up-to-date and comprehensive regulator standard in the world today for the industry. It defines product safety and production test requirements and it defines performance characteristics required to meet field applications.

**Stainless Steel Diaphragm**

**Description**

The Model 450 is an economically priced industrial duty regulator, but with premium features found only in high priced regulators. The 450 has a stainless steel diaphragm and a Harris exclusive internal tamper-proof self-reseating safety. *Some models are available in clamshell packaging (CS)*.

**Details**

- **Capacity:** Heavy duty
  \[ C = 0.17 \]
- **Gauge:** 2.5” brass
- **Pressure Regulation:** 0.3 PSI/100 PSI
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Certifications:** UL® listed/CGA E-4
- **Weight:** 4.6 lbs./2.09 kg.

**Model Shown:**

450-125-540

Additional Technical Information: PG. 187
### LIQUID CYLINDER GASEOUS WITHDRAWAL

#### DESCRIPTION

The Model 330 regulator allows for gaseous withdrawal from oxygen, carbon dioxide, argon and/or nitrogen liquid cylinders. It has a stainless steel diaphragm and a tamper-proof, self-reseating internal HP safety valve. Its unique design permits inlet pressures of up to 3000 PSIG for use on high pressure cylinders. The model 330 has an auxiliary plugged low pressure port.

#### DETAILS

**Capacity:** Heavy duty  
**Cv:** 0.37  
**Gauges:** 2” Brass  
**Pressure Regulation:** 0.2 PSIG/100 PSIG  
**Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat  
**Certifications:** CGA E-4  
**Where Used:** Cryogenic cylinders for vapor withdrawal  
**Weight:** 4.3 lbs./1.95 kg.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>MAX. INLET PSIG</th>
<th>DELIVERY PRESSURE RANGE PSIG</th>
<th>DELIVERY PRESSURE GAUGE PSIG</th>
<th>SUPPLY PRESSURE GAUGE PSIG</th>
<th>INLET CONNECTION</th>
<th>OUTLET CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3001090</td>
<td>330-125-540</td>
<td>OXYGEN</td>
<td>3000</td>
<td>0 - 125</td>
<td>200</td>
<td>-</td>
<td>CGA 540</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>3001093</td>
<td>330-350-540</td>
<td>OXYGEN</td>
<td>3000</td>
<td>0 - 350</td>
<td>500</td>
<td>-</td>
<td>CGA 540</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>3001091</td>
<td>330-125-580</td>
<td>Ar, NITROGEN</td>
<td>3000</td>
<td>0 - 125</td>
<td>200</td>
<td>-</td>
<td>CGA 580</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>3001094</td>
<td>330-350-580</td>
<td>Ar, NITROGEN</td>
<td>3000</td>
<td>0 - 350</td>
<td>500</td>
<td>-</td>
<td>CGA 580</td>
<td>9⁄16” - 18</td>
</tr>
</tbody>
</table>

### PIPELINE/STATION BACK ENTRY

#### DESCRIPTION

The Model 447 regulators are designed to deliver high gas flows from piping systems that are equipped with standard pipe connection outlets or with station regulator connections. The 447 also has a brass bonnet and gauge.

#### DETAILS

**Capacity:** Heavy duty, high flow  
**Cv:** 0.53  
**Gauge:** 2.5” Brass  
**Pressure Regulation:** 1.6 PSIG/100 PSIG  
**Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat, low pressure models feature neoprene seats(NC)  
**Certifications:** CGA E-4  
**Related Equipment:** Station Drops p.XX  
**Weight:** 3.6 lbs./1.63 kg.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>MAX. INLET PSIG</th>
<th>DELIVERY PRESSURE RANGE PSIG</th>
<th>DELIVERY PRESSURE GAUGE PSIG</th>
<th>INLET CONNECTION</th>
<th>OUTLET CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000569</td>
<td>447NC-15-¼” L</td>
<td>FUEL</td>
<td>500</td>
<td>0 - 15</td>
<td>30</td>
<td>½” NPT (F)</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>4000571</td>
<td>447-50-¼” L</td>
<td>FUEL</td>
<td>500</td>
<td>0 - 50</td>
<td>100</td>
<td>½” NPT (F)</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>4000575</td>
<td>447-125-¼” R</td>
<td>OXYGEN</td>
<td>500</td>
<td>0 - 125</td>
<td>200</td>
<td>½” NPT (F)</td>
<td>9⁄16” - 18</td>
</tr>
</tbody>
</table>

### PIPELINE 1/4” NPT Inlet

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>MAX. INLET PSIG</th>
<th>DELIVERY PRESSURE RANGE PSIG</th>
<th>DELIVERY PRESSURE GAUGE PSIG</th>
<th>INLET CONNECTION</th>
<th>OUTLET CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000569</td>
<td>447NC-15-¼” L</td>
<td>FUEL</td>
<td>500</td>
<td>0 - 15</td>
<td>30</td>
<td>½” NPT (F)</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>4000571</td>
<td>447-50-¼” L</td>
<td>FUEL</td>
<td>500</td>
<td>0 - 50</td>
<td>100</td>
<td>½” NPT (F)</td>
<td>9⁄16” - 18</td>
</tr>
<tr>
<td>4000575</td>
<td>447-125-¼” R</td>
<td>OXYGEN</td>
<td>500</td>
<td>0 - 125</td>
<td>200</td>
<td>½” NPT (F)</td>
<td>9⁄16” - 18</td>
</tr>
</tbody>
</table>

**Additional Technical Information:** PG. 195
A station regulator is essentially a pipeline regulator with a “C” hose connection installed on the inlet to prevent the regulator from being used on a pressure source higher than its intended use.

Visually, a "C" nut and stem is a little larger (7⁄8”-14”), than the more popular "B" size (9⁄16”-18”), found on the majority of regulators and torches in the welding industry. Both “B” and “C” hoses are limited to a maximum gas pressure of 200 PSIG according to the standard set by The Compressed Gas Association.

The station regulator with the “C” inlet connection is, therefore, limited to a maximum gas pressure of 200 PSIG. A pipeline regulator, on the other hand, has no inlet pressure limit other than that specified by its manufacturer. For example, Harris Models 247, 447 and 547 pipeline regulators are limited by Harris to a stated maximum of 500 PSIG, unless equipped with a “C” inlet, thus limiting them to 200 PSIG.

The intent of the “C” connection station regulator standard is to prevent the use of a low pressure design regulator on a high pressure source, causing an accident and/or possible injury.

### Typical Cylinder Size, Weight and Content Data

The data below, along with the oxy-acetylene tip charts in this catalog, can aid in estimating the minimum cylinder size requirements and/or the maximum tip size recommended for a particular oxy-acetylene application.

Acetylene consumption rate from tip chart x 7 = Minimum Cylinder Size in cubic feet (@60° F).

Cylinder size in cubic feet/7 = Maximum Cylinder Withdrawal Rate in SCFH (@60° F).

#### OXYGEN

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CU. FT.</th>
<th>HEIGHT</th>
<th>WEIGHT FULL</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>20</td>
<td>14&quot;</td>
<td>14 lbs.</td>
</tr>
<tr>
<td>AXL</td>
<td>58</td>
<td>41&quot;</td>
<td>54 lbs.</td>
</tr>
<tr>
<td>Q</td>
<td>92</td>
<td>35&quot;</td>
<td>70 lbs.</td>
</tr>
<tr>
<td>D</td>
<td>125</td>
<td>48&quot;</td>
<td>124 lbs.</td>
</tr>
<tr>
<td>S</td>
<td>155</td>
<td>51&quot;</td>
<td>92 lbs.</td>
</tr>
<tr>
<td>K</td>
<td>251</td>
<td>56&quot;</td>
<td>153 lbs.</td>
</tr>
<tr>
<td>H</td>
<td>281</td>
<td>56&quot;</td>
<td>162 lbs.</td>
</tr>
<tr>
<td>T</td>
<td>337</td>
<td>60&quot;</td>
<td>172 lbs.</td>
</tr>
</tbody>
</table>

#### ACETYLENE

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CU. FT.</th>
<th>HEIGHT</th>
<th>WEIGHT FULL</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC</td>
<td>8 - 10</td>
<td>14&quot;</td>
<td>8 lbs.</td>
</tr>
<tr>
<td>B</td>
<td>33 - 40</td>
<td>23&quot;</td>
<td>26 lbs.</td>
</tr>
<tr>
<td>2AWQ</td>
<td>55 - 60</td>
<td>31&quot;</td>
<td>61 lbs.</td>
</tr>
<tr>
<td>NO.4</td>
<td>90 - 150</td>
<td>36&quot;</td>
<td>113 lbs.</td>
</tr>
<tr>
<td>NO.4</td>
<td>151- 230</td>
<td>37.5&quot;</td>
<td>150 lbs.</td>
</tr>
<tr>
<td>NO.5WK</td>
<td>250 - 380</td>
<td>43.5&quot;</td>
<td>200 lbs.</td>
</tr>
</tbody>
</table>

Data above may vary slightly because of ambient temperature, cylinder conditions, etc.
OVERVIEW

There are two basic types of flow control devices, generally referred to as “fixed pressure/variable orifice” and “variable pressure/fixed orifice”. A typical flowmeter regulator is a “fixed pressure/variable orifice” device, pressure fixed at the factory to a “compensated” or “calibrated” pressure, depending on the flow range desired and the gases being used.

A third type of flow regulator is called a "zero" or "non-compensated" flowmeter regulator. It shares some features and advantages of both flow meter and flow gauge regulators. It uses a flowmeter as an indicator, but generally functions as a variable pressure flowgauge regulator.

PRO INFO

Visit www.harrisproducts.com for complete details on our entire product line.

DEVICES FOR GAS FLOW CONTROL

All three types of regulators have their advantages. Use the comparison table below to select the type that best fits your application(s).

<table>
<thead>
<tr>
<th>FLOWGAUGE REGULATOR</th>
<th>FLOWMETER REGULATOR</th>
<th>&quot;ZERO&quot; COMPENSATED FLOWMETER REGULATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Compensated Variable Pressure/Fixed Orifice</td>
<td>Pressure Compensated Fixed Pressure/Variable Orifice</td>
<td>Zero Compensated Variable Pressure/Fixed Orifice</td>
</tr>
<tr>
<td>New</td>
<td>Traditional</td>
<td>New</td>
</tr>
<tr>
<td>$$</td>
<td>$$$</td>
<td>$</td>
</tr>
<tr>
<td>Tolerates More Abuse</td>
<td>Exposed Components Susceptible to Damage</td>
<td>Compact Less Susceptible to Damage</td>
</tr>
<tr>
<td>No Flow Indicator</td>
<td>Indicates When Flowing</td>
<td>Indicates When Flowing</td>
</tr>
<tr>
<td>All Position</td>
<td>Vertical Only</td>
<td>Vertical Only</td>
</tr>
<tr>
<td>Common Parts</td>
<td>Unique Parts</td>
<td>Few Unique Parts</td>
</tr>
<tr>
<td>Accuracy = ± 3, 2, 3% of Full Scale</td>
<td>Accuracy = ± 5% of Full Scale @ Mid Range</td>
<td>Accuracy = ± 5% of Full Scale @ Mid Range</td>
</tr>
<tr>
<td>Surge Control Capability</td>
<td>No Surge Control Capability</td>
<td>Surge Control Capability</td>
</tr>
</tbody>
</table>
**QUICK SELECTION GUIDE**

**ECONOMICAL**
- 351 MODEL
  - Zero Compensated Pipeline
  - p.16
- 351 MODEL
  - Zero Compensated Cylinder
  - p.16

**GENERAL PURPOSE**
- 55-2 MODEL
  - Compensated
  - p.17
- 355-2 MODEL
  - Compensated
  - p.17

**SHIELDING GASKETS**
- 355-2 MODEL
  - Compact Complete with Hose
  - p.18
"ZERO" COMPENSATED PIPELINE

DESCRIPTION
This pipeline version of the Model 351 is zero-compensated for more efficient shielding gas use. It is a compact flowmeter regulator at the price and size of most competitive flowmeters. It is designed to give an accurate consistent flow despite wide fluctuations in pipeline pressure.

DETAILS
Capacity: Heavy duty
Gauges: None
Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Body: Brass

CERTIFICATIONS: CGA E-4
WHERE USED: Gas-shielded welding and other pipeline applications
RELATED ITEMS: ¼" x 10' Inert Hose
P/N: 4300138
WEIGHT: 2 lbs./0.91 kg.

DETAILS
Capacity: Heavy duty
Gauges: 50mm ABS
Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Body: Brass

CERTIFICATIONS: CGA E-4
WHERE USED: Gas-shielded arc welding and other industrial applications
RELATED ITEMS: ¼" x 10' Inert Hose
P/N: 4300138
WEIGHT: 2.3 lbs./1.04 kg.

PART NO. MODEL NO. GAS FLOW CAPACITY SCFH COMPENSATED PSIG MAX. INLET PSIG INLET CONNECTION OUTLET CONNECTION
3100332 351-70Ar/CD-½”M Ar/CO₂ 10-70 0 200 ½” NPT (M) ½” - 18 (F)

3100331 351-60Ar-580 Ar, CO₂ 10-70 0 3000 4000 CGA 580 ½” - 18 (F)
3100330 351-60CD-320 Ar, CO₂ 10-70 0 3000 4000 CGA 320 ½” - 18 (F)
**FLOWMETER**

**DESCRIPTION**
The Model 55-2 flowmeter is designed to give precise flow control in SCFH. They are compensated at 20 or 50 PSIG and calibrated for most common industrial gases. The 55-2 is equipped with a pressure relief valve. RH versions have left hand inlets.

**DETAILS**
- **Capacity:** Heavy duty
- **Gauges:** N/A
- **Seat:** N/A
- **Body:** Brass
- **Certifications:** CGA E-8
- **Where Used:** Gas shielded welding and other pipeline applications
- **Related Items:**
  - 447-20 Pipeline Reg-¼ RH P/N: 4000584, ¼” x 10’ Inert Hose P/N: 4300138,
  - Adaptor: ¼”-18(M) x ¼”- NPT (M)
  - P/N: 8800527
- **Weight:** 1.5 lbs./0.68 kg.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>SCALE RANGE SCFH</th>
<th>COMPENSATED PSIG</th>
<th>MAX. RECOMMENDED INLET PSIG</th>
<th>INLET CONNECTION</th>
<th>OUTLET CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5400613</td>
<td>55-2 N₂/AIR</td>
<td>N₂, (AIR)</td>
<td>10 - 100 (10 - 100)</td>
<td>20</td>
<td>75</td>
<td>¾” - 18 (F)</td>
<td>¾” - 18 (F)</td>
</tr>
<tr>
<td>5400609</td>
<td>55-2 Ar/CD</td>
<td>Ar, (CO₂)</td>
<td>10 - 70 (10 - 70)</td>
<td>20</td>
<td>75</td>
<td>¾” - 18 (F)</td>
<td>¾” - 18 (F)</td>
</tr>
</tbody>
</table>

**COMPACT PRESSURE COMPENSATED FLOWMETER REGULATOR**

**DESCRIPTION**
The Model 355-2 incorporates a regulator and flowmeter into one compact unit. The flow tube and float are easily changed for different gases. As supplied, the flow tube has dual calibration. It includes a sensitive needle valve for finger tip control.

**DETAILS**
- **Capacity:** Up to 140 SCFH
- **Gauges:** 1.5” Steel
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Body:** Brass
- **Certifications:** Ul® listed/CGA E-4
- **Where Used:** Gas shielded welding and other industrial applications
- **Related Items:**
  - 4x Inert Hose P/N: 4300138,
  - Adaptor: ½”-18(M) x ½”- NPT (M)
  - P/N: 8800527
- **Weight:** 2.9 lbs./1.32 kg.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>SCALE RANGE SCFH</th>
<th>COMPENSATED PSIG</th>
<th>MAX. INLET PSIG</th>
<th>SUPPLY PRESSURE GAUGE PSIG</th>
<th>INLET CONNECTION</th>
<th>OUTLET CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3100200</td>
<td>355-2-Ar-580</td>
<td>Ar, (CO₂)</td>
<td>10 - 70 (10 - 70)</td>
<td>20</td>
<td>3000</td>
<td>0 - 4000</td>
<td>CGA 580</td>
<td>¾” - 18 (F)</td>
</tr>
</tbody>
</table>

*On maximum continuous duty cycle, CO₂ flows to 20 SCFH
### 351 ECONOMICAL SHIELDING GAS KIT

**DESCRIPTION**
The Model 351 flowmeter regulator kits are designed to control argon, CO₂ mix shielding gases. The kit is supplied with a \( \frac{3}{8} \)" x 10' approved inert gas hose.

**DETAILS**
- **Capacity:** Heavy Duty
- **Gauges:** 1.5" ABS
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® Seat
- **Body:** Brass
- **Certifications:** UL® listed/CGA E-4

**Capacity:** Heavy Duty

**Gauges:** 1.5" Steel

**Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® Seat

**Body:** Brass

**Certifications:** UL® listed/CGA E-4

**Where Used:** Gas-shielded welding & other industrial applications

**Weight:** 3.5 lbs./1.59 kg.

**Packaging:** Clamshell

### PART NO. MODEL NO. GAS FLOW CAPACITY SCFH COMPENSATED MAX. INLET PSIG SUPPLY PRESSURE GAUGE PSIG INLET CONNECTION OUTLET CONNECTION

| 3100353 | 351-60Ar-58010 | Ar | 70 | 0 | 3000 | 4000 | CGA 580 | \( \frac{3}{8} \)"-18 (F) |
| 3100401 | 351-60CD-32010 | CO₂ | 70 | 0 | 3000 | 4000 | CGA 320 | \( \frac{3}{8} \)"-18 (F) |

### 355-2 COMPENSATED SHIELDING GAS KIT

**DESCRIPTION**
The Model 355-2 flowmeter regulator kits are designed to control argon and or argon CO₂ mix shielding gases. The 355-2Ar-58010 shielding gas kit is supplied with a \( \frac{3}{8} \)" x 10' approved inert gas hose.

**DETAILS**
- **Capacity:** Heavy Duty
- **Gauges:** 1.5" Steel
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® Seat
- **Body:** Brass
- **Certifications:** UL® listed/CGA E-4

**Where Used:** Gas-shielded welding & other industrial applications

**Replacement Hose:** \( \frac{3}{8} \)" x 10' inert hose P/N: 4300138

**Weight:** 4.1 lbs./1.86 kg.

**Packaging:** Clamshell

### PART NO. MODEL NO. GAS FLOW CAPACITY SCFH COMPENSATED MAX. INLET PSIG SUPPLY PRESSURE GAUGE PSIG INLET CONNECTION OUTLET CONNECTION

| 4400235 | 355-2Ar-58010 | Ar/CO₂ | 70 | 20 | 3000 | 4000 | CGA 580 | \( \frac{3}{8} \)" - 18 (F) |
| 4400234 | 355-2CD-32010 | Ar/CO₂ | 70 | 20 | 3000 | 4000 | CGA 320 | \( \frac{3}{8} \)" - 18 (F) |
TORCH HANDLES

GET THE BEST HANDLE ON IT! HARRIS MANUFACTURES ONLY INDUSTRIAL-DUTY EQUIPMENT INCLUDING OUR COMBINATION TORCH HANDLES. WHEN YOU BUY A HARRIS HANDLE, YOU CAN BE SURE THAT IT IS THE BEST THAT MONEY CAN BUY. OUR HANDLES ARE DESIGNED TO GIVE THE BEST PERFORMANCE, MADE OF THE BEST MATERIALS BY THE BEST MANUFACTURER IN THE INDUSTRY.

GET CONNECTED
Go to www.youtube.com/harrisproductsgroup

QUICK SELECTION GUIDE

HEAVY DUTY

43-2 MODEL HIGH FLOW p.23

VH31 MODEL VICTOR® COMPATIBLE p.25

MEDIUM DUTY

85 MODEL CLASSIC p.25

VH10 MODEL VICTOR® COMPATIBLE p.27

TURN TO THE PROS – TURN TO HARRIS.
To learn more about the most complete line of industrial grade tools in the world, visit us online.
OVERVIEW
Most Harris combination torch handles have silver-brazed twin inner tube construction for strength and are light weight. For special applications, where weight can be compromised, Harris features tube-within-a-tube construction to provide optimum flow performance.

TYPICAL APPLICATIONS
- Metal fabrication
- Shipbuilding
- Maintenance
- Construction

PRO INFO
Visit www.harrisproductsgroup.com for complete details on our entire product line.

TURN TO THE PROS-
TURN TO HARRIS
WHAT IS THE DIFFERENCE BETWEEN BRAZING, SOLDERING & GAS WELDING?

1. **BRAZING** is a metal joining process utilizing a filler metal which melts above 840°F (450°C) and below the melting point of the base metal(s). The filler metal is drawn into the joint by capillary attraction producing a sound, leak-proof connection.

2. **SOLDERING** has the same definition as brazing except for the fact that the filler metal(s) melts below 840°F (450°C).

3. **GAS WELDING** is a joining process in which the base metal(s) actually melt and flow together along with the filler metal if used. Filler metal(s) are used when the joint size or properties of the joint require it.

For most applications Harris combination torch handles have silver-brazed twin inner tube construction for strength, light weight and maximum leak integrity.

For special applications where gas flow requirements are critical and light weight can be compromised, Harris uses tube-within-a-tube construction to fulfill those requirements while still maintaining the strength and leak integrity that these applications require.
**HIGH-CAPACITY COMBINATION HANDLE**

**MODEL SHOWN:**

43-2

**DESCRIPTION**

The Model 43-2 high-capacity combination handle with the capacity to maximize the performance of the largest Harris tips. The 43-2 is Harris' premium heavy-duty combination torch handle.

**DETAILS**

Capacity:
Welds to 1”/25.4mm; cuts to 5”/127mm

Length: 9½”/241.3mm

Weight: 1.4 lbs./0.64 kg.

Certification: UL®listed

Equipped with: FlashGuard® check valves

Featured in Pipeliner®, Alternate Fuel Classic and Hardhat™ kits

<table>
<thead>
<tr>
<th>WELDING/BRAZING/HEATING</th>
<th>MIXERS</th>
<th>TIP TUBE</th>
<th>WELDING/BRAZING TIP STYLE</th>
<th>HEATING TIP STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART NO.</td>
<td>MODEL NO.</td>
<td>COMPATIBLE MIXERS(S) (PG. 82)</td>
<td>COMPATIBLE TIP TUBE(S) (PG. 124)</td>
<td>ACET/H₂ (SIZE) (PG. 122)</td>
</tr>
<tr>
<td>1401150</td>
<td>43-2</td>
<td>E-43 – 8593 – 23A90 (0-10) – J-63 (1 &amp; 2) –</td>
<td>23A90 (0-10) – 1390-N (2-10) – 1390 (HA) – 1390 (B&amp;H)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>E-43 – 8593 – 1390 (0-10) – 1390-N (2-10)</td>
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<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-43 – 23A90 (13 &amp; 15) – J-63 (3 &amp; 4) –</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-43 – T-43 – 1390 (13) – 1390-N (13, 15, 20, 30, 80) –</td>
<td>–</td>
<td>1390 (3H)</td>
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<tr>
<td></td>
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<td>E-43 – 2393 – –</td>
<td>–</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>E-43 – 2393 –</td>
<td>–</td>
<td>RBA (2, 4, 6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-43 – T-43 – 1390 (13) – 1390-N (13, 15, 20, 30, 80) –</td>
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<td>1390 (3H)</td>
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<tr>
<td></td>
<td></td>
<td>E-43 – 2393 –</td>
<td>–</td>
<td>RBA (2, 4, 6)</td>
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<tr>
<td></td>
<td></td>
<td>E-43 – 2393 –</td>
<td>–</td>
<td>RBA (2, 4, 6)</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>–</td>
<td>RBA (2, 4, 6)</td>
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<td>RBA (2, 4, 6)</td>
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<td>E-43 – 2393 –</td>
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<td>RBA (2, 4, 6)</td>
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<td></td>
<td></td>
<td>E-43 – 2393 –</td>
<td>–</td>
<td>RBA (2, 4, 6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E-43 – T-43 – 1390 (13, 15, 20, 30, 80) –</td>
<td>–</td>
<td>1390 (3H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B-43-N – 2393 –</td>
<td>–</td>
<td>2290-H &amp; HPM (1-3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B-43-N – 2393 –</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

Example of Brazing Combination: 43-2 + E2-43 + T-43 + 1390-N

---

**CUTTING**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>COMPATIBLE CUTTING ATTACHMENT (PG. 74)</th>
<th>CUTTING TIP STYLE (PG. 109)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1401150</td>
<td>43-2</td>
<td>73-3</td>
<td>6290, 6290 S, 6290 AC, 6290 NX, NXP, NXM &amp; NFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>49-3F*</td>
</tr>
</tbody>
</table>

Example of Cutting Combination: 43-2 + 49-3F + 6290 NX

*For alternate fuels only.
DESCRIPTION
The model VH31 is a Victor® compatible heavy duty combination handle for welding, brazing, heating and cutting. It is designed to offer the highest flow possible allowing the use of larger tips. The handle is designed with a tube within a tube construction and is o-ring sealed for greater strength and higher capacity.

DETAILS
Capacity:
Welds to 1/2" / 12.7mm; cuts to 8" / 203.2mm
Length: 11" / 279.4mm
Weight: 1.91 lbs. / 0.86 kg.
Hose Connection:
9/16-18 "B" FITTING

Featured in Ironworker® and Ironworker® 2 kits

<table>
<thead>
<tr>
<th>WELDING/BRAZING/HEATING</th>
<th>MIXERS</th>
<th>TIP TUBE</th>
<th>WELDING/BRAZING TIP STYLE</th>
<th>HEATING TIP STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART NO.</td>
<td>Model No.</td>
<td>COMPATIBLE MIXER(S) (PG. 82)</td>
<td>COMPATIBLE TIP TUBE(S) (PG. 124)</td>
<td>ACET/H₂ (SIZE) (PG. 122)</td>
</tr>
<tr>
<td>1400422</td>
<td>VH31</td>
<td>V-W</td>
<td>8593</td>
<td>23A90-3 (0-10)</td>
</tr>
</tbody>
</table>

Example of Heating Combination: VH31 + V-W + 23A90-3

<table>
<thead>
<tr>
<th>CUTTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART NO.</td>
</tr>
<tr>
<td>1400422</td>
</tr>
</tbody>
</table>

Example of Cutting Combination: VH31+VH24+ V1-101
# MEDIUM-DUTY COMBINATION HANDLE

## DESCRIPTION

The Model 85 is a medium-duty combination handle designed for welding, brazing, cutting or heating with acetylene or alternate fuels. The 85 features twin-tube silver-brazed connections for safety and durability. The Model 85 is Harris’ most popular torch handle.

## DETAILS

**Capacity:** Welds to 1/4”/12.7mm; cuts to 5”/127.0mm  
**Length:** 8 1/2”/215.9mm  
**Weight:** 1 lb./0.45 kg.  
**Certification:** UL® listed  
**Equipped with:** FlashGuard® Check Valves  
*Featured in Expert®, Steelworker®, Alternate Fuel Combo and Port-A-Torch® Classic kits*

### WELDING/BRAZING/HEATING

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>MIXERS</th>
<th>TIP TUBE</th>
<th>WELDING/BRAZING TIP STYLE</th>
<th>HEATING TIP STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1401340</td>
<td>85</td>
<td>D-85</td>
<td>8503</td>
<td>23A90 (0-10)</td>
<td>J-63 (1&amp;2)</td>
</tr>
</tbody>
</table>

Example of Welding Combination: 85 + D-85 + 23A90

### CUTTING

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>COMPATIBLE CUTTING ATTACHMENT</th>
<th>CUTTING TIP STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1401340</td>
<td>85</td>
<td>72-3</td>
<td>6290, 6290S, 6290AC, 6290NX, NXP, NXM &amp; NFF</td>
</tr>
</tbody>
</table>

Example of Cutting Combination: 85 + 72-3 + 6290AC

*For alternate fuels only.
"V" SERIES CUTTING ATTACHMENTS MAKE IT POSSIBLE FOR VICTOR® TORCH HANDLE USERS TO ENJOY THE UNIQUE FEATURES AND BENEFITS OF HARRIS CUTTING ATTACHMENTS.

THE HARRIS V- SERIES® ADVANTAGE

1 SOLID FORGED HEAD WITH MIXER
   • Resist flashback damage
   • Readily accessible mixer
   • Alternate fuel injector mixer available

2 BRAZED CONSTRUCTION
   • Superior strength
   • Cannot loosen

3 TRIANGULAR TUBE CONSTRUCTION
   • Lightweight with strength and rigidity

4 CUTTING OXYGEN VALVE
   • Ease-on for smoother starts
   • Easily accessible for service

5 SOLID BRASS FORGED LEVER
   • Exceptional strength and durability
   • Flips forward for safety and convenience

FEATURES AND ADVANTAGES OF HARRIS V- SERIES® EQUIPMENT

The heavy duty construction of the Harris V-Series® components will deliver years of superior performance.

- Harris V-Series® handles feature Harris flashguard replaceable check valves
- Harris V-Series® cutting attachment features:
  • Solid forged head for long service life
  • Brazed triangular tube construction for added strength and rigidity
  • Protected torch unions to reduce damage from abuse
  • Head mixing design for safety and efficiency
  • Use Victor® or Harris V-Series® cutting tips available in both acetylene and alternate fuels
  • Cutting lever flips away for safety and ease of service
  • Cutting oxygen valve has ease-on for smoother starts
- Harris V-Series® welding and brazing mixers are compatible with high-performance Harris welding, brazing and heating tips
**DESCRIPTION**

The Model VH10 is a Victor® compatible combination handle for welding, brazing, heating and cutting. It is a medium duty handle compatible with all fuel gases. It has a tube within a tube construction. With threaded connections and o-ring seals. The VH10 is equipped with easy to replace Harris Flash-Guard® high capacity check valves.

**DETAILS**

- **Capacity:** Welds to ½”/12.7mm; cuts to 5”/127.0mm
- **Length:** 8 ¾”/222.2 mm
- **Weight:** 1 lb./0.45 kg.
- **Equipped with:** FlashGuard® check valves
- **Featured in Ironworker® V SERIES® VMD kits**

<table>
<thead>
<tr>
<th>WELDING/BRAZING/HEATING</th>
<th>MIXERS</th>
<th>TIP TUBE</th>
<th>WELDING/BRAZING TIP STYLE</th>
<th>HEATING TIP STYLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART #</td>
<td>MODEL #</td>
<td>COMPATIBLE MIXERS(S) (PG. 86)</td>
<td>COMPATIBLE TIP TUBE(S) (PG. 124)</td>
<td>ACET/H₂ (SIZE) (PG. 122)</td>
</tr>
<tr>
<td>1400424</td>
<td>VH10</td>
<td>V-W-1</td>
<td>8593</td>
<td>23A90 (0-10)</td>
</tr>
</tbody>
</table>

**Example of Heating Combination:** VH10 + V-W-1 + J-63

<table>
<thead>
<tr>
<th>CUTTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART #</td>
</tr>
<tr>
<td>1400424</td>
</tr>
</tbody>
</table>

**Example of Cutting Combination:** VH10 + VH13 + V3-101
HARRIS CUTTING ATTACHMENTS HAVE THE BEST FEATURES IN THE INDUSTRY. ALL HARRIS AND HARRIS "V" SERIES HAVE THE SAME GREAT FEATURES FOR SAFETY, RELIABILITY AND LONG LIFE. ALL HARRIS CUTTING ATTACHMENTS ARE SUITABLE FOR INDUSTRIAL USE.

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QUICK SELECTION GUIDE

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MEDIUM DUTY
39-3F MODEL
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VH13 MODEL
VICTOR COMPATIBLE ALL FUEL
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TURN TO THE PROS – TURN TO HARRIS.
To learn more about the most complete line of industrial grade tools in the world, visit us online.
OVERVIEW
All Harris Cutting Attachments share these great features:
• Brazed triangular tube construction for safety and durability
• Solid forged brass heads for performance and long service life
• Flip-up oxygen cutting lever for convenience and ease of operation
• Captive union nut protects connections from damage
• Ease-on cutting valve for safety and cutting control

TYPICAL APPLICATIONS
• Metal fabrication
• Shipbuilding
• Maintenance
• Construction

PRO INFO
Visit www.harrisproductsgroup.com for complete details on our entire product line.

TOUGH JOBS DEMAND RUGGED EQUIPMENT
THAT'S WHY PROS CHOOSE HARRIS
### 73-3 Cutting Attachment

**Description**
The Model 73-3 is a classic design Harris cutting attachment with brazed triangular stainless steel tubes, making it light in weight while still providing exceptional strength and rigidity. The captive union nut protects the seats and "O" rings from damage. It features a fold forward cutting lever allowing easier connection, even with gloves on. The ease-on cutting valve provides smoother controlled starts. The forged solid brass head provides years of safe, dependable service, even under the most abusive conditions.

**Details**
- **Capacity:** 6"/152.4mm
- **Duty:** Heavy
- **Length:** 9½"/241.3mm
- **Weight:** 1.5 lbs./0.68 kg
- **Mixer Type:** Equal pressure
- **Certification:** UL® listed

**Where Used:** Fabrication, construction, shipbuilding, etc.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Tip Styles</th>
</tr>
</thead>
<tbody>
<tr>
<td>73-3</td>
<td>39-3F</td>
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<tr>
<td>1300340</td>
<td>1300405</td>
</tr>
<tr>
<td>90°</td>
<td>90°</td>
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<tr>
<td>43-2, 18-5</td>
<td>85</td>
</tr>
<tr>
<td>6290, 6290AC, 6290S</td>
<td>6290NX, 6290NXP, 6290NFF</td>
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</tbody>
</table>

### 39-3F Cutting Attachment

**Description**
The Model 39-3F is a classic design Harris cutting attachment with brazed triangular stainless steel tubes, making it light in weight but still providing exceptional strength and rigidity. The captive union nut protects the seats and "O" rings from damage. It features a fold forward cutting lever allowing easier connection, even with gloves on. The ease-on cutting valve provides smoother controlled starts. The forged solid brass head provides years of safe, dependable service, even under the most abusive conditions. This model also features a unique low pressure injector mixing system for the hottest preheat flame and the most efficient use of alternate fuels.

**Details**
- **Capacity:** 4"/152.4mm
- **Duty:** Medium
- **Length:** 10 1/4"/260.3mm
- **Weight:** 1.5 lbs./0.68 kg
- **Mixer Type:** Low pressure injector
- **Certification:** UL® listed

**Where Used:** Fabrication, construction, maintenance, etc.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Tip Styles</th>
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<tbody>
<tr>
<td>39-3F</td>
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</tr>
<tr>
<td>6290NX, 6290NXP, 6290NFF</td>
<td>6290NX, 6290NXP, 6290NFF</td>
</tr>
</tbody>
</table>

*Propylene or propane-based fuels and natural gas. NOT FOR USE WITH ACETYLENE.*
**CUTTING ATTACHMENT – FOR USE WITH ALL FUEL GASES**

**DESCRIPTION**
The Model 72-3 is a classic design Harris cutting attachment with brazed triangular stainless steel tubes, making it light in weight while still providing exceptional strength and rigidity. The captive union nut protects the seats and "O" rings from damage. It features a fold forward cutting lever allowing easier connection, even with gloves on. The ease-on cutting valve provides smoother controlled starts. The forged solid brass head provides years of safe, dependable service, even under the most abusive conditions.

**DETAILS**
- **Capacity:** Cuts to 5"/127.0mm
- **Duty:** Medium
- **Length:** 9½"/241.3mm
- **Weight:** 1.5 lbs./0.68 kg.
- **Mixer Type:** Equal pressure
- **Certification:** UL® listed

**Where Used:** Construction, maintenance, agriculture

**Related Equipment:** Circle cutting attachment – R-69-3B
P/N: 4300200

Featured in Classic Steelworker® and Expert® kits

---

**VICTOR® COMPATIBLE CUTTING ATTACHMENT**

**DESCRIPTION**
The Model VH24 is a Victor® compatible heavy duty cutting attachment. The mixer design resists damage due to flashback. It is equipped with a durable stainless steel lever, has a coupling nut with locking ring to protect cutting attachment seat, and the cutting oxygen valve has an ease-on feature for more precise control.

**DETAILS**
- **Capacity:** Cuts to 8" / 203.2mm
- **Duty:** Heavy
- **Length:** 12 1/8" / 307.9mm
- **Weight:** 2.41 lbs / 1.09 kg.
- **Mixer Type:** Equal pressure

**Where Used:** Heavy fabrication, construction, ship building, pipeline connection

Featured in Ironworker® and Ironworker® 2 kits

---

***Propylene or propane-based fuels and natural gas.
**DESCRIPTION**

The Model VH13 is a Victor® compatible medium duty cutting attachment. It is equipped with a durable stainless steel lever, an in-tube mixer, and threaded connections for easy repair.

**DETAILS**

- **Capacity:** Cuts to 4” / 101.6 mm
- **Duty:** Medium
- **Length:** 8” / 203.2mm
- **Weight:** 896 lbs./0.41 kg.
- **Mixer Type:** Equal pressure

**Where Used:** Construction, maintenance, agriculture

*Featured in Ironworker® V SERIES® kits*

---

**TIP STYLES**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>HEAD ANGLE</th>
<th>COMPATIBLE HANDLES</th>
<th>ACETYLENE / H₂</th>
<th>ALTERNATE* FUEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1300048</td>
<td>VH13</td>
<td>90°</td>
<td>VH10</td>
<td>V3-101</td>
<td>3-GPN, 3-GPP</td>
</tr>
</tbody>
</table>

*Propylene or propane-based fuels and natural gas.
HERE'S A TIP:
WHEN PROS USE HARRIS, THEY USE THE BEST

GET CONNECTED
Go to www.youtube.com/harrisproductsgroup
MIXERS

HARRIS COMBINATION TORCH MIXERS ARE DESIGNED TO PROVIDE OPTIMUM PERFORMANCE FROM HARRIS WELDING, BRAZING AND HEATING TIPS. HARRIS MIXERS ARE VARIABLE-PRESSURE TYPE MIXERS ALLOWING THE USE OF THE SAME MIXER ON A FULL RANGE OF WELDING OR BRAZING TIPS ELIMINATING ADDITIONAL EXPENSES FOR SEPARATE MIXERS OF EACH TIP SIZE.

GET CONNECTED
Go to www.twitter.com/HarrisProducts

QUICK SELECTION GUIDE

HEAVY DUTY

- E-43 MODEL
  EQUAL PRESSURE
  p.38

- V-W MODEL
  HEAVY DUTY V-SERIES®
  p.38

- E2-43 MODEL
  HIGH FLOW
  EQUAL PRESSURE
  p.39

MEDIUM DUTY

- D-85 MODEL
  EQUAL PRESSURE
  p.39

- V-W-1 MODEL
  MEDIUM DUTY V-SERIES®
  p.40
OVERVIEW
Harris mixers are available in either "equal pressure" or "injector styles." Equal pressure injectors are recommended for acetylene-oxygen, but also work well on alternate fuels when low or inconsistent pressure is not an issue. Harris recommends equal pressure mixers when absolute control of the oxy-fuel ratio is a must—as in critical brazing applications.

TYPICAL APPLICATIONS
- Metal fabrication
- Shipbuilding
- Maintenance
- Construction

PRO INFO
Visit www.harrisproductsgroup.com for complete details on our entire product line.
HEAVY DUTY EQUAL PRESSURE MIXER

MODEL SHOWN: E-43

DESCRIPTION
The Model E-43 is an “E” or positive pressure mixer for welding, brazing or light heating. It can be used with all fuel gases. The E-43 is for use with all fuel gases.

DETAILS
Capacity: Welds to ½”/12.7mm; Heats to 100,000 BTU
Duty: Heavy
Thread size: Mixer to tip tube ¾” - 26
Certification: UL® listed

Where Used: Metal fabrication, maintenance
Featured in Pipeliner® Classic kits

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>COMPATIBLE HANDLE(S)</th>
<th>TIP TUBE MODEL NO.</th>
<th>ACETYLENE BRAZING/WELDING TIPS (SIZES)</th>
<th>ALTERNATE FUEL BRAZING TIPS (SIZES)</th>
<th>ACETYLENE HEATING TIPS (SIZES)</th>
<th>ALTERNATE FUEL HEATING TIPS (SIZES)</th>
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<tbody>
<tr>
<td>9100312</td>
<td>E-43</td>
<td>43-2</td>
<td>-</td>
<td>23A90 (0-10)</td>
<td>-</td>
<td>1390-HA</td>
<td>1390 (B&amp;H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>43-2</td>
<td>8593</td>
<td>1390 (0-10)</td>
<td>1390-N (2-10)</td>
<td>-</td>
<td>1390 (B&amp;H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>18-5*</td>
<td>8593</td>
<td>1390 (0-10)</td>
<td>1390-N (2-10)</td>
<td>-</td>
<td>1390 (B&amp;H)</td>
</tr>
</tbody>
</table>

*18-5 handle is recommended for light alternate fuel heating only.

HEAVY DUTY EQUAL PRESSURE MIXER

MODEL SHOWN: V-W

DESCRIPTION
The Model V-W is a “V” Series “E” or positive pressure mixer for welding, brazing or light heating. It is for use with all fuel gases. The V-W is for use with all fuel gases.

DETAILS
Capacity: Welds to ½”/12.7mm; Heats to 100,000 BTU
Duty: Heavy
Thread size: Mix to tip or tube ¾” - 26
Certification: UL® listed

Where Used: Metal fabrication, maintenance, etc.
Featured in Pipeliner® V-Series kits

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>COMPATIBLE HANDLE(S)*</th>
<th>TIP TUBE MODEL NO.</th>
<th>ACETYLENE BRAZING/WELDING TIPS (SIZES)</th>
<th>ALTERNATE FUEL BRAZING TIPS (SIZES)</th>
<th>ACETYLENE HEATING TIPS (SIZES)</th>
<th>ALTERNATE FUEL HEATING TIPS (SIZES)</th>
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<tbody>
<tr>
<td>9105214</td>
<td>V-W</td>
<td>V-315C</td>
<td>-</td>
<td>23A90 (0-10)</td>
<td>-</td>
<td>1390-HA</td>
<td>1390 (B&amp;H)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>V-315C</td>
<td>8593</td>
<td>1390 (0-10)</td>
<td>1390-N (2-10)</td>
<td>-</td>
<td>1390 (B&amp;H)</td>
</tr>
</tbody>
</table>

*The V-W is also compatible with Victor® 315C Series handles.
**E2-43**  
**HIGH FLOW EQUAL PRESSURE MIXER**

**DESCRIPTION**
The Model E2-43 is an “E” equal or positive pressure mixer for use with all fuel gases. The E2-43 mixer is recommended for light to medium duty welding, brazing and heating tip applications.

**DETAILS**
- **Capacity:** Welds to 1/2”/25.4mm; Heats to 590,000 BTU
- **Duty:** Light to medium
- **Thread Size:** Mixer to tip tube 1/2” - 25

**CERTIFICATION:** UL® listed

**WHERE USED:** Metal fabrication, shipbuilding, etc.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>COMPATIBLE HANDLE(S)</th>
<th>TIP TUBE MODEL NO.</th>
<th>ACETYLENE BRAZING/WELDING TIPS (SIZES)</th>
<th>ALTERNATE FUEL BRAZING TIPS (SIZES)</th>
<th>ACETYLENE HEATING TIPS (SIZES)</th>
<th>ALTERNATE FUEL HEATING TIPS (SIZES)</th>
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<tbody>
<tr>
<td>9100314</td>
<td>E2-43</td>
<td>43-2</td>
<td>–</td>
<td>23A90 (13 &amp; 15)</td>
<td>J-63 (3 &amp; 4)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>43-2</td>
<td>T-43</td>
<td>1390 (13)</td>
<td>1390-N (13 &amp; 15)</td>
<td>–</td>
<td>1390 (3H)</td>
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<td>43-2</td>
<td>2393</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>2290 H&amp;HPM (1-3)</td>
</tr>
</tbody>
</table>

**D-85**  
**MEDIUM DUTY EQUAL PRESSURE MIXER**

**DESCRIPTION**
The Model D-85 is an “E” equal or positive pressure mixer for welding, brazing and heating with all fuel gases.

**DETAILS**
- **Capacity:** Welds to 3/8”/12.7mm; Heats to 100,000 BTU
- **Duty:** Medium
- **Thread Size:** Mixer to tip tube 7/32” - 26

**CERTIFICATION:** UL® listed

**WHERE USED:** Metal fabrication, maintenance, etc.

- Featured in Steelworker®, Expert® and Port-A-Torch® Classic kits

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>COMPATIBLE HANDLE(S)</th>
<th>TIP TUBE MODEL NO.</th>
<th>ACETYLENE BRAZING/WELDING TIPS (SIZES)</th>
<th>ALTERNATE FUEL BRAZING TIPS (SIZES)</th>
<th>ACETYLENE HEATING TIPS (SIZES)</th>
<th>ALTERNATE FUEL HEATING TIPS (SIZES)</th>
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</thead>
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<tr>
<td>9100614</td>
<td>D-85</td>
<td>85</td>
<td>–</td>
<td>23A90 (0-10)</td>
<td>–</td>
<td>J-16 (1 &amp; 2)</td>
<td>–</td>
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<td></td>
<td></td>
<td>85</td>
<td>8593</td>
<td>1390 (0-10)</td>
<td>1390-N (2-10)</td>
<td>–</td>
<td>1390 (B&amp;H)</td>
</tr>
</tbody>
</table>
WHAT ARE THE THREAD SIZES FOR THE MOST COMMON HOSE CONNECTIONS?

**“A” HOSE CONNECTION**
- HVAC/R or Plumbing Applications
- 
- ½” - 24

**“B” HOSE CONNECTION**
- “Standard” Twin Welding Hose
- 
- ¾” - 18

**“C” HOSE CONNECTION**
- Station Regulators
- High-Flow Torch Applications
- 
- ¼” - 14

---

**DESCRIPTION**

The Model V-W-1 is a V-Series “E” equal or positive pressure mixer for welding, brazing and heating with all fuel gases.

**DETAILS**

**Capacity:**
- Welds to ½”/12.7mm
- Heats to 100,000 BTU

**Duty:** Medium

**Thread size:** Mixer to tip or tube 3/64” - 26

**Where Used:**
- Metal fabrication, maintenance, etc.
- Featured in Steelworker®, Expert® and Port-A-Torch®
- V-Series kits

---

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>MODEL SHOWN:</th>
<th>V-W-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPATIBLE HANDLE(S)*</td>
<td>TIP TUBE MODEL NO.</td>
<td>ACETYLENE BRAZING/WELDING TIPS (SIZES)</td>
<td>ALTERNATE FUEL BRAZING TIPS (SIZES)</td>
</tr>
<tr>
<td>9105213</td>
<td>V-W-1</td>
<td>V-100C</td>
<td>–</td>
</tr>
<tr>
<td>V-100C</td>
<td>8593</td>
<td>1390 (0-10)</td>
<td>1390-N (2-10)</td>
</tr>
</tbody>
</table>

*The V-W-1 is also compatible with Victor® 100C handles.*
CHANGING TO ALTERNATE FUELS

GET THE RIGHT TORCH
Use an injector style torch to maximize your performance with alternate fuel

GET THE RIGHT TIP
There are tips designed for the alternate fuel of your choice

GET THE RIGHT REGULATOR
A Harris Model 25GX-50-510P is a great option

GET THE RIGHT HOSE
Grade “T” hose should always be used with all alternate fuels

WARNING
MIXING DIFFERENT FUEL GASES CAN CAUSE FIRE OR EXPLOSION.
- Do not change over equipment used with acetylene, like the regulator, tip or hose, to a different fuel gas.
- Be sure your equipment is rated for the fuel gas you plan to use and, if not, replace it with the proper equipment.

View an alternate fuel equipment video at www.HarrisProductsGroup.com
HAND CUTTING TORCHES

HARRIS CUTTING TORCHES FEATURE BRAZED CONNECTIONS FOR STRENGTH AND DURABILITY. ALL FEATURED TORCHES ARE AVAILABLE FOR USE WITH ALL FUEL GASES AND ARE AVAILABLE WITH CUTTING CAPACITIES OF UP TO 50".

GET CONNECTED
Go to www.youtube.com/harrisproductsgroup

QUICK SELECTION GUIDE

MEDIUM DUTY

**42-4E MODEL**
MEDIUM DUTY
ALL FUELS
p.45

**42-4F MODEL**
MEDIUM DUTY
ALTERNATE FUEL
p.45

**V42-4E MODEL**
VICTOR COMPATIBLE
ALL FUELS
p.46

HEAVY DUTY

**62-5E MODEL**
HEAVY DUTY
ALL FUELS
p.46

**62-5F MODEL**
HEAVY DUTY
ALTERNATE FUEL
p.47

**V-62-5F MODEL**
VICTOR COMPATIBLE
ALTERNATE FUEL
p.48

TURN TO THE PROS – TURN TO HARRIS.
To learn more about the most complete line of industrial grade tools in the world, visit us online.
OVERVIEW
Harris specializes in straight cutting torches that use readily available, low cost and safe alternate fuels. Harris pioneered and perfected the low-pressure injector mixer that maximizes performance when using alternate fuels.

TYPICAL APPLICATIONS
• Metal fabrication
• Shipbuilding
• Maintenance
• Construction

PRO INFO
Visit www.harrisproductsgroup.com for complete details on our entire product line.

MODEL SHOWN:
62-5F

FOR ADDITIONAL EQUIPMENT SEE OUR HEAVY INDUSTRIES CATALOG (P/N: 9502736)
WWW.HARRISPRODUCTSGROUP.COM
**DESCRIPTION**

The Model 42-4E is a medium duty straight cutting torch designed to use all fuel gases. The 42-4E is lightweight, has a solid forged head, brazed triangular tubes and a solid forged brass cutting lever.

**DETAILS**

- **Capacity:** 6"/152.4mm
- **Duty:** Medium
- **Mixer Type:** Equal or positive pressure
- **Lengths:** 17" and 20"
- **Certifications:** UL® listed

**Where Used:** Fabrication, maintenance

**Related Items:** Flashback arrestors

**P/N:** 4302202

**Equipped with:** FlashGuard® check valves

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>HEAD ANGLE</th>
<th>LENGTH</th>
<th>WEIGHT</th>
<th>TIP STYLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001204</td>
<td>42-4E</td>
<td>90°</td>
<td>17&quot; / 431.8 mm</td>
<td>2.4 lbs. / 1.1 kg.</td>
<td>6290, 6290AC, 6290S, 6290NX, 6290NXP, 6290NFF</td>
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<tr>
<td>1001218</td>
<td>42-4EL-20</td>
<td>90°</td>
<td>20&quot; / 508.0 mm</td>
<td>2.5 lbs. / 1.2 kg.</td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION**

The Model 42-4F is a medium duty straight cutting torch designed to provide maximum performance using low-cost alternate fuel gases.* Our special “F” injector can produce the hottest flame possible at the lowest gas pressures (4 oz.-2 lbs.), making it the safest, most efficient design in the industry.

**DETAILS**

- **Capacity:** 6"/152.4mm
- **Duty:** Medium
- **Mixer Type:** Injector
- **Lengths:** 17" and 20"
- **Certifications:** UL® listed

**Where Used:** Fabrication, maintenance

**Related Items:** Flashback Arrestors

**P/N:** 4302202

**Equipped with:** FlashGuard® check valves

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>HEAD ANGLE</th>
<th>LENGTH</th>
<th>WEIGHT</th>
<th>TIP STYLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001210</td>
<td>42-4F</td>
<td>90°</td>
<td>17&quot; / 431.8 mm</td>
<td>2.4 lbs. / 1.1 kg.</td>
<td>6290 NX</td>
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<tr>
<td>1001212</td>
<td>42-4AF</td>
<td>70°</td>
<td>17&quot; / 431.8 mm</td>
<td>2.4 lbs. / 1.1 kg.</td>
<td>6290 NXP</td>
</tr>
<tr>
<td>1001214</td>
<td>42-4FL</td>
<td>90°</td>
<td>20&quot; / 508 mm</td>
<td>2.5 lbs. / 1.2 kg.</td>
<td>6290 NFF</td>
</tr>
</tbody>
</table>

*NOT FOR USE WITH ACETYLENE. *Propane or propylene-based fuel gases and natural gas.
**VICTOR® COMPATIBLE CUTTING TORCH FOR USE WITH ALL FUEL GASES**

**DESCRIPTION**
The Model V42-4E is a medium duty, Victor® compatible straight cutting torch designed to use all fuel gases. The 42-4E has a solid forged head, brazed triangular tubes and a flip up solid forged brass cutting lever. Also features visible, easily replaceable, external FlashGuard® flashback arrestors.

**DETAILS**
- **Capacity:** 6'/152.4 mm
- **Duty:** Medium
- **Mixer Type:** Equal or positive pressure
- **Lengths:** 20”
- **Where Used:** Fabrication, maintenance, etc.

**Related Items:** FlashGuard® check valves
**Cutting Tip Style:** Victor®
**Equipped with:** Flashback arrestors P/N: 4302202

---

**HEAVY DUTY CUTTING TORCH FOR USE WITH ALL FUEL GASES**

**DESCRIPTION**
The Model 62-5E is a heavy duty straight cutting torch designed to use any fuel gas. The 62 is an industry standard that is less expensive to own and operate, and is safer to use. Its triangular tube design and brazed connections offer strength, safety and a long service life.

**DETAILS**
- **Capacity:** 12'/304.8 mm
- **Duty:** Heavy
- **Mixer Type:** Equal pressure
- **Lengths:** 18", 21", 36"*
- **Certifications:** UL® listed
- **Where Used:** Fabrication, demolition, etc.

**Related Items:** Flashback arrestors P/N: 4302202, 9302202
**Equipped with:** FlashGuard® check valves
**Featured in:** Harris Classic and HardHat™ Cutter Pac®

---

**TIP STYLES**

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>HEAD ANGLE</th>
<th>LENGTH</th>
<th>WEIGHT</th>
<th>ACETYLENE</th>
<th>ALT. FUELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1001263</td>
<td>V42-4 EL</td>
<td>90°</td>
<td>20&quot; / 508.0 mm</td>
<td>2.5 lbs. / 1.13 kg.</td>
<td>V-101</td>
<td>1-GPN</td>
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<td>GPP</td>
</tr>
<tr>
<td>1003350</td>
<td>62-5AE</td>
<td>70°</td>
<td>18&quot; / 457.2 mm</td>
<td>3 lbs. / 1.3 kg.</td>
<td>6290</td>
<td></td>
</tr>
<tr>
<td>1003430</td>
<td>62-5E</td>
<td>90°</td>
<td>18&quot; / 457.2 mm</td>
<td>3 lbs. / 1.3 kg.</td>
<td>6290 AC</td>
<td></td>
</tr>
<tr>
<td>1003459</td>
<td>62-5AEL</td>
<td>70°</td>
<td>36&quot; / 914.4 mm</td>
<td>4.5 lbs. / 2.1 kg.</td>
<td>6290 NX</td>
<td></td>
</tr>
<tr>
<td>1003441</td>
<td>62-5EL</td>
<td>90°</td>
<td>36&quot; / 914.4 mm</td>
<td>4.5 lbs. / 2.1 kg.</td>
<td>6290 NXP</td>
<td></td>
</tr>
<tr>
<td>1003440</td>
<td>62-5EL</td>
<td>90°</td>
<td>21&quot; / 533.4 mm</td>
<td>3.1 lbs. / 1.4 kg.</td>
<td>6290 NFF</td>
<td>Acetylene Specialty Tips</td>
</tr>
</tbody>
</table>

*Also available in other lengths as a special.
**All tips fit all torches

---

**HEAD ANGLES**

- **70° Head**
- **90° Head**
- **180° Head**

---

*Victor® is a registered trademark of ESAB.*
**MAXIMUM PERFORMANCE WHEN USING ALTERNATE FUELS**

**MODEL SHOWN:**

**HAND CUTTING TORCHES**

**2020 EDUCATION & UNION**

**PRODUCT CATALOG**

**DESCRIPTION**

The 62-5F is a heavy-duty straight cutting torch designed to give maximum performance using low-cost alternate fuel gases. Our special “F” injector can produce the hottest flame possible at the lowest gas pressures, making it the safest, most efficient design in the industry.

**DETAILS**

- **Capacity:** 12”/304.8mm
- **Duty:** Heavy
- **Mixer Type:** Injector
- **Lengths:** 18”, 21”, 27”, 36” & 48”**
- **Certifications:** UL® listed
- **Where Used:** Fabrication, shipbuilding, maintenance

**Related Items:**

- Flashback arrester
- Slitting skid P/N: QC1HZSTK5
- 70°/90° Skid P/N: QC1HZSTK2

**Equipped with:**

- FlashGuard® check valves
- Featured in Classic and HardHat™
- Cutter Pac®

**HEAD ANGLES**

- **70° Head**
- **90° Head**
- **180° Head**

**PART NO.** | **MODEL NO.** | **HEAD ANGLE** | **LENGTH** | **WEIGHT** | **TIP STYLES**
--- | --- | --- | --- | --- | ---
1003360 | 62-5AF | 70° | 18” / 457.2 mm | 3 lbs. / 1.3 kg. | 6290 NX
1003450 | 62-5F | 90° | 18” / 457.2 mm | 3 lbs. / 1.3 kg. | 6290 NXP
1003370 | 62-5FL | 70° | 21” / 533.4 mm | 3.1 lbs. / 1.4 kg. | 6290 NFF
1003470 | 62-5FL | 90° | 21” / 533.4 mm | 3.1 lbs. / 1.4 kg. | Alternate Fuel
1003400 | 62-5FL | 70° | 36” / 914.4 mm | 3.8 lbs. / 1.7 kg. | Specialty Tips
1003480 | 62-5FL | 90° | 36” / 914.4 mm | 3.8 lbs. / 1.7 kg. | Specialty Tips
1003426 | 62-5BFL | 180° | 36” / 914.4 mm | 3.8 lbs. / 1.7 kg. | Specialty Tips
1003411 | 62-5AFL | 70° | 48” / 1219.2 mm | 4.4 lbs. / 1.9 kg. | 6290 NX
1003481 | 62-5FL | 90° | 48” / 1219.2 mm | 4.4 lbs. / 1.9 kg. | 6290 NXP
1003421 | 62-5BFL | 180° | 48” / 1219.2 mm | 4.4 lbs. / 1.9 kg. | 6290 NFF

NOT FOR USE WITH ACETYLENE.

*Propane or Propylene based fuels and natural gas

**Available in other lengths as a “special order.”
**DESCRIPTION**

The V-62-5F is a Victor® compatible heavy-duty straight cutting torch designed to give maximum performance using low-cost alternate fuel gases.* Our special “F” injector can produce the hottest flame possible at the lowest gas pressures, making it the safest and most efficient design in the industry. All the features of the classic Harris 62-5F Torch but compatible with Victor® style cutting tips.

**DETAILS**

- **Capacity:** 12"/305 mm
- **Duty:** Heavy
- **Mixer Type:** Injector
- **Lengths:** 21" & 36" **
- **Certifications:** UL® listed
- **Where Used:** Fabrication, shipbuilding, maintenance

**Related Items:**
- Flashback arrester
  - P/N: 4302202
- Slitting skid P/N: QC1HZSTK5
- 70°/90° Skid P/N: QC1HZSTK2

**Equipped with:**
- FlashGuard® check valves

---

**PART NO.** | **MODEL NO.** | **HEAD ANGLE** | **LENGTH** | **WEIGHT** | **TIP STYLES**
---|---|---|---|---|---
1003261 | V-62-5FL | 90°/VICTOR® STYLE | 21" / 533.4 mm | 3.7 lbs. / 1.7 kg. | 1-GPP, 1-GPN (000 THRU 6)

---

NOT FOR USE WITH ACETYLENE.

*Propane or Propylene based fuels and natural gas
**Available in other lengths as a "special order."

---

**HEAD ANGLES**

- 70° Head
- 90° Head
NEED HELP SETTING UP A PROPER FLAME

GET CONNECTED
Go to www.youtube.com/harrisproductsgroup

HARRIS
A LINCOLN ELECTRIC COMPANY
MACHINE CUTTING TORCHES

NOBODY IN THE INDUSTRY KNOWS MORE ABOUT OXY-FUEL MACHINE CUTTING THAN HARRIS. WHETHER YOU ARE SHAPE CUTTING, STRIP CUTTING, OR BEVELING, HARRIS MACHINES TORCHES ALLOW YOU TO DO IT BETTER, FASTER, AND MORE ECONOMICALLY.

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QUICK SELECTION GUIDE

MACHINE CUTTING TORCHES

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<td></td>
</tr>
</tbody>
</table>

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ALTERNATE FUEL MACHINE CUTTING TORCH

DESCRIPTION

The Model 98-6F machine cutting torch features a “F” or low pressure type injector mixer for maximum performance using alternate fuels. Model 98 three-hose machine cutting torches have a cutting capacity of 15”. Two-hose 98-6 torches have a barrel diameter of 13/8” with a 32 pitch, 10.12 TPI rack that will fit any industry standard torch holder. Model 98 10” barrel torches have a cutting lever and 18” barrel torches have a separate valve knob to actuate the cutting oxygen. The 98-6F is also available in a three-hose valveless design for pipe beveling and multiple torch beveling.

DETAILS

Capacity: 2 hose - 8”; 3 hose - 15”
Mixer Type: “F” or low pressure injector
Duty: Heavy
Length: 10”, 18” and 5 1⁄2”
Certifications: UL® listed
Where used: Straight and contour machine cutting
Related items:
BV-98-2 P/N: 1200124
S-98-C P/N: 1200080
TH-98 P/N: 1200090

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>STYLE</th>
<th>CUTTING VALVE TYPE</th>
<th>BARREL LENGTH</th>
<th>WEIGHT (LBS.)</th>
<th>ACETYLENE-H2</th>
<th>ALTERNATE FUELS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1101455</td>
<td>98-6FR-32</td>
<td>2 Hose</td>
<td>Lever</td>
<td>10”</td>
<td>3.3</td>
<td>–</td>
<td>6290 VVC</td>
</tr>
<tr>
<td>1101465</td>
<td>98-6TFR-32</td>
<td>3 Hose</td>
<td>Knob</td>
<td>10”</td>
<td>3.3</td>
<td>–</td>
<td>6290 VVCU</td>
</tr>
<tr>
<td>1101475</td>
<td>98-6TAER-32</td>
<td>3 Hose</td>
<td>Knob</td>
<td>18”</td>
<td>4.2</td>
<td>–</td>
<td>6290 VVCP</td>
</tr>
</tbody>
</table>

*Propylene or propane-based fuels and natural gas. NOT FOR USE WITH ACETYLENE.

ACETYLENE MACHINE CUTTING TORCH

DESCRIPTION

The Harris Model 98-6E machine cutting torch features an “E” or positive equal pressure mixer for all fuel gases. Harris Model 98-6 three hose cutting torches have a cutting capacity of 15” and two hose torches cut to 8”. All machine torches have a barrel diameter of 13⁄8” and 32 pitch, 10,12 TPI rack that will fit any industry standard torch holder. Model 98 10” barrel torches have a cutting lever and 18” barrel torches have a separate valve knob to actuate the cutting oxygen.

DETAILS

Capacity: 2 hose - 8”; 3 hose - 15”
Mixer Type: “E” or positive pressure
Duty: Heavy
Length: 10”-18”
Certifications: UL® listed
Where used: Straight and contour cutting
Related items:
BV-98-2 P/N: 1200124
S-98-C P/N: 1200080
TH-98 P/N: 1200090

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>STYLE</th>
<th>CUTTING VALVE TYPE</th>
<th>BARREL LENGTH</th>
<th>WEIGHT (LBS.)</th>
<th>ACETYLENE-H2</th>
<th>ALTERNATE FUELS*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1101425</td>
<td>98-6ER-32</td>
<td>2 Hose</td>
<td>Lever</td>
<td>10”</td>
<td>3.3</td>
<td>6290</td>
<td>6290 VVC</td>
</tr>
<tr>
<td>1101435</td>
<td>98-6TER-32</td>
<td>3 Hose</td>
<td>Knob</td>
<td>10”</td>
<td>3.3</td>
<td>6290AC</td>
<td>6290 VVCM</td>
</tr>
<tr>
<td>1101445</td>
<td>98-6TAER-32</td>
<td>3 Hose</td>
<td>Knob</td>
<td>18”</td>
<td>4.2</td>
<td>6290S</td>
<td>6290 VVCP</td>
</tr>
</tbody>
</table>

*Recommended for Acetylene.
### Machine Cutting Guide

#### Correct Cuts

**Perfect Cut** - Regular surface with slightly sloping drag lines indicates a perfect cut. A slight amount of scale at the top of the cut is caused by preheat flames and is easily removed. This surface can be used for many purposes without machining.

**Production Cut** - Moderately sloping drag lines and a reasonably smooth surface characterize a production cut. For production operations a cut of this type represents the best combination of quality and economy.

#### Dirty Tip

**Dirty Tip** - Dirt or scale in the tip will deflect the oxygen stream and cause one or more of the following problems: Excess slag on the steel, an irregular cut surface, pitting and undercutting.

#### Cutting Speed

**Extremely Fast** - Rake angle of drag lines shows extremely fast cutting speed. Top edge is good and cut face is smooth. However, slag adheres to the bottom side and there is danger of losing the cut. Not enough time is allowed for slag to blow out of the kerf. Cut face often slightly concave.

**Extremely Slow** - Pressure marks indicate too much oxygen for cutting conditions. Either the tip is too big, cutting oxygen pressure too high, or speed is too slow as shown by a rounded or beaded top edge as in this case. As oxygen volume nears correct proportions, pressure marks appear closer to the bottom edge until they finally disappear.

**Slightly Too Fast** - Drag lines incline backwards, but a "drop cut" is still attained. Top edge is good. Cut face is smooth and slag free. Quality is satisfactory for most production work.

**Slightly Too Slow** - Cut is high quality although there is some surface roughness caused by vertical drag lines. Top edge is usually slightly beaded. Quality is generally acceptable, faster speeds are more desirable.

#### Tip Distance

**Too Close** - Grooves and deep drag lines caused by unstable cutting action. Part of preheat cone burns inside kerf where normal gas expansion deflects oxygen cutting stream.

**Too High** - Top edge is beaded or rounded, cut face is not smooth and often is slightly beveled when preheat effectiveness is partially lost due to the tip being held too high. Cutting speed is reduced because of the danger of losing the cut.

#### Gas Adjustment

**Too Much Cutting Oxygen** - Pressure marks are caused by too much cutting oxygen. When more oxygen is supplied than can be consumed in oxidation, the remainder goes around the slag creating gouges, or pressure marks. Correct this fault by lowering cutting oxygen pressure, increasing speed, or using a smaller tip. As oxygen volume nears correct proportion, pressure marks appear closer to the bottom edge until they finally disappear.

**Too Hot Preheat** - Rounded top edge caused by too much preheat. Excess preheat does not increase cutting speed, it only wastes gases.

#### What to Look For in Bevel Cutting

**Good Quality** - Top edge is excellent and cut face extremely smooth. Slag should be easy to remove and the cut part dimensionally accurate. Cutting speed is slower than vertical cutting because preheat effect is partially deflected from plate.

**Poor Quality** - Gouging is the most common fault. It is caused by either a speed that is too fast or preheat flames that are too mild. Another fault is a rounded top edge, caused by too much preheat, indicating excessive gas consumption.
DESCRIPTION
The Trakmax™ features all metal construction including steel, aluminum, brass, and stainless steel. It has a welded steel, uni-body construction and a frame that is integral to the design of the machine. Its stainless steel drive wheels and casters are corrosion and abrasion resistant resulting in longer lasting wheels. The large diameter drive wheels are knurled for positive traction. The caster wheels can be locked into position in-line with the drive wheels for track free straight line cutting or left free wheeling for circles.

DETAILS
Cutting Capacity: 30”/762 mm* (with appropriate torch equipment)
Weight: 32 lbs/14.5 kg, (Tractor Only)
Length: 15” / 381 mm
Height: 6 3/8” / 161.92 mm
Width: 7 1/4” / 184.15 mm
Circle Cutting Range: 2” - 96” / 50.8 - 1371.6 mm with optional radius rod kit

Where used:
Straight, square, bevel & circle cutting, plasma cutting, and welding

Related items:
BV-98-2 P/N: 1200124
S-98-C P/N: 1200080
TH-98 P/N: 1200090
See more accessories P.XX

Shown with Model 98 Torch S-98-C and tip - (not included)

PART#  WEIGHT LBS. (KG)  CARRYING LOAD MAXIMUM LBS:  SPEED RANGE IPM  POWER REQUIREMENTS  STANDARD PACKAGE
QC2SCM1000  32lbs. (14.5 kg) (Without Rigging or torch)  500  *0-40/0-110  120 VAC, 1 AMP (Maximum) 50/60 HZ, 1PH  Portable track machine
QC2SCM2500  32lbs. (14.5 kg) (Without Rigging or torch)  500  *0-40/0-110  120 VAC, 1 AMP (Maximum) 50/60 HZ, 1PH  Includes portable track machine and standard rigging kit (cross slide & 24” gear rack, torch holder, connecting block, 3’ hose set, flip style hose block)
QC2SCM2502  32lbs. (14.5 kg) (Without Rigging or torch)  500  *0-40/0-110  120 VAC, 1 AMP (Maximum) 50/60 HZ, 1PH  Includes portable track machine and standard rigging kit (cross slide & 24” gear rack, torch holder, connecting block, 3’ hose set, flip style hose block) and 6’ track
QC2SCM2503  32lbs. (14.5 kg) (Without Rigging or torch)  500  *0-40/0-110  120 VAC, 1 AMP (Maximum) 50/60 HZ, 1PH  Includes portable track machine and standard rigging kit (cross slide & 24” gear rack, torch holder, connecting block, 3’ hose set, flip style hose block), 6’ track and 98-6ER-32 machine torch
QC2SCM2504  32lbs. (14.5 kg) (Without Rigging or torch)  500  *0-40/0-110  120 VAC, 1 AMP (Maximum) 50/60 HZ, 1PH  Includes portable track machine and standard rigging kit (cross slide & 24” gear rack, torch holder, connecting block, 3’ hose set, flip style hose block), 6’ track and 98-6FR-32 machine torch
QC2SCM2505  32lbs. (14.5 kg) (Without Rigging or torch)  500  *0-40/0-110  120 VAC, 1 AMP (Maximum) 50/60 HZ, 1PH  Includes portable track machine, welding/plasma rigging kit (cross slide & 24” gear rack, welding/plasma holder, connecting block (staggered), extension block (4” - ¾” F x ¾” M) and 6ft track, cable guide clamp and torch holder

* High/low range

(Torch packages do not include tips.)
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QUICK SELECTION GUIDE

ACETYLENE HAND CUTTING TIPS

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ALTERNATE FUEL MACHINE CUTTING TIPS

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6290-VVCP MODEL
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### General Preheat Single Piece Hand Cutting Tips

**Model Shown:** 6290

**Description:** A single-piece acetylene cutting tip for cutting relatively clean steel.

**Details:**
- **Construction:** One-piece
- **Preheat Type:** General
- **Where Used:** Fabrication, maintenance, etc.
- **Compatible Equipment:** C-9 Tip cleaner P/N: 9000156

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>SIZE</th>
<th>DEPTH OF CUT</th>
<th>O₂ PSIG</th>
<th>TOTAL O₂ SCFH</th>
<th>ACETYLENE FUEL PSIG</th>
<th>FUEL SCFH</th>
<th>CUTTING DRILL SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500810</td>
<td>000</td>
<td>Light gauge to ⅜&quot;</td>
<td>15 - 20</td>
<td>35 - 40</td>
<td>5 - 15</td>
<td>10 - 15</td>
<td>NO. 68</td>
</tr>
<tr>
<td>1500820</td>
<td>00</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>20 - 25</td>
<td>45 - 50</td>
<td>5 - 15</td>
<td>10 - 15</td>
<td>NO. 64</td>
</tr>
<tr>
<td>1500830</td>
<td>0</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>35 - 40</td>
<td>45 - 50</td>
<td>5 - 15</td>
<td>10 - 15</td>
<td>NO. 60</td>
</tr>
<tr>
<td>1500840</td>
<td>1</td>
<td>½&quot; - 1&quot;</td>
<td>35 - 40</td>
<td>100 - 110</td>
<td>5 - 15</td>
<td>15 - 25</td>
<td>NO. 56</td>
</tr>
<tr>
<td>1500850</td>
<td>2</td>
<td>1&quot; - 2&quot;</td>
<td>40 - 45</td>
<td>180 - 195</td>
<td>10 - 15</td>
<td>20 - 30</td>
<td>NO. 52</td>
</tr>
<tr>
<td>1500860</td>
<td>3</td>
<td>2&quot; - 3&quot;</td>
<td>45 - 50</td>
<td>270 - 290</td>
<td>10 - 15</td>
<td>20 - 35</td>
<td>NO. 48</td>
</tr>
</tbody>
</table>

*To provide proper gas flow, use ¼" ID hose for size 4 tip and larger

### General Preheat Two-Piece Hand Cutting Tips

**Model Shown:** 6290-NX

**Description:** Propane/natural gas cutting tips for the most popular Harris hand torches, machine torches and cutting attachments. Features a general preheat for a relatively clean plate.

**Details:**
- **Construction:** Two-piece
- **Preheat Type:** General
- **Where Used:** Steel fabricating, demolition, shipbuilding, etc.
- **Compatible Equipment:** E-9 Tip cleaner P/N: 9000160

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>DEPTH OF CUT</th>
<th>O₂ PSIG</th>
<th>O₂ FLOW SCFH</th>
<th>EQUAL</th>
<th>INJECTOR OR LOW</th>
<th>FUEL SCFH</th>
<th>CUTTING DRILL SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1501200</td>
<td>000NX</td>
<td>LIGHT GAUGE ⅜&quot;</td>
<td>10 - 30</td>
<td>50 - 60</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>7.5</td>
<td>NO. 68</td>
</tr>
<tr>
<td>1501210</td>
<td>00NX</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>20 - 30</td>
<td>65 - 75</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>7.5</td>
<td>NO. 64</td>
</tr>
<tr>
<td>1501220</td>
<td>0NX</td>
<td>⅜&quot; - ⅜&quot;</td>
<td>20 - 30</td>
<td>85 - 100</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>7.5</td>
<td>NO. 60</td>
</tr>
<tr>
<td>1501230</td>
<td>1NX</td>
<td>½&quot; - 1&quot;</td>
<td>35 - 50</td>
<td>100 - 135</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>8.7</td>
<td>NO. 56</td>
</tr>
<tr>
<td>1501240</td>
<td>2NX</td>
<td>1&quot; - 2&quot;</td>
<td>40 - 55</td>
<td>200 - 250</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>10</td>
<td>NO. 52</td>
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<tr>
<td>1501250</td>
<td>3NX</td>
<td>2&quot; - 3&quot;</td>
<td>45 - 60</td>
<td>290 - 365</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>10</td>
<td>NO. 48</td>
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</tbody>
</table>
**GENERAL PREHEAT TWO PIECE HAND CUTTING TIPS**

**DESCRIPTION**
A general preheat hand cutting tip designed for long life and excellent performance when using propylene gas.

**DETAILS**
- **Construction:** Two-piece
- **Preheat Type:** General
- **Where Used:** Fabrication, ship building, etc.
- **Compatible Equipment:** E-9 Tip cleaner P/N: 9000160

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>DEPTH OF CUT</th>
<th>O₂ PSIG</th>
<th>O₂ FLOW SCFH</th>
<th>FUEL PSIG*</th>
<th>FUEL SCFH</th>
<th>CUTTING DRILL SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1502150</td>
<td>000NXP</td>
<td>LIGHT GAUGE - ⅛&quot;</td>
<td>15 - 30</td>
<td>20 - 30</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>11.5</td>
</tr>
<tr>
<td>1502152</td>
<td>00NXP</td>
<td>⅛&quot; - ⅜&quot;</td>
<td>20 - 30</td>
<td>30 - 40</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>11.5</td>
</tr>
<tr>
<td>1502154</td>
<td>0NXP</td>
<td>⅜&quot; - ⅝&quot;</td>
<td>30 - 40</td>
<td>50 - 65</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>11.5</td>
</tr>
<tr>
<td>1502156</td>
<td>1NXP</td>
<td>⅝&quot; - 1&quot;</td>
<td>35 - 50</td>
<td>75 - 100</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>11.5</td>
</tr>
<tr>
<td>1502158</td>
<td>2NXP</td>
<td>1&quot; - 2&quot;</td>
<td>40 - 55</td>
<td>160 - 210</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>11.5</td>
</tr>
<tr>
<td>1502160</td>
<td>3NXP</td>
<td>2&quot; - 3&quot;</td>
<td>45 - 60</td>
<td>250 - 325</td>
<td>5 - 15</td>
<td>4 oz. - 2 lbs.</td>
<td>11.5</td>
</tr>
</tbody>
</table>

*High fuel PSIG - “E” or positive pressure torches

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**V-SERIES® GENERAL PREHEAT ACETYLENE SINGLE PIECE HAND CUTTING TIP**

**DESCRIPTION**
A single piece acetylene hand cutting tip for relatively clean steel. The V1-101 is compatible with V-Series and Victor® style torches.

**DETAILS**
- **Construction:** One-piece
- **Preheat Type:** General
- **Where Used:** Metal fabrication, shipbuilding
- **Compatible Equipment:** C9 Tip cleaner P/N: 9000156

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>TIP SIZE</th>
<th>DEPTH OF CUT</th>
<th>OXYGEN PSIG</th>
<th>ACETYLENE PSIG</th>
<th>CUTTING DRILL SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1502088</td>
<td>000</td>
<td>LIGHT GAUGE to ⅛&quot;</td>
<td>20-30</td>
<td>5</td>
<td>NO.70</td>
</tr>
<tr>
<td>1502089</td>
<td>00</td>
<td>⅛&quot; - ⅛&quot;</td>
<td>20-30</td>
<td>5</td>
<td>NO.69</td>
</tr>
<tr>
<td>1502090</td>
<td>0</td>
<td>⅛&quot; - ⅜&quot;</td>
<td>30-40</td>
<td>7</td>
<td>NO.61</td>
</tr>
<tr>
<td>1502091</td>
<td>1</td>
<td>⅜&quot; - 1&quot;</td>
<td>40-50</td>
<td>7</td>
<td>NO.56</td>
</tr>
<tr>
<td>1502092</td>
<td>2</td>
<td>1&quot; - 2&quot;</td>
<td>45-55</td>
<td>8</td>
<td>NO.53</td>
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<td>1502093</td>
<td>3</td>
<td>2&quot; - 3&quot;</td>
<td>50-60</td>
<td>9</td>
<td>NO.50</td>
</tr>
</tbody>
</table>

*For best performance use ⅜" I.D. hose for tip sizes 6 and larger
**V3-101**

**DESCRIPTION**
A single piece acetylene hand cutting tip for relatively clean plate. The V3-101 is compatible with V-Series and Victor® style torches.

**DETAILS**
- **Construction:** One piece
- **Preheat Type:** General
- **Where Used:** Maintenance, metal art construction
- **Compatible Equipment:** C-9 Tip cleaner P/N: 9000156

### OPERATING PRESSURES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>TIP SIZE NO.</th>
<th>DEPTH OF CUT</th>
<th>OXYGEN PSIG</th>
<th>ACETYLENE PSIG</th>
<th>CUTTING DRILL SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1502080</td>
<td>000</td>
<td>LIGHT GAUGE to 1/4&quot;</td>
<td>20-30</td>
<td>5</td>
<td>N0.70</td>
</tr>
<tr>
<td>1502081</td>
<td>00</td>
<td>1/8&quot; - 3/32&quot;</td>
<td>20-30</td>
<td>5</td>
<td>N0.69</td>
</tr>
<tr>
<td>1502082</td>
<td>0</td>
<td>3/32&quot; - 1/32&quot;</td>
<td>30-40</td>
<td>7</td>
<td>N0.61</td>
</tr>
<tr>
<td>1502083</td>
<td>1</td>
<td>1/32&quot; - 1/16&quot;</td>
<td>40-50</td>
<td>7</td>
<td>N0.56</td>
</tr>
<tr>
<td>1502084</td>
<td>2</td>
<td>1/16&quot; - 2&quot;</td>
<td>45-55</td>
<td>8</td>
<td>N0.53</td>
</tr>
<tr>
<td>1502085</td>
<td>3</td>
<td>2&quot; - 3&quot;</td>
<td>50-60</td>
<td>9</td>
<td>N0.50</td>
</tr>
</tbody>
</table>

*For best performance use 5/8" I.D. hose for tip sizes 6 and larger*

---

**VVC**

**DESCRIPTION**
High-speed oxy-propane/natural gas cutting tip with a chrome-plated shell (.088 cup depth).

**DETAILS**
- **Minimizes kerf**
- **Increased cutting speeds, reduces heat input**
- **High-quality cut, reduces after work**
- **Used with low-cost fuel gases**
- **NH tips listed are not plated and have heat-resistant heavy shell**

### PREHEAT OXYGEN PSIG

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>TIP SIZE</th>
<th>PLATE THICKNESS INCHES</th>
<th>CUTTING SPEED I.P.M</th>
<th>CUTTING OXYGEN PSIG</th>
<th>HIGH</th>
<th>LOW</th>
<th>PREHEAT FUEL PSIG</th>
<th>CUTTING OXYGEN CONSUMPTION SCFH</th>
<th>LOW PREHEAT OXYGEN CONSUMPTION SCFH</th>
<th>PROPANE CONSUMPTION SCFH</th>
<th>NATURAL GAS CONSUMPTION SCFH</th>
<th>APPROXIMATE KERF INCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1501330</td>
<td>3/0</td>
<td>1/4</td>
<td>18</td>
<td>75</td>
<td>35</td>
<td>10</td>
<td>4 oz. - 2</td>
<td>80</td>
<td>20 - 35</td>
<td>7</td>
<td>18</td>
<td>.07</td>
</tr>
<tr>
<td>1501340</td>
<td>2/0</td>
<td>1/4</td>
<td>18</td>
<td>75</td>
<td>35</td>
<td>10</td>
<td>4 oz. - 2</td>
<td>90</td>
<td>25 - 35</td>
<td>7</td>
<td>18</td>
<td>.07</td>
</tr>
<tr>
<td>1501350</td>
<td>0</td>
<td>1/4</td>
<td>15</td>
<td>90</td>
<td>35</td>
<td>10</td>
<td>4 oz. - 2</td>
<td>125</td>
<td>25 - 35</td>
<td>7</td>
<td>18</td>
<td>.08</td>
</tr>
<tr>
<td>1501360</td>
<td>0 1/2</td>
<td>1/4</td>
<td>14</td>
<td>100</td>
<td>35</td>
<td>12</td>
<td>4 oz. - 2</td>
<td>170</td>
<td>25 - 40</td>
<td>8</td>
<td>20</td>
<td>.09</td>
</tr>
<tr>
<td>1501370</td>
<td>1</td>
<td>2</td>
<td>13</td>
<td>100</td>
<td>35</td>
<td>12</td>
<td>4 oz. - 2</td>
<td>200</td>
<td>25 - 40</td>
<td>8</td>
<td>20</td>
<td>.11</td>
</tr>
<tr>
<td>1501380</td>
<td>1 1/2</td>
<td>3</td>
<td>9</td>
<td>100</td>
<td>35</td>
<td>12</td>
<td>4 oz. - 2</td>
<td>250</td>
<td>25 - 40</td>
<td>8</td>
<td>20</td>
<td>.12</td>
</tr>
</tbody>
</table>

**NOTES:**
1. Use next size larger tip with same PSIG for contour or intricate cutting.
2. For thin plate cutting use a highly carburizing preheat flame.
3. Cutting oxygen pressures should be measured at torch entry.
4. When using two hose machine torches set oxygen pressure at cutting oxygen PSIG above.
5. NH Tips are not plated
## PREMIUM MACHINE CUTTING TIPS FOR PROPYLENE

### DESCRIPTION
High speed oxygen propylene cutting tips with a chrome-plated shell (.034 cup depth). Ideal for machining cutting using propylene-based fuel gases.

### DETAILS
- Minimizes kerf
- Increases cutting speed
- Reduces heat input
- High-quality cut reduces after work
- Uses lower-cost fuel gases

Compatible Equipment:
E-9 Tip cleaner P/N: 900160

### PART NO. TIP SIZE NO. PLATE THICKNESS INCHES CUTTING SPEED I.P.M. CUTTING OXYGEN PSIG HIGH LOW PREHEAT FUEL PSIG CUTTING OXYGEN CONSUMPTION LOW PREHEAT OXYGEN CONSUMPTION PROPYLENE CONSUMPTION SCFH APPROX. KERF IN.

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>TIP SIZE NO.</th>
<th>PLATE THICKNESS INCHES</th>
<th>CUTTING SPEED I.P.M.</th>
<th>CUTTING OXYGEN PSIG</th>
<th>HIGH</th>
<th>LOW</th>
<th>PREHEAT FUEL PSIG</th>
<th>CUTTING OXYGEN CONSUMPTION</th>
<th>LOW PREHEAT OXYGEN CONSUMPTION</th>
<th>PROPYLENE CONSUMPTION SCFH</th>
<th>APPROX. KERF IN.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1502204</td>
<td>3/0</td>
<td>7/8</td>
<td>18</td>
<td>75</td>
<td>25</td>
<td>8</td>
<td>4 oz - 2</td>
<td>80</td>
<td>32</td>
<td>13</td>
<td>.08</td>
</tr>
<tr>
<td>1502208</td>
<td>2/0</td>
<td>1/4</td>
<td>15</td>
<td>100</td>
<td>25</td>
<td>8</td>
<td>4 oz - 2</td>
<td>90</td>
<td>32</td>
<td>13</td>
<td>.07</td>
</tr>
<tr>
<td>1502210</td>
<td>0 - 1/2</td>
<td>5/32</td>
<td>14</td>
<td>100</td>
<td>25</td>
<td>8</td>
<td>4 oz - 2</td>
<td>170</td>
<td>32</td>
<td>13</td>
<td>.08</td>
</tr>
<tr>
<td>1502212</td>
<td>1</td>
<td>11/32</td>
<td>13</td>
<td>100</td>
<td>25</td>
<td>10</td>
<td>4 oz - 2</td>
<td>200</td>
<td>40</td>
<td>16</td>
<td>.09</td>
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<tr>
<td>1502214</td>
<td>1 1/2</td>
<td>3</td>
<td>9</td>
<td>100</td>
<td>25</td>
<td>10</td>
<td>4 oz - 2</td>
<td>250</td>
<td>40</td>
<td>16</td>
<td>.11</td>
</tr>
</tbody>
</table>

NOTES:
(1) Use next size larger tip with same PSIG for contour or intricate cutting.
(2) For thin plate cutting use a highly carburizing preheat flame.
(3) Cutting oxygen pressures should be measured at torch entry.
(4) When using two hose machine torches set oxygen pressure at cutting oxygen PSIG above.

---

## ACETYLENE WELDING AND BRAZING TIPS

### DESCRIPTION
Model 23A90 tips are manufactured using environmentally-friendly tellurium copper that has excellent machining properties resulting in a higher quality tip. They are swaged for more precise and consistent flames. They use a universal mixer for sizes 0-10, eliminating the expense of using a different mixer for every tip size. All 23A90 tips have a metal-to-metal seat, virtually eliminating possible leaks and the need for thread sealants.

### DETAILS
Warranty: 1 year
Where Used: Fabricating, maintenance
Compatible Equipment:
C-9 Tip cleaner P/N: 9000156

### PART NO. TIP SIZE NO. METAL THICKNESS INCHES OXYGEN PSIG ACETYLENE PSIG ACETYLENE SCFH * RECOMMENDED HOSE ID ** TIP THREAD

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>TIP SIZE NO.</th>
<th>METAL THICKNESS INCHES</th>
<th>OXYGEN PSIG</th>
<th>ACETYLENE PSIG</th>
<th>ACETYLENE SCFH *</th>
<th>RECOMMENDED HOSE ID **</th>
<th>TIP THREAD</th>
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</thead>
<tbody>
<tr>
<td>1600860</td>
<td>2</td>
<td>3/4&quot;</td>
<td>2</td>
<td>2</td>
<td>3 - 8</td>
<td>3/4&quot;</td>
<td>3/4&quot; - 26</td>
</tr>
<tr>
<td>1600870</td>
<td>3</td>
<td>3/4&quot;</td>
<td>3</td>
<td>3</td>
<td>5 - 11</td>
<td>3/4&quot;</td>
<td>3/4&quot; - 26</td>
</tr>
<tr>
<td>1600880</td>
<td>4</td>
<td>3/4&quot;</td>
<td>4</td>
<td>4</td>
<td>6 - 14</td>
<td>3/4&quot;</td>
<td>3/4&quot; - 26</td>
</tr>
<tr>
<td>1600890</td>
<td>5</td>
<td>3/4&quot;</td>
<td>5</td>
<td>5</td>
<td>8 - 18</td>
<td>3/4&quot;</td>
<td>3/4&quot; - 26</td>
</tr>
</tbody>
</table>

* Oxygen SCFH is equal to 1.1 times acetylene for neutral flame.
** Hose sizes are suitable for hoses up to 25'; for longer hoses higher pressures should be used.
Observe 1/8th acetylene rule when determining gas supply.
**ALTERNATE FUEL SPECIALTY TIPS**

**DESCRIPTION**

Model 6290 alternate fuel specialty tips are designed to allow additional performance from our straight cutting torches. Applications like heating, rivet washing, rivet cutting, gouging and extended reach cutting can be performed using standard cutting torches eliminating the need for separate handles, tip tubes etc. Tips are designed for use with alternate fuels.* Especially useful where storage space is at a premium.

**DETAILS**

**Duty:** Heavy  
**Where used:** Metal heating, beam cutting and weld repair  
**Related items:** 62-5F, 62-5SSF and 98-6 torches

<table>
<thead>
<tr>
<th>HEATING, CUTTING AND WASHING TIPS</th>
<th>FUEL PSIG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PART NO.</strong></td>
<td><strong>MODEL NO.</strong></td>
</tr>
<tr>
<td><strong>PROPANE GOUGING TIPS</strong></td>
<td><strong>GOUGE SIZE</strong></td>
</tr>
<tr>
<td>1500940</td>
<td>6290-1GG</td>
</tr>
<tr>
<td>1500950</td>
<td>6290-2GG</td>
</tr>
<tr>
<td>1500960</td>
<td>6290-3GG</td>
</tr>
</tbody>
</table>

*Fuel SCFH - Oxy: Fuel ratio at neutral should be - Natural Gas 1.5:1, Propane 3.7:1, Propylene: 2.6:1

**MODELS SHOWN:**  
6290-GG & H-62-1P

For maximum performance use straight torch

NOT FOR USE WITH ACETYLENE

**Additional 6290 Tips**

6290-NFFL  
6290-NFW  
6290-NFFR

**CUTTING WASHING GOUING**

- **RIVET CUTTING**
- **RIVET WASHING**
- **GOUING**
KITS

WHAT'S YOUR STYLE?

HARRIS OFFERS THREE STYLES OF KITS.

Harris Combination Kits are equipped with a handle, cutting attachment, welding/brazing mixer and cylinder regulators. These kits contain all the basic equipment necessary to cut, weld/braze and heat. Choose kits with or without accessories such as hose, striker, goggles/glasses, tool bag, etc. Deluxe kits include a selection of welding/brazing tips and “Plus” kits include a multi-flame heating tip. Combination kits are available for use with acetylene specific, all gases or alternate fuels (LPG). Alternate fuel combination kits generally do not include a welding/brazing mixer or tips. These kits are available in both Harris® “Classic” and “V”-Series® designs.

Cutter Pac® Kits are equipped with a straight cutting torch and cylinder regulators. The Cutter Pac® kits are specifically for cutting and specialty cutting/heating applications. Order the Cutter Pac® Kits by specific gas type (acetylene, propane, propylene, LPG, or all fuel gases). These kits are available in both Harris® “Classic” and “V”-Series® designs.

Port-A-Torch® Kits are generally combination-style kits including a cylinder tote putting an emphasis on portability and convenience. All Port-A-Torch® Kits come equipped with torch handle, cutting attachment, mixer, regulators, hose and other accessories including cutting and welding tips. They can be ordered with or without cylinders.
**COMBINATION KITS-ALL FUEL GASES**

**DESCRIPTION**
This combination Pipeliner® Classic standard kit contains all the major components needed for cutting, welding, brazing and heating using all fuel gases. As supplied, the outfit is capable of cutting up to a 1" plate and welding up to a 1/8" plate. The outfit can also cut up to a 5" plate and weld up to a 1" plate with optional larger tips.

**DETAILS**
- **Capacity:** Cuts to 1" (25.4mm) plate with supplied tips. Cuts to 5" (127.0mm) plate with larger tips.
- **Welds to 1/8" (3.2mm) plate with supplied tips. Welds to 1" (25.4mm) plate with larger tips.
- **Regulator Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Mixer Type:** Equal pressure
- **Handle equipped with:** FlashGuard® Check Valves
- **Warranty:** 7 years - Regulator; 1 year - All other components

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>WELDING/BRAZING TIPS</th>
<th>REGULATORS</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
</tr>
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<tbody>
<tr>
<td>4403236</td>
<td>43425-300 DLX</td>
<td>43-2</td>
<td>E-43</td>
<td>6290-1AC</td>
<td>73-3</td>
<td>23A90-5</td>
<td>425-125-540</td>
<td>425-15-300</td>
<td>• Goggles • Striker • 20' x 3/16&quot; Hose • Tool Bag</td>
</tr>
<tr>
<td>4403237</td>
<td>43425-300 STD</td>
<td>43-2</td>
<td>E-43</td>
<td>6290-1AC</td>
<td>73-3</td>
<td>23A90-5</td>
<td>425-125-540</td>
<td>425-15-300</td>
<td>• Tool Bag</td>
</tr>
</tbody>
</table>

**COMBINATION KITS-ALL FUEL GASES**

**DESCRIPTION**
This combination Steelworker® Classic deluxe kit contains all the major components needed for cutting, welding, brazing and heating using all fuel gases. As supplied, the outfit is capable of cutting up to a 1" plate and welding up to a 1/8" plate. The outfit can also cut up to a 5" plate and weld up to a 1/2" plate with optional larger tips.

**DETAILS**
- **Capacity:** Cuts to 1" (25.4mm) plate with supplied tips. Cuts to 5" (127.0mm) plate with larger tips.
- **Welds to 1/8" (3.2mm) plate with supplied tips. Welds to 1" (25.4mm) plate with larger tips.
- **Regulator Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Mixer Type:** Injector
- **Handle equipped with:** FlashGuard® Check Valves
- **Warranty:** 7 years - Regulator; 1 year - All other components

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>WELDING/BRAZING TIPS</th>
<th>REGULATORS</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
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</thead>
<tbody>
<tr>
<td>4403225</td>
<td>8525GX-300 DLX</td>
<td>85</td>
<td>D-85</td>
<td>6290-1AC</td>
<td>72-3</td>
<td>23A90-5</td>
<td>25GX-145-540</td>
<td>25GX-15-300</td>
<td>• Goggles • Striker</td>
</tr>
<tr>
<td>4403224</td>
<td>8525GX-510 DLX</td>
<td>85</td>
<td>D-85</td>
<td>6290-1AC</td>
<td>72-3</td>
<td>23A90-5</td>
<td>25GX-145-540</td>
<td>25GX-15-510</td>
<td>• Tool Bag</td>
</tr>
</tbody>
</table>
# COMBINATION KITS - ALTERNATE FUEL GASES

## DESCRIPTION
This combination Pipeliner® Classic deluxe kit contains all the major components needed for cutting, welding, brazing and heating using alternate fuels/propane. With supplied propane tip, this outfit is capable of cutting up to a 1" plate. The outfit can also cut up to a 5" plate with optional larger tips.

## DETAILS

**Capacity:** Cuts to 1" (25.4mm) plate with supplied tips. Cuts to 5" (127.0mm) plate with larger tips.

**Duty:** Heavy

**Gauges:** 2.5" Brass

**Regulator Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat

**Mixer Type:** Equal pressure

**Handle equipped with:** FlashGuard® Check Valves

**Warranty:** 7 years - Regulator; 1 year - All other components

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>REGULATORS</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
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<tbody>
<tr>
<td>4403240</td>
<td>43425F-510P DLX</td>
<td>43-2</td>
<td>–</td>
<td>6290-1NX</td>
<td>49-3F</td>
<td>425-125-540</td>
<td>425-50-510P</td>
<td></td>
</tr>
</tbody>
</table>

*Supplied with Propane/Natural Gas or Propylene tips.*

---

# COMBINATION KITS - ALTERNATE FUEL GASES

## DESCRIPTION
This combination Pipeliner® Classic deluxe kit contains all the major components needed for cutting using alternate fuels/propane. With supplied propane tip, this outfit is capable of cutting up to a 1" plate. The outfit can also cut up to a 4" plate with optional larger tips.

## DETAILS

**Capacity:** Cuts to 1" (25.4mm) plate with supplied tips. Cuts to 4" (101.6mm) plate with larger tips.

**Duty:** Medium

**Gauges:** 2.5" Steel

**Regulator Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat

**Mixer Type:** Equal pressure

**Handle equipped with:** FlashGuard® Check Valves

**Warranty:** 7 years - Regulator; 1 year - All other components

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>REGULATORS</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
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<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>REGULATORS</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
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<tbody>
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</tr>
</tbody>
</table>

*14.7 lbs. / 2.13 kg.*

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*Supplied with Propane/Natural Gas or Propylene tips.*
COMBINATION KITS-ALTERNATE FUEL GASES

DESCRIPTION
This combination Pipeliner® Classic deluxe kit contains all the major components needed for cutting using alternate fuels/propane. With supplied propylene tip, this outfit is capable of cutting up to a 1” plate. The outfit can also cut up to a 4” plate with optional larger tips.

DETAILS
- **Capacity:** Cuts to 1” (25.4mm) plate with supplied tips. Cuts to 5” (127.0mm) plate with larger tips.
- **Regulator Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Handle equipped with:** FlashGuard® Check Valves
- **Warranty:** 7 years - Regulator; 1 year - All other components

### CLASSIC COMBINATION STEELWORKER®

#### ALL FUELS/PROPYLENE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>REGULATORS OXYGEN</th>
<th>REGULATORS FUEL</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
</tr>
</thead>
</table>

*Supplied with Propane/Natural Gas or Propylene tips.

### CLASSIC COMBINATION PIPELINER®

#### ALTERNATE FUELS/PROPYLENE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>REGULATORS OXYGEN</th>
<th>REGULATORS FUEL</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
</tr>
</thead>
</table>

*Supplied with Propane/Natural Gas or Propylene tips.
**CLASSIC PORT-A-TORCH® WITH CYLINDERS**

**DESCRIPTION**
This Classic Port-A-Torch® deluxe kit with cylinders contains all the quality equipment needed for cutting, welding and brazing packaged in a rugged, molded plastic carrying case. The outfit is designed to carry one MC acetylene cylinder and one 20 cu. ft. oxygen cylinder. As supplied, the outfit is capable of cutting up to a 1" plate and welding up to a 1/16" plate. The outfit can also cut up to a 4" plate and weld up to a 1/2" plate with optional larger tips and an acetylene cylinder.

**DETAILS**
- **Capacity:** Cuts to 1" (25.4mm) with supplied tip(s). Cuts to 4" (101.6mm) with optional larger tip(s) and acetylene cylinder.
- **Welds to:** 1/16" (1.6mm) with supplied tip(s). Welds to 1/2" (12.7mm) with optional larger tip(s) and acetylene cylinder.
- **Duty:** Light to Medium
- **Gauges:** 50mm ABS plastic
- **Mixer Type:** Equal pressure
- **Typical Application:** HVAC, maintenance, hobby arts & crafts
- **Warranty:** 7 years - Regulator; 1 year - All other components

**PART NO.** 4403211  
**MODEL NO.** 85601-200 w/Cyl.  
**TORCH HANDLE** 85  
**MIXER** D-85  
**CUTTING TIP** 6290-1AC  
**CUTTING ATTACHMENT** 72-3  
**WELDING/BRAZING TIPS** 23A90-3  
**REGULATORS** 601-80-540B  
**OXYGEN** 601-15-200B  
**FUEL**  
**ACCESSORIES**  
- Goggles
- Striker
- 12' x 3/16" Hose
- Acet. Cylinder Wrench
- 20 CU. Ft. O₂ Cylinder *
- 10 CU. FT. Acet. Cylinder *
- Tool Bag
- Cylinders shipped empty

**WEIGHT** 38.0 lbs. / 17.24 kg.

---

**CLASSIC PORT-A-TORCH® WITHOUT CYLINDERS**

**DESCRIPTION**
This Classic Port-A-Torch® deluxe kit without cylinders contains all the quality equipment needed for cutting, welding and brazing packaged in a rugged, molded plastic carrying case. The outfit is designed to carry one MC acetylene cylinder and one 20 cu. ft. oxygen cylinder. As supplied, the outfit is capable of cutting up to a 1" plate and welding up to a 1/16" plate. The outfit can also cut up to a 4" plate and weld up to a 1/2" plate with optional larger tips and an acetylene cylinder.

**DETAILS**
- **Capacity:** Cuts to 1" (25.4mm) with supplied tip(s). Cuts to 4" (101.6mm) with optional larger tip(s) and acetylene cylinder.
- **Welds to:** 1/16" (1.6mm) with supplied tip(s). Welds to 1/2" (12.7mm) with optional larger tip(s) and acetylene cylinder.
- **Mixer Type:** Equal pressure
- **Typical Application:** HVAC, maintenance, hobby arts & crafts
- **Warranty:** 7 years - Regulator; 1 year - All other components

**PART NO.** 4403213  
**MODEL NO.** 85601-200 w/o Cyl.  
**TORCH HANDLE** 85  
**MIXER** D-85  
**CUTTING TIP** 6290-1AC  
**CUTTING ATTACHMENT** 72-3  
**WELDING/BRAZING TIPS** 23A90-3  
**REGULATORS** 601-80-540B  
**OXYGEN** 601-15-200B  
**FUEL**  
**ACCESSORIES**  
- Goggles
- 12' x 3/16" Hose
- Striker
- Acet. Cylinder Wrench

**WEIGHT** 16.0 lbs. / 7.26 kg.
V-SERIES® COMBINATION KIT - ALL FUEL GASES

DESCRIPTION
This Combination V-Series® Pipeliner® Deluxe All Gas/Acetylene Kit contains all the major components needed for cutting, welding and brazing.

DETAILS
Capacity: Cuts to 1" (25.4mm) plate with supplied tips. Cuts to 6" (152.4mm) plate with larger tips. Welds to 1/8" (3.2mm) plate with supplied tips. Welds to 1" (25.4mm) plate with larger tips.
Duty: Heavy
Regulator Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Mixer Type: Equal pressure
Handle equipped with: FlashGuard® Check Valves
Warranty: 7 years - Regulator; 1 year - All other components

V-SERIES® COMBINATION KIT - ALL FUEL GASES

DESCRIPTION
This Combination V-Series® Steelworker® Deluxe All Gas/Acetylene Kit contains all the major components needed for cutting, welding and brazing.

DETAILS
Capacity: Cuts to 1" (25.4mm) plate with supplied tips. Cuts to 4" (101.6mm) plate with optional larger tips. Welds to 1/8" (3.2mm) plate with supplied tips. Welds to 1" (25.4mm) plate with larger tips.
Duty: Medium
Regulator Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Mixer Type: Equal pressure
Handle equipped with: FlashGuard® Check Valves
Warranty: 7 years - Regulator; 1 year - All other components
All Harris® Ironworker® Kits feature a thermally insulated fabric tool bag that protects valuable equipment during storage and transportation. These kits are available in both Harris® “Classic” and “V”-Series® designs. Both designs are for use with acetylene for medium, heavy or extra-heavy duty applications. Harris’ “V”-Series equipment is compatible with original Victor® cutting attachments, combination handles and welding/brazing acetylene mixers. Harris “V”-Series® cutting attachments use Victor®-style seats and the “V”-Series® welding/brazing mixers use Harris®-style tips and tip tubes. All Harris® Ironworker® Combination Kits include a striker, goggles and 20’ R-Grade ¼” ID hose.

**MEDIUM DUTY ACETYLENE OUTFITS**

**DESCRIPTION**
The Harris HMD medium duty welding and cutting outfit features the new Model 801 regulators and Harris’ most popular combination torch handle and cutting attachment. The Model 801 regulators include one-piece encapsulated seats for longer service life, and a 7 year warranty. The Model 85 torch handle features twin-tube, silver-brazed connections for safety and durability when welding, brazing, cutting or heating with acetylene. It is equipped with FlashGuard™ check valves. The Model 72-3 cutting attachment with brazed triangular stainless steel tubes makes it light in weight while providing exceptional strength and rigidity. The ease-on cutting valve provides smoother, controlled starts. The forged solid brass head provides years of safe, dependable service, even under the most abusive conditions.

**DETAILS**
- **Capacity:** Cuts up to 5” plate with optional tips, welds to ½” plate with optional tips
- **Duty:** Medium
- **Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Mixer Type:** Equal pressure
- **Torch equipped with:** FlashGuard™ Check Valves
- **Warranty:** 7 years - Regulator
  1 year - All other components

<table>
<thead>
<tr>
<th>PART #</th>
<th>MODEL #</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>WELDING/BRAZING TIPS</th>
<th>OXYGEN</th>
<th>FUEL</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4400369</td>
<td>85801-300 DLX HMD 85</td>
<td>D-85</td>
<td>6290-1AC</td>
<td>72-3</td>
<td>23A90-5</td>
<td>801-145-540</td>
<td>801-15-300</td>
<td></td>
<td>• Goggles</td>
<td>12.3 lbs. / 5.6 kg.</td>
</tr>
</tbody>
</table>
DESCRIPTION
The Harris HHD heavy duty welding and cutting outfit features Harris’ most popular regulators, combination torch handle and cutting attachment. The Model 25GX regulators include large, easy-to-read, 2½” dual gauges, an ergonomic adjusting knob for precise pressure adjustments, one-piece encapsulated seats for longer service life, and a 7 year warranty. The Model 85 torch handle features twin-tube, silver-brazed connections for safety and durability when welding, brazing, cutting or heating with acetylene. It is equipped with FlashGuard® check valves. The Model 72-3 cutting attachment with brazed triangular stainless steel tubes makes it light in weight while providing exceptional strength and rigidity. The ease-on cutting valve provides smoother, controlled starts. The forged solid brass head provides years of safe, dependable service, even under the most abusive conditions.

DETAILS
Capacity: Cuts up to 5” plate with optional tips, welds to ½” plate with optional tips
Duty: Heavy
Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Mixer Type: Equal pressure
Torch equipped with: FlashGuard® Check Valves
Warranty: 7 years - Regulator, 1 year - All other components

MODEL SHOWN: 8525GX-510

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DESCRIPTION
The Harris HXT is an extra-heavy duty welding and cutting outfit that includes Model 450 regulators, Model 43-2 combination torch handle and 73-3 cutting attachment. The industrial duty Model 450 regulator has many of the premium features found only in high priced regulators. Its stainless steel diaphragm and Harris’ exclusive tamper-proof, self-seating safety relief device, makes it standout for heavy duty welding applications. Model 43-2 features a stainless steel connection on the head to reduce galling and features tube-within-a-tube construction for use in the most severe applications. The Model 73-3 cutting attachment with brazed triangular stainless steel tubes makes it light in weight while providing exceptional strength and rigidity. The ease-on cutting valve provides smoother, controlled starts. The forged solid brass head provides years of safe, dependable service, even under the most abusive conditions.

DETAILS
Capacity: Cuts up to 6” plate with optional tips, welds to 1” plate with optional tips
Duty: Extra-heavy
Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Mixer Type: Equal pressure
Torch equipped with: FlashGuard® Check Valves
Warranty: 7 years - Regulator, 1 year - All other components

MODEL SHOWN: 43450-510
The Harris “V” Series products allow users of Victor® style cutting torches, handles, cutting attachments, mixers and tips to convert to and enjoy the benefits of genuine Harris designed gas apparatus.

**DESCRIPTION**
The Harris VMD medium duty welding and cutting outfit features the new Model 801 regulators, VH10 combination torch handle and VH31 cutting attachment. The Model 801 regulators include one-piece encapsulated seats for longer service life, and a 7 year warranty. The Model VH10 torch handle features a tube within a tube construction. It is equipped with FlashGuard® check valves. The Model VH13 cutting attachment features an all gas in-tube mixer which allows for easy maintenance.

**DETAILS**
- **Capacity:** Cuts up to 4” / 101.6 mm plate with optional tips, welds to 1/2” / 12.7 mm plate with optional tips
- **Duty:** Medium
- **Regulator Seat:** One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
- **Mixer Type:** Equal pressure
- **Torch equipped with:** FlashGuard® Check Valves
- **Warranty:** 7 years - Regulator Warranty
  - 1 year - all other components
  - 1 year - All other components

<table>
<thead>
<tr>
<th>PART #</th>
<th>MODEL #</th>
<th>TORCH HANDLE</th>
<th>MIXER</th>
<th>CUTTING TIP</th>
<th>CUTTING ATTACHMENT</th>
<th>WELDING/ BRAZING TIPS</th>
<th>REGULATORS</th>
<th>ACCESSORIES</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4400375</td>
<td>VH10C801-300 DLX</td>
<td>VH31</td>
<td>V-W-1</td>
<td>1-V3-101</td>
<td>VH13</td>
<td>23A90-5</td>
<td>801-145-540</td>
<td>801-15-300</td>
<td>12.9 lbs. / 5.7 kg.</td>
</tr>
</tbody>
</table>
HEAVY DUTY ACETYLENE OUTFITS

DESCRIPTION
The Harris VHD heavy duty welding and cutting outfit features Harris’ most popular V-Series regulators, combination torch handle and cutting attachment. The Model 25GX regulators include large, easy-to-read, 2 ½” dual gauges, an ergonomic adjusting knob for precise pressure adjustments, one-piece encapsulated seats for longer service life, and a 7 year warranty. The Model VH31 handle features a tube within a tube construction for high gas volume applications. It is equipped with FlashGuard® check valves. The Model VH24 cutting attachment features an all gas in-tube mixer for easy maintenance.

DETAILS
Capacity: Cuts up to 8” / 203.2 mm plate with optional tips, welds to ½” / 12.7 mm plate with optional tips
Duty: Heavy
Regulator Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Mixer Type: Equal pressure
Torch equipped with: FlashGuard® Check Valves
Warranty: 7 years - Regulator
1 year - All other components

EXTRA HEAVY DUTY ACETYLENE OUTFITS

DESCRIPTION
The Harris VXT is an extra-heavy duty V-Series welding and cutting outfit that includes Model 450 regulators, Model VH31 combination torch handle and VH24 cutting attachment. The industrial duty Model 450 regulator has many of the premium features found only in high priced regulators. Its stainless steel diaphragm and Harris’ exclusive tamper-proof, self-seating safety relief device, makes it standout for heavy duty welding applications. The Model VH31 handle features a tube within a tube construction for high gas volume applications. It is equipped with FlashGuard® check valves. The Model VH24 cutting attachment features an all gas in-tube mixer for easy maintenance.

DETAILS
Capacity: Cuts up to 8” / 203.2 mm plate with optional tips, welds to ½” / 12.7 mm plate with optional tips
Duty: Extra-heavy
Regulator Seat: One-piece encapsulated seat design with internal filter and PTFE Teflon® seat
Mixer Type: Equal pressure
Torch equipped with: FlashGuard® Check Valves
Warranty: 7 years - Regulator
1 year - All other components
REGULATOR AND TORCH ACCESSORIES

HOSES

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4300532</td>
<td>¼” x 20’ twin hose, “T” grade*</td>
</tr>
<tr>
<td>4300530</td>
<td>¼” x 50’ twin hose</td>
</tr>
</tbody>
</table>

*Recommended for Alternate Fuels

OSHA COMPLIANT OXYGEN-FUEL QUICK CONNECTORS

FEATURES
- Long-lasting stainless steel pin connection
- Automatic gas cut-off feature to positively shut off the gas supply when disconnected
- Helps prevent theft by making it easier to take down and put away equipment
- Durable brass and stainless steel construction
- ¾” - 18 ”B” connections
- Meets OSHA 29CFR, 1926.350(f)(5) and ISO 7289

REGULATOR OUTLET MOUNT TYPE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>PACK</th>
<th>FUEL/OXYGEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>4301653</td>
<td>26-QCR (R&amp;L)</td>
<td>Pairs only</td>
<td>Fuel and Oxygen</td>
</tr>
</tbody>
</table>

TORCH INLET TYPE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>PACK</th>
<th>FUEL/OXYGEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>4301654</td>
<td>26-QCT (R&amp;L)</td>
<td>Pairs only</td>
<td>Fuel and Oxygen</td>
</tr>
</tbody>
</table>

INERT QUICK CONNECTORS

HARRIS REGULATOR TO HOSE OR MACHINE TO HOSE QUICK CONNECTORS

FEATURES
- Long-lasting stainless steel pin connection
- Automatic gas cut-off feature to positively shut off the gas supply when disconnected
- Durable brass and stainless steel construction
- Available for regulator or machine mount
- Makes moving equipment fast and easy
- Flow up to 200 SCFH; pressure up to 200 PSIG

REGULATOR TO HOSE TYPE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>CONNECTIONS</th>
<th>GAS TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4301613</td>
<td>IQC M-F</td>
<td>¾” - 18</td>
<td>Inert</td>
</tr>
</tbody>
</table>

HOSE TO MACHINE TYPE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>CONNECTIONS</th>
<th>GAS TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4301614</td>
<td>IQC F-M</td>
<td>¾” - 18</td>
<td>Inert</td>
</tr>
</tbody>
</table>

REGULATOR AND TORCH FLASHBACK ARRESTORS

FEATURES
- Prevents reverse flow of gases with built-in check valves
- Extinguishes flashback fire with stainless steel sintered element
- ¾”-18 connections CGA “B” size
- 100 Micron inlet filter helps keep dust and dirt out
- Flow Capacity: Models 88-5FBT (R&L) and 88-5FBR (R&L) arrestors should not be used with tip sizes larger than those noted below:
  - Hand Cutting Tips: NO.5 (except for NFF Tips -NO.4)
  - Machine Cutting Tips: NO.5 1/2
  - Acetylene Heating Tips: NO.4
  - Alternate Fuel Heating Tips: NO.2
  - Cleaning Heads: NO.2 RBP (no limitation with RBA)

MODEL SHOWN:
- Regulator to Hose Type Model 88-5FBT (R&L) P/N: 4301613 - (Sold in pairs only)
- Hose to Machine Type Model 88-5FBR (R&L) P/N: 4301651 - (Sold in pairs only)
- Torch Type - Model 88-5FBT (R&L) P/N: 4302202 - (Sold in pairs only)
PIPEC LINE AND MANIFOLD ACCESSORIES

PIPELINE FLASHBACK ARRESTORS

8530 AND 147 MODELS DRY TYPE FLASHBACK ARRESTOR SYSTEMS

Flashback arrestors incorporate ASME relief valves and check valves in their design. They meet the requirements of NFPA 51 in oxy-fuel gas piping systems. Unlike hydraulic flash arrestors, dry arrestors are virtually maintenance free, do not require fluid, take up less space and provide continuous safe operation in fuel gas distribution systems. BAM/ABZ/003 Approved.

8530 AND 147 FEATURES

- High surface area stainless steel flash arrestor material extinguishes flashback
- Temperature sensitive shut-off valve extinguishes sustained flashbacks
- Check valve prevents reverse flow from forming explosive mixtures in the gas supply system
- Can be mounted in any position

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>MODEL NO.</th>
<th>GAS</th>
<th>FLOW SCFH</th>
<th>INLET/OUTLET</th>
<th>RELIEF VALVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4300222</td>
<td>8530-A-1/2&quot;</td>
<td>Acetylene</td>
<td>750</td>
<td>1/2&quot; NPT</td>
<td>20 PSIG</td>
</tr>
<tr>
<td>4300224</td>
<td>8530-FG-1/2&quot;</td>
<td>LPG, Natural Gas, H₂</td>
<td>1000</td>
<td>1/2&quot; NPT</td>
<td>40 PSIG</td>
</tr>
</tbody>
</table>
WHAT INFORMATION CAN BE DETERMINED FROM A FLOW CURVE?
The following sketch explains how to interpret the flow curves presented in this catalog.

Maximum Flow - A rating defined as the maximum amount a regulator can flow when the set delivery pressure approaches 0 PSIG (vertical axis on flow curve). This point on the curve represents a blanketing operation.

Rated Flow - A rating defined as 80% of the maximum flow. This point on the flow curve corresponds to typical operating conditions.

Note: All regulator flow curves in the catalog have been developed using air at 70°F. To obtain flow rates for other gases, multiply flow by the correction factor in Table 1a (to the right).

WHAT IS C_V?
The C_v or the flow coefficient is a number that represents the flow capacity of a regulator for a given set of conditions. The C_v can be used to compare flow capacity between two regulators. The higher the C_v, the greater the flow capacity. The C_v values listed in this catalog represent the overall C_v of the regulator including the outlet fitting.

WHAT IS PRESSURE RISE?
Pressure rise is the change in set delivery pressure as a result of a drop or decay in inlet pressure. For example, the rise on a Model 25GX is expressed as 0.2 PSIG/100 PSIG. Regulators are measured on their ability to provide a flat delivery curve. Pressure rise can be used to explain the main advantage of two stage vs. single-stage. See pressure regulation chart.

WHAT IS CGA E-4?
CGA E-4 is a regulator standard developed by the Industrial Gas Apparatus Committee of the Compressed Gas Association. The standard defines product safety requirements, product test requirements and performance characteristics to meet field applications.

WHAT ARE GAS FLOW CORRECTION FACTORS?
Each gas has a different density and therefore flows at different rates under the same pressures and conditions. The correction factor compares their densities to air.

### TABLE 1a. GAS CORRECTION FACTORS

<table>
<thead>
<tr>
<th>Gas</th>
<th>Correction Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Dioxide</td>
<td>0.81</td>
</tr>
<tr>
<td>Propane</td>
<td>0.81</td>
</tr>
<tr>
<td>Propylene</td>
<td>0.83</td>
</tr>
<tr>
<td>Argon</td>
<td>0.85</td>
</tr>
<tr>
<td>Oxygen</td>
<td>0.95</td>
</tr>
<tr>
<td>Air</td>
<td>1.00</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>1.02</td>
</tr>
<tr>
<td>Acetylene</td>
<td>1.05</td>
</tr>
<tr>
<td>Methane</td>
<td>1.34</td>
</tr>
<tr>
<td>Helium</td>
<td>2.69</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>3.79</td>
</tr>
</tbody>
</table>

### PRESSURE REGULATION

- Single-stage
- Two-stage
"E" MIXER VS. "F" MIXER

HARRIS OFFERS TWO TYPES OF OXY/FUEL MIXERS. EQUAL PRESSURE OR POSITIVE MIXERS ARE REFERRED TO AS "E" TYPE MIXERS WHILE, LOW PRESSURE INJECTOR MIXERS ARE REFERRED TO AS "F" MIXERS. THE TYPE OF MIXER WHICH BEST SUITS THE NEED DEPENDS ON THE APPLICATION AND THE AVAILABLE FUEL GAS SUPPLY. THE FOLLOWING EXPLAINS SOME OF THE FEATURES AND BENEFITS OF EACH MIXER DESIGN.

TYPICAL "E" MIXER DESIGN

To thoroughly mix the oxygen and fuel gas,"E" mixer designs rely on the positive pressure control of both oxygen and fuel gas. Both gases enter the mixing chamber at controlled pressures. "E" mixers allow the end-user greater control of the oxy/fuel ratio. This feature has an advantage in applications where a very carburizing or oxidizing flame is required. Also because of their higher potential flow rates, "E" mixers are required for high flow heating applications. This design is primarily used with acetylene but can also be used with alternate fuels when positive pressure control of the fuel gas is available.

TYPICAL "F" MIXER DESIGN

"F" or low pressure injector mixers require that only the oxygen has a positive pressure control. The oxygen exits a specially designed chamber at a very high velocity which causes the fuel gas to be aspirated into the mixing chamber. Because of the aspirating effect on the fuel gas, positive control of the fuel gas is not required. In fact, the mixers in the Harris line are designed to operate at fuel gas pressures as low as 4 ounces. "F" mixers tend to produce a more homogenous oxy/fuel mixture because of the high turbulence in the mixing chamber. This feature is most important when using the more difficult to mix alternate fuels. "F" mixers tend to have a narrower operating range than "E" mixers but because of their superior mixing capabilities they tend to maximize BTU output within that range. "F" mixers are used primarily with low pressure natural gas. However, they are also recommended for use with alternate fuels when maximum BTU output is needed and/or positive pressure control of the fuel gas is not available.
## TECHNICAL DATA FOR THE MOST COMMON INDUSTRY FUEL GASES

<table>
<thead>
<tr>
<th></th>
<th>Acetylene</th>
<th>Butane</th>
<th>Propane</th>
<th>Propane</th>
<th>Natural Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAX. FLAME TEMPERATURE  °F</td>
<td>5720</td>
<td>4890</td>
<td>5240</td>
<td>5130</td>
<td>5040</td>
</tr>
<tr>
<td>OXY/FUEL COMBINATION RATIO (MAXIMUM TEMP.)</td>
<td>1.5:1</td>
<td>4.5:1</td>
<td>3.6:1</td>
<td>4.5:1</td>
<td>1.9:1</td>
</tr>
<tr>
<td>NEUTRAL FLAME TEMPERATURE  °F</td>
<td>5620</td>
<td>4925</td>
<td>5190</td>
<td>5090</td>
<td>5010</td>
</tr>
<tr>
<td>OXY/FUEL COMBINATION RATIO (NEUTRAL)</td>
<td>1.1:1</td>
<td>3.8:1</td>
<td>2.6:1</td>
<td>3.7:1</td>
<td>1.5:1</td>
</tr>
<tr>
<td>BTU'S PER CUBIC FOOT</td>
<td>1470</td>
<td>3394</td>
<td>2370</td>
<td>2563</td>
<td>1000</td>
</tr>
<tr>
<td>% BTU IN OUTER CONE</td>
<td>65</td>
<td>92</td>
<td>84</td>
<td>89</td>
<td>97</td>
</tr>
<tr>
<td>BURNING VELOCITY IN O₂</td>
<td>22.7/sec.</td>
<td>11.2/sec.</td>
<td>15.0/sec.</td>
<td>12.2/sec.</td>
<td>15.2/sec.</td>
</tr>
<tr>
<td>FLAMMABILITY LIMITS IN O₂</td>
<td>3-93 %</td>
<td>1.9-8.5%</td>
<td>2.5-60%</td>
<td>2.4-57%</td>
<td>5-59%</td>
</tr>
<tr>
<td>FLAMMABILITY LIMITS IN AIR</td>
<td>2.5-80 %</td>
<td>N/A</td>
<td>2.0-11.1 %</td>
<td>2.3-9.5 %</td>
<td>5.3-14 %</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY (AIR=1@60°F)</td>
<td>0.91</td>
<td>2.08</td>
<td>1.45</td>
<td>1.56</td>
<td>0.55</td>
</tr>
<tr>
<td>VAPOR PRESSURE (PSIG @ 70°F)</td>
<td>250</td>
<td>16.3</td>
<td>135</td>
<td>120</td>
<td>(LINE PRESSURE)</td>
</tr>
<tr>
<td>LBS/GAL LIQUID</td>
<td>-</td>
<td>4.7</td>
<td>4.8</td>
<td>4.35</td>
<td>4.28</td>
</tr>
<tr>
<td>CUBIC FT/LB GAS</td>
<td>14.6</td>
<td>6.4</td>
<td>9.0</td>
<td>8.66</td>
<td>23.8</td>
</tr>
<tr>
<td>CUBIC FT/GAL LIQUID</td>
<td>-</td>
<td>30</td>
<td>43.5</td>
<td>43</td>
<td>37</td>
</tr>
</tbody>
</table>

*Data above is from reliable industry sources and is used in Harris Fuel Gas Cost Analysis Programs.*

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Kel-F® is registered trademark owned by 3m Company

Teflon® is registered trademark owned by E.I. du Pont de Ne mours and Company

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IRL® & CART® is registered trademark owned by Bridyard Trademarks, Inc.

CGA® is registered trademark owned by Compressed Gas Association

UL® is registered trademark owned by UL, LLC.
HOW TO ACCURATELY USE OTHER GASES THROUGH FLOW DEVICES CALIBRATED FOR SPECIFIC GASES.

Flow control devices like the Harris Model 32 can be used for gases other than those for which it is calibrated for. Accurate flow rates for virtually any other gas can be determined by using the proper scale on the flowmeter and the proper gas correction factor (C.F). Harris recommends using only gases that are not flammable and are compatible with the materials use in the constructions of the flow device being used.

**INDICATED GAS FLOW X CORRECTION FACTOR (C.F.) = ACTUAL GAS FLOW**

Example: Determine actual argon flow through a flow device calibrated for Nitrogen

**NITROGEN TUBE READING X C.F. (FROM CHART) = ACTUAL ARGON FLOW**

20 SCFH x 0.84 = 16.8 SCFH

**CORRECTION FACTORS FOR GASES AND GAS MIXTURES USED TO CALCULATE ACTUAL FLOW WHEN USING A FLOW DEVICE CALIBRATED FOR NITROGEN.**

<table>
<thead>
<tr>
<th>GAS</th>
<th>CORRECTION FACTOR</th>
<th>GAS MIXES</th>
<th>MIX SPECIFIC GRAVITY</th>
<th>CORRECTION FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>OXYGEN</td>
<td>0.94</td>
<td>Ar 75% / CO₂ 25%</td>
<td>1.41</td>
<td>.89</td>
</tr>
<tr>
<td>ARGON</td>
<td>0.84</td>
<td>Ar 90% / CO₂ 10%</td>
<td>1.39</td>
<td>.70</td>
</tr>
<tr>
<td>HE</td>
<td>2.64</td>
<td>Ar 98% / O₂ 2%</td>
<td>1.37</td>
<td>.85</td>
</tr>
<tr>
<td>CO₂</td>
<td>3.74</td>
<td>Ar 90% / He 8% / CO₂ 2%</td>
<td>1.28</td>
<td>.88</td>
</tr>
<tr>
<td>AIR</td>
<td>0.98</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>N₂</td>
<td>1.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**FORMULA TO CALCULATE CORRECTION FACTORS**

\[
CF = \frac{\text{SPECIFIC GRAVITY OF TUBE OR GAUGE GAS}}{\text{SPECIFIC GRAVITY OF GAS BEING USED}}
\]