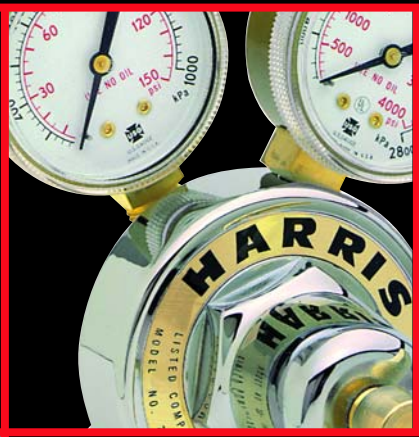
HARRIS®

A Lincoln Electric Company

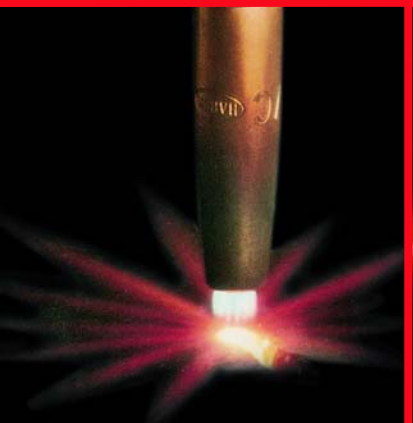






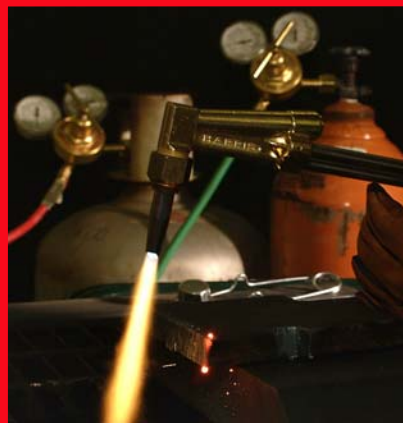
Gas Apparatus and Flow Control Equipment Catalog













Harris Calorific, Inc., A Lincoln Electric Company is one of the largest independent manufacturers of gas apparatus equipment in the world. Harris Calorific products are sold and used in over 85 countries.

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Classic



Steelworker -Classic Shown



Solid Forged Head



Brazed Triangular Tube Design



Ease-On Cutting Valve



Protected Torch Union

Pipeliner®-Classic* Cuts 6", Welds 1" with Larger Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-125 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403155	43425-510 DLX	43-2	E-43	73-3	6290-1AC	23A90-5	425-125-540	425-15-510	Goggles, Striker 20' x 1/4" Hose
4403157	43425-300 DLX	43-2	E-43	73-3	6290-1AC	23A90-5	425-125-540	425-15-300	Goggles, Striker 20' x 1/4" Hose

Steelworker®-Classic* Cuts 4", Welds 1/2" with Larger Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-100 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403069	8525-510 DLX	85	D-85	72-3	6290-1AC	23A90-5	25-100C-540	25-15C-510	Goggles, Striker 20' x 3/16" Hose
4403070	8525-300 DLX	85	D-85	72-3	6290-1AC	23A90-5	25-100C-540	25-15C-300	Goggles, Striker 20' x 3/16" Hose

Expert-Classic* Cuts 4", Welds 1/2" with Larger Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-100 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403087	85201-510	85	D-85	72-3	6290-1AC	23A90-5	201-100C-540 (3000274)	201-15C-510 (3000272)	Goggles, Striker 20' x 3/16" Hose
4403088	85201-300	85	D-85	72-3	6290-1AC	23A90-5	201-100C-540 (3000274)	201-15C-300 (3000271)	Goggles, Striker 20' x 3/16" Hose

*** Cuts 1", Welds 1/8" with tips supplied**

Alternate Fuel Combo-Classic Cuts 5" with Proper Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	BRAZING TIP	SINGLE STAGE OXYGEN REG. 0-100 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403177	43425F-510P	43	Not Included	49-3F	Not Included	Not Included	425-125-540	425-15C-510P	Goggles, Striker 20' x 3/16" T-Grade Hose
4403175	8525F-510P	85	Not Included	39-3F	Not Included	Not Included	25-100C-540	25-15C-510P	Goggles, Striker 20' x 3/16" T-Grade Hose

Pro Series





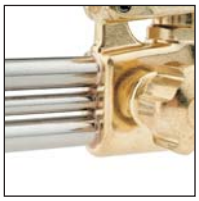
Internal Tip Nut



Modular Cutting Valve



Bayonet Connection



Brazed In-Line Tube Design

Pipeliner-Pro Shown

Pipeliner®-Pro* Cuts 6", Welds 1" with Larger Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-125 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403159	20425-510	2000	W-2030	3101	6290-1AC	23A90-5	425-125-540	425-15-510	Goggles, Striker 20' x 1/4" Hose
4403161	20425-300	2000	W-2030	3101	6290-1AC	23A90-5	425-125-540	425-15-300	Goggles, Striker 20' x 1/4" Hose

Steelworker®-Pro* Cuts 5", Welds 1/2" with Larger Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-100 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403073	2025-510 DLX	2000	W-2030	2101	6290-1AC	23A90-5	25-100C-540	25-15C-510	Goggles, Striker 20' x 3/16" Hose
4403074	2025-300 DLX	2000	W-2030	2101	6290-1AC	23A90-5	25-100C-540	25-15C-300	Goggles, Striker 20' x 3/16" Hose

*** Cuts 1", Welds 1/8" with tips supplied.**

Alternate Fuel Combo-Pro Cuts 5" with Proper Tips.

PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	BRAZING TIP	SINGLE STAGE OXYGEN REG. 0-100 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403176	20425F-510P	2000	Not Included	3101F	Not Included	Not Included	425-125-540	425-15-510P	Goggles, Striker 20' x 3/16" T-Grade Hose

Port-A-Torch

Contains all the quality equipment needed for cutting, welding and brazing 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 to 1" and welding to 1/16". Can cut to 4" and weld to 1/2" with larger tips and acetylene cylinder.



PART NUMBER	MODEL NUMBER	TORCH HANDLE	MIXER	CUTTING ATTACH.	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-125 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403077	16601-200-STD	16	H-16-2E	71-3	6290-1AC	23A90-3	601-100-540 (3000296)	601-15-200 (3000295)	Goggles, Striker 12'x3/16" Hose
4403078	16601-200-DLX	16	H-16-2E	71-3	6290-1AC	23A90-3	601-100-540 (3000296)	601-15-200 (3000295)	Goggles, Striker 12'x3/16" Hose 20 CU. FT. OXY CYL., 10 CU.FT. "MC" ACTE. CYL. (cylinders shipped empty)



Cutter Pac

Features industrial duty regulators that are backed by a three year warranty. Triangular stainless steel tube torch design insures superior strength and added safety.

PART NUMBER	MODEL NUMBER	CUTTING TORCH	TORCH LENGTH	TORCH HEAD ANGLE	SINGLE STAGE OXYGEN REG.	SINGLE STAGE FUEL GAS REG.
4401640	6225E-300	62-4E	18"	90°	25-100C-540	25-15C-300
4401638	6225E-510	62-4E	18"	90°	25-100C-540	25-15C-510
ALTERNATE FUEL						
4401639	6225F-510	62-4F	18"	90°	25-100C-540	25-50C-510

Shielding Gas Kit

A complete package for shielding gas supply to your MIG or TIG machine.

- Flowgauge regulator features 2" easy - to- read Argon/CO_2 Dual Scale Gauges
- Kit contains 10 feet of 3/16" approved hose with inert gas fittings
- Flowgauge kits features the Model 301
- Flowmeter kits features the Model 355



Flowgauge
0-60 SCFH



Flowmeter
0-70 SCFH

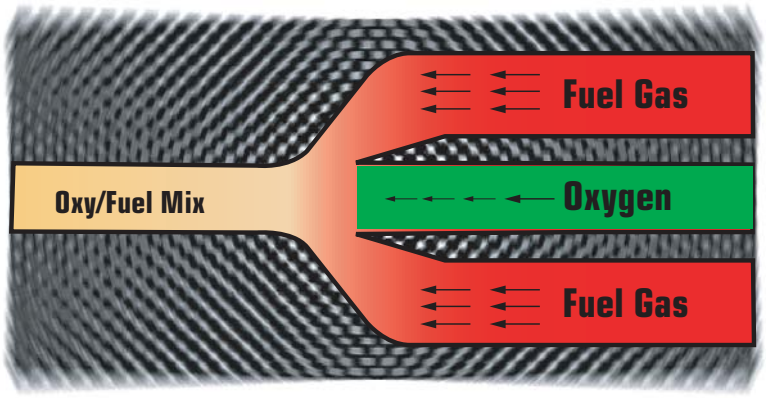
PART NUMBER	MODEL NUMBER	GAS	FLOW CAPACITY SCFH	REGULATOR TYPE	ACCESSORIES
4400229	301AR-58010	Argon	0-60	Flowgauge	3/16" 10' Hose
4400231	301CD-32010	Carbon Dioxide	0-60	Flowgauge	3/16" 10' Hose
4400235	355-2AR-58010	Argon	0-70	Flowmeter	3/16" 10' Hose
4400234	355-2CD-32010	Carbon Dioxide	0-70	Flowmeter	3/16" 10' Hose



Equal Pressure Mixers and Injector Mixers

Typical "E" Mixer Design

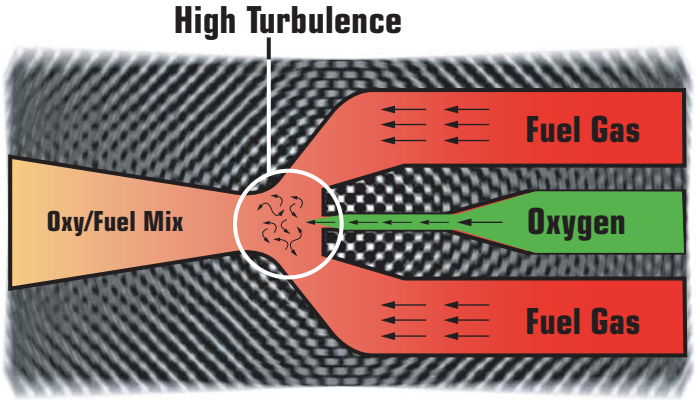
Harris Calorific offers two types of oxy/fuel mixers. Equal pressure or positive pressure mixers are referred to as "E" type mixers while low pressure injector mixers are referred to as "F" mixers. The type of mixer which best suits the need depends on the application and the available fuel gas supply. The following explains some of the features and benefits of each mixer design.



To thoroughly mix the oxygen and fuel gas, "E" mixer designs rely on 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 Calorific 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.



Model 2000
Pro Series Torch Handle

The Model 2000 industrial duty torch handle can be used with acetylene or alternate fuels.

- One piece stainless steel floating ball valve for precise alignment
- Equipped with FlashGuard® check valves
- Capacity: cuts 6", welds to 1"
- Solid brass construction
- Length: 10"
- Weight : 1.3 lbs



PART NO.	MODEL	LENGTH	DESCRIPTION
1401050	2000	10"	HANDLE

2000 TORCH HANDLE EQUIPMENT FOR ACETYLENE/MAPP®



2101 , 3101 Cutting Attachments
P/N: 1302101 P/N: 1303101
(Pg. 7)



6290 Cutting Tips (Pg. 26)



6290 Specialty Tips (Pg. 26)



23A90 Welding Tip (Pg. 19)



W - 2030 Mixer (Pg. 16)



8593 Tip Tube (Pg. 19)



1390 Welding Tip (Pg. 19)



1390 HA Heating Tip (Pg. 19)



Heating Tips J-63-1+2
(Pg. 18)



T43 Tip Tube (Pg. 19)



1390-13 Welding Tip (Pg. 19)



H - 2030 Mixer (Pg. 16)



Heating Tip J-63-4
(Pg. 18)



23A90, 13 , 15 Welding Tip (Pg. 19)

2000 TORCH HANDLE EQUIPMENT FOR ALTERNATE FUELS



W - 2030 Mixer (Pg. 17)



8593 Tip Tube
(Pg. 19)



1390 - N Brazing Tip
(Pg. 21)



1390 H or B Heating Tip
(Pg. 21)



2101F , 3101F Cutting
Attachments
P/N: 1302105 P/N: 1303105
(Pg. 7)



6290 Cutting Tips (Pg. 28)



6290 Specialty Tips (Pg. 29)



H - 2030 Mixer (Pg. 17)



2393 Tips Tube (Pg. 23)



2290 Heating Tips
(Pg. 23) Sizes 1-4

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Models 2101 and 3101
Pro Series Cutting Attachments



2101 Length: 9 3/4"; Weight; 1.5lbs.



3101 Length: 11 1/4" ; Weight ; 1.8lbs.

- In - line tube design for greater visibility
- Internal tip nut protects threads in torch head
- bayonet connection easy, safe process changeover
- Flip - up lever for easy connecting to torch handles
- Ease - on cutting valve for easier starting and piercing

Positive Pressure "E" Type Cutting Attachments for Acetylene

PART NUMBER	MODEL NUMBER	TORCH HEAD ANGLE	LENGTH	WEIGHT	COMPATIBLE HANDLES
1302101	2101	90°	9 3/4"	1.5 LBS.	2000/3000*
1303101	3101	90°	11 1/4"	1.8 LBS.	

Low Pressure "F" Injector Type Cutting Attachments for Alternate Fuel

PART NUMBER	MODEL NUMBER	TORCH HEAD ANGLE	LENGTH	WEIGHT	COMPATIBLE HANDLES
1302105	2101F	90°	9 3/4"	1.5 LBS.	2000/3000*
1303105	3101F	90°	11 1/4"	1.8 LBS.	

* Model 3000 Torch Handle is no longer available.

Quick Reference Cutting Tip Chart

PLATE THICKNESS	ACETYLENE 6290	PROPANE/ NATURAL GAS 6290-NX	PROPYLENE/ MAPP 6290-NXPM
3/8"	00	00 NX	00 NXP/NXM
1"	1	1 NX	1 NXP/NXM
2"	2	2 NX	2 NXP/NXM





Complete tip charts on pages 26-28.

Classic Torch Handles
Heavy Duty



Model 43 - 2
Length: 9 ½"; Weight: 1.4 lbs.
Cuts 6", welds to 1" (page 10)



Model 18 - 5
Length: 10 ½"; Weight: 1.6 lbs.
Cuts 6", welds to 1/2" (page 12)

Medium Duty



Model 85
Length: 8 ½"; Weight: 1 lbs.
Cuts 5", welds to 1/2" (page 11)



Model 50
Length: 8"; Weight: 0.8 lbs.
Cuts 3", welds to 1/2" (page 13)



Model 16
Length: 7 ¾"; Weight: 0.9 lbs.
Cuts 4", welds to 1/2" (page 14)



Model 19 - 6
Length: 7 ½"; Weight: 0.7 lbs.
Cuts 2", welds to 5/16" (page 14)

Light Duty



Model 15
Length: 5 ¾"; Weight: 0.5 lbs.
Cuts 2", welds to 5/16" (page 15)



73 - 3
Capacity: 6", Length: 9 ½"; Weight: 1.5lbs.



72 - 3
Capacity: 5", Length: 9 ½"; Weight: 1.5lbs.



71 - 3
Capacity: 4", Length: 8 ¼"; Weight: 1.4lbs.



49 - 3F
Capacity: 6", Length: 10 ¼"; Weight: 1.5lbs.



39 - 3F
Capacity: 6", Length: 10 ¼"; Weight: 1.5lbs.

Classic Cutting Attachments

- Solid forged head resists abuse and distortion
- Triangular tube design is compact and lightweight with exceptional strength and rigidity
- Brazed connections prevents leaks
- Protected torch union nut protects seats and o-rings from abuse
- Solid forged lever for exceptional strength
- Ease-on cutting oxygen control for smoother starts
- U.L. Listed



Model R-69-3B (P/N 4300200)
Circle Cutting Attachment

For cutting circles up to 30" in diameter, as well as straight line burning. A swivel nut permits circle cutting without tangling hoses. Wheels are adjustable for individual torch height. The R-69-3B makes better quality cuts with hand torches possible. Not for use with Pro Series equipment, Model 36 cutting attachment or Model 880 cutting torch.

Classic or Positive Pressure "E" Cutting Attachments

PART NUMBER	MODEL NUMBER	TORCH HEAD ANGLE	COMPATIBLE HANDLES
1300340	73-3	90°	43-2, 18-5, 63-2*
1300350	73-3A	70°	43-2, 18-5, 63-2*
1300380	72-3	90°	85
1300390	72-3A	70°	85
1300400	71-3	90°	16, 19, 50

Classic or Low Pressure Injector "F" Cutting Attachments - Do not use "F" cutting attachments with acetylene

PART NUMBER	MODEL NUMBER	TORCH HEAD ANGLE	COMPATIBLE HANDLES
1300440	49-3F	90°	43-2, 18-5, 63-2*
1300430	49-3AF	70°	43-2, 18-5, 63-2*
1300405	39-3F	90°	85

* The Model 63 Torch Handle is no longer available.



Model 43-2
Classic Torch Handle

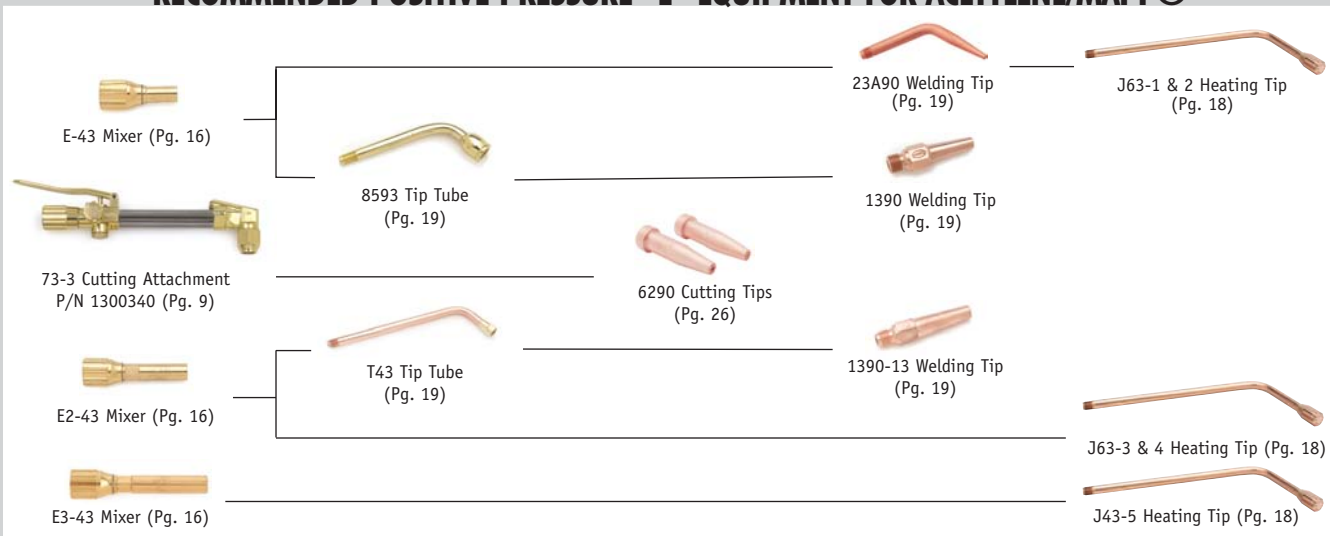
The Model 43-2 is a high capacity combination handle. With proper accessories, it can be used for either acetylene or other fuel gases.

PART NO.	MODEL NO.	DESCRIPTION
1401150	43-2	HANDLE W/S.S. HEAD

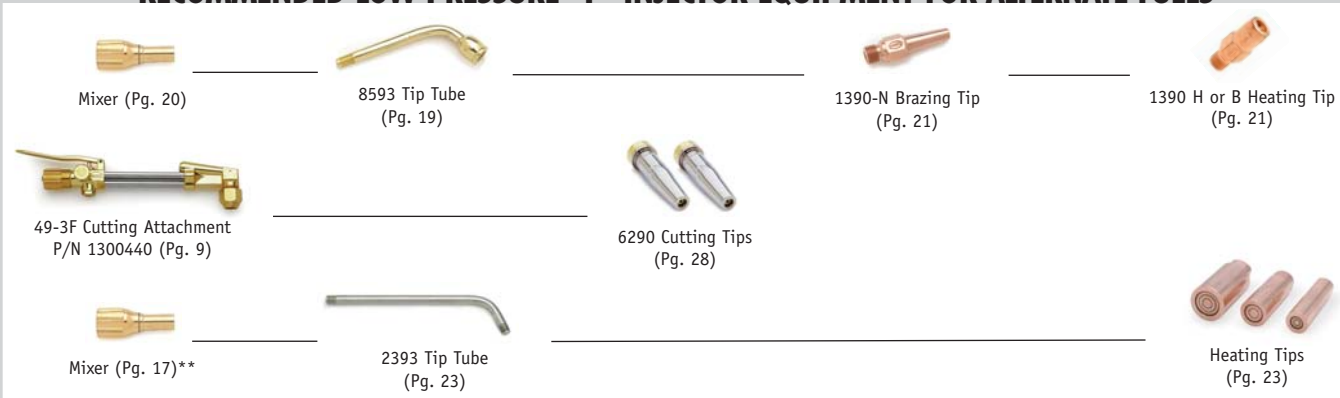
- Stainless steel head
- Equipped with FlashGuard® check valves
- Capacity: cuts 6", welds to 1"
- U.L. listed
- Length: 9 ½"
- Weight: 1.4lbs



RECOMMENDED POSITIVE PRESSURE "E" EQUIPMENT FOR ACETYLENE/MAPP®*



RECOMMENDED LOW PRESSURE "F" INJECTOR EQUIPMENT FOR ALTERNATE FUELS



**Heavy duty heating applications require an E3-43/(F-43) mixer.

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Model 85
Classic Torch Handle

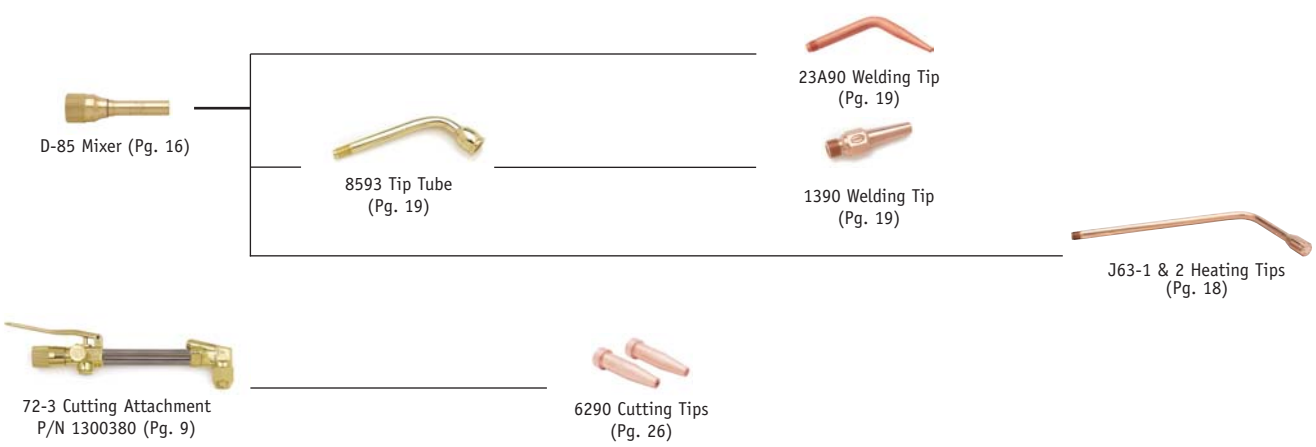
The Model 85 is designed for welding, heating and cutting with oxy-acetylene but can be adapted to alternate fuels with the proper accessories.

- Silver brazed twin tube construction for safety and durability.
- Equipped with FlashGuard® check valves
- Capacity: cuts 5", welds to 1/2"
- U.L. listed
- Length: 8 ½", Weight: 1lb

PART NO.	MODEL NO.	DESCRIPTION
1401340	85	HANDLE



RECOMMENDED POSITIVE PRESSURE "E" EQUIPMENT FOR ACETYLENE/MAPP®*



RECOMMENDED LOW PRESSURE INJECTOR "F" EQUIPMENT FOR ALTERNATE FUELS



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Model 18-5
Automatic Torch Handle

The Model 18-5 automatic torch handle features an exclusive gas control system to reduce operating costs and to improve safety and convenience. The thumb operated on/off gas control and adjustable pilot light eliminate relighting and flame readjustment each time the torch is used. The 18-5 on/off feature can be used for cutting, welding and brazing with all fuel gases. The pilot light feature is only recommended for oxy-acetylene welding and brazing.

PART NO.	MODEL NO.	DESCRIPTION
1401820	18-5	HANDLE

- Automatic on/off gas control
- Adjustable pilot light
- Equipped with Flash Guard® check valves
- Capacity: cuts 6", welds to 1/2"
- U.L. listed
- Length: 10 1/2", Weight: 1.6 lbs



RECOMMENDED POSITIVE PRESSURE "E" EQUIPMENT* FOR ACETYLENE/MAPP®


23A90 Welding Tip
(Pg. 19)


E-43 Mixer (Pg. 16)


8593 Tip Tube
(Pg. 19)


1390 Welding Tip
(Pg. 19)


73-3 Cutting Attachment*
P/N 1300340 (Pg. 9)


6290 Cutting Tips
(Pg. 26)

RECOMMENDED LOW PRESSURE INJECTOR "F" EQUIPMENT FOR ALTERNATE FUELS


B-43 Mixer
(Pg. 20)


8593 Tip Tube
(Pg. 19)


1390-N Brazing Tip
(Pg. 21)


49-3F Cutting Attachment
P/N 1300440 (Pg. 9)


6290 Cutting Tips
(Pg. 28)

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Model 50
Automatic Torch Handle

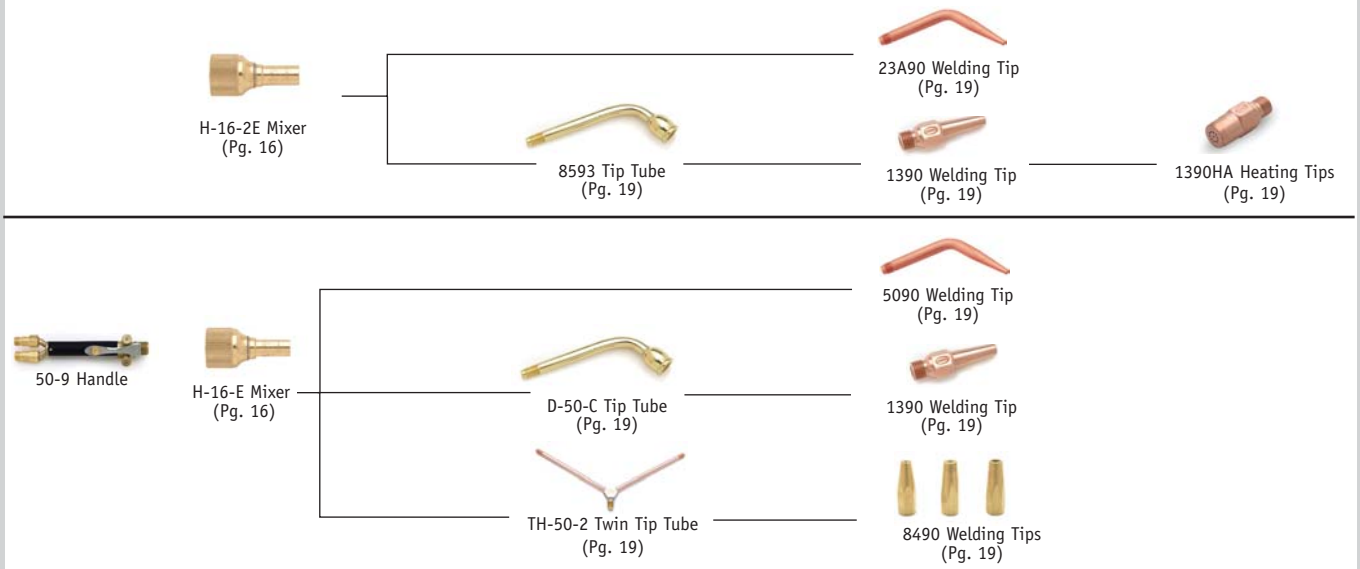
The Harris 50-9 and 50-10 automatic torch handles feature a unique gas control system to reduce operating cost and improve safety and convenience. The thumb operated on/off gas control and adjustable pilot light eliminate relighting and flame readjustment each time the torch is used. The on/off feature can be used for cutting, brazing, welding and heating with all oxy-fuel gases. The pilot light feature is not recommended when using cutting attachments. Select the Model 50-9 for acetylene/MAPP® and the 50-10 for other fuels.

- Automatic on/off gas control
- Adjustable pilot light
- Equipped with Flash Guard® check valves
- Capacity: cuts 3", welds to 1/2"
- U.L. listed
- Length: 8", Weight: 0.8 lbs

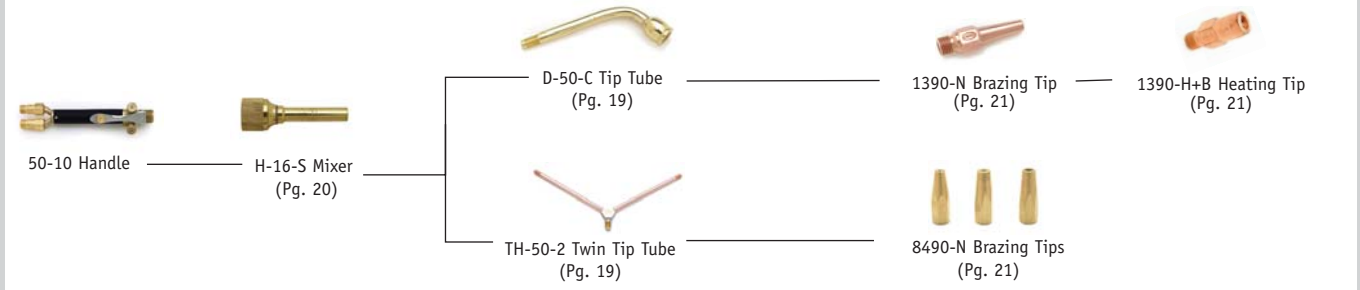
PART NO.	MODEL NO.	DESCRIPTION
ACETYLENE		
1401585	50-9	HANDLE
ALTERNATE FUELS		
1401590	50-10	HANDLE



RECOMMENDED POSITIVE PRESSURE "E" EQUIPMENT* FOR ACETYLENE/MAPP®



RECOMMENDED LOW PRESSURE INJECTOR "F" EQUIPMENT FOR ALTERNATE FUELS



MAPP® is a registered trademark of the BOC Group, Inc.



Model 16 Torch Handle

The Harris 16 combination torch handle for cutting, welding, brazing and heating. It can be used with oxy-acetylene or other fuel gases. The Model 16 features silver brazed twin tube construction.

- Equipped with FlashGuard® check valves
- Capacity: cuts 4", welds to 1/2"
- U.L. listed
- Length: 7 3/4", Weight: 0.9 lbs

PART NO.	MODEL NO.	DESCRIPTION
1401016	16	HANDLE



Model 19-6 Torch Handle

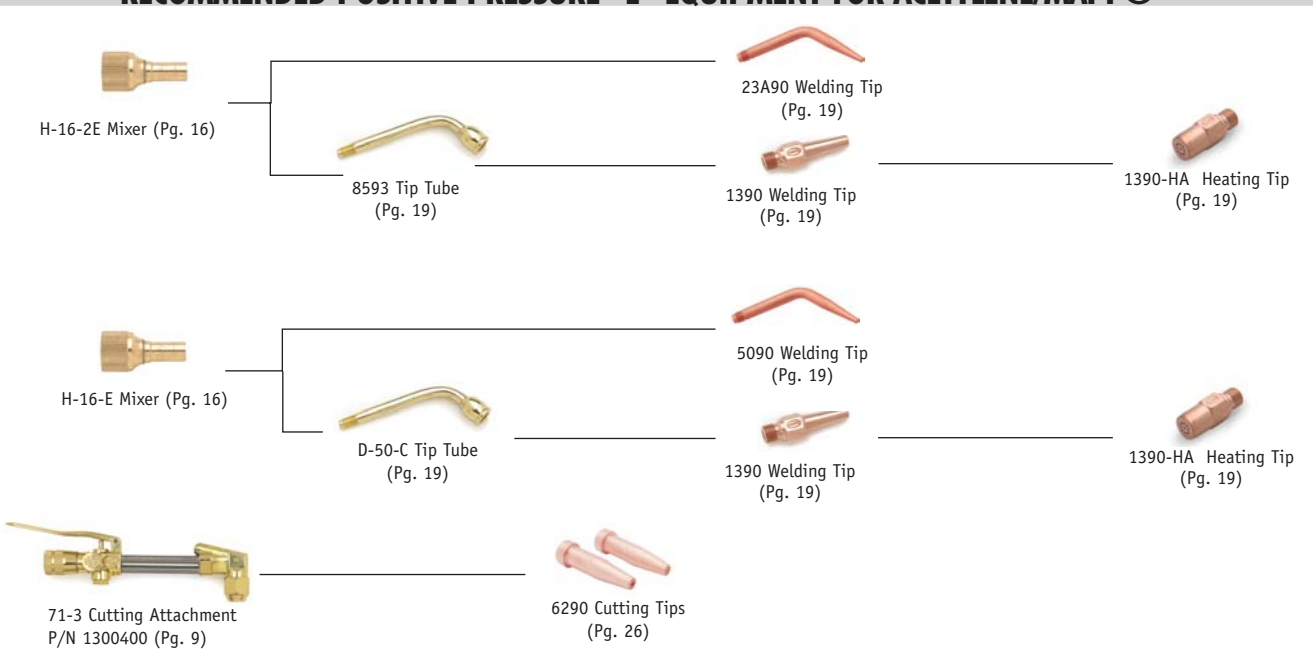
The Harris 19-6 combination torch handle for cutting, welding, brazing and heating. It can be used with oxy-acetylene or other fuel gases. The Model 19-6 features silver brazed twin tube construction. Valves are located at the front of torch handle for more precise control while brazing.

- Equipped with FlashGuard® check valves
- Capacity: cuts 2", welds to 5/16"
- U.L. listed
- Length: 7 1/2", Weight: 0.7lbs

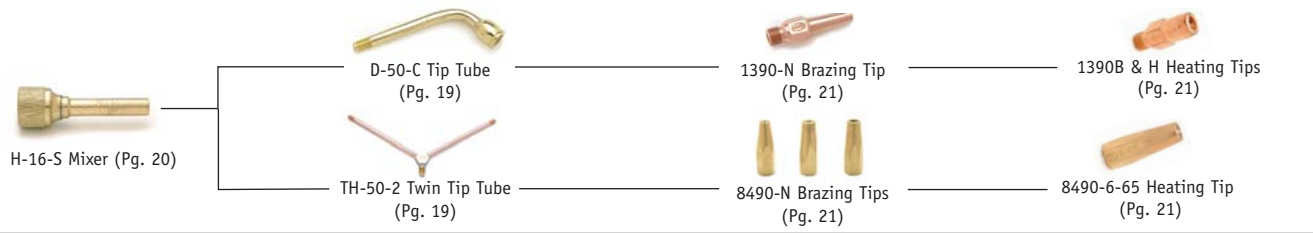
PART NO.	MODEL NO.	DESCRIPTION
1401156	19-6 W/Check Valves	HANDLE



RECOMMENDED POSITIVE PRESSURE "E" EQUIPMENT FOR ACETYLENE/MAPP®*



RECOMMENDED LOW PRESSURE INJECTOR "F" EQUIPMENT FOR ALTERNATE FUELS



MAPP® is a registered trademark of the BOC Group, Inc.

Model 15
Classic Torch Handle

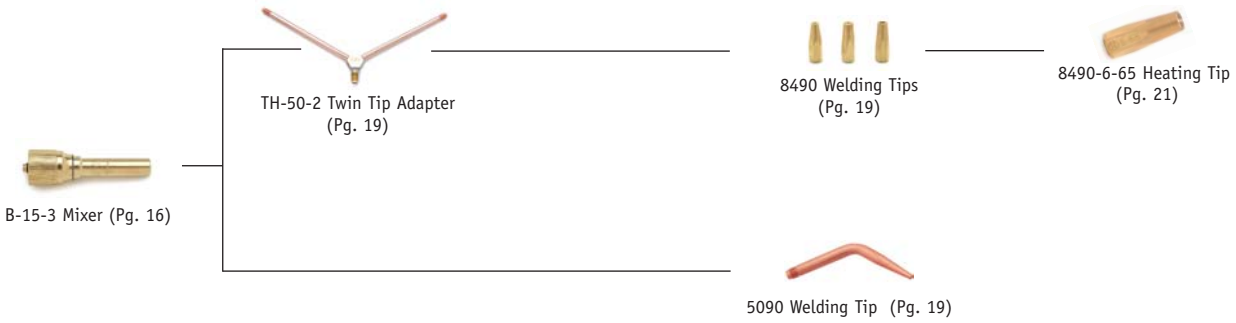
The Model 15 is a lightweight, aircraft style (Class A 3/8"-24 hose connection) featuring a forward valve designed to permit changing flame settings with one hand. For welding, heating and brazing with all fuel gases.

- Class A 3/8"- 24 hose connection
- Capacity: cuts 2", welds to 5/16"
- U.L. listed
- Length: 5 3/4", Weight: 0.5 lbs

PART NO.	MODEL NO.	DESCRIPTION
1400010	15-3	HANDLE



RECOMMENDED POSITIVE PRESSURE "E" EQUIPMENT FOR ACETYLENE/MAPP®*



RECOMMENDED LOW PRESSURE INJECTOR "F" EQUIPMENT FOR ALTERNATE FUELS



MAPP® is a registered trademark of the BOC Group, Inc.

Positive Pressure "E" Mixers Using Acetylene



5/16" - 27

H-16-E



23/64" - 26

E-43



1/2" - 25

E3-43/(F-43)



23/64" - 26

H-16-2E



1/2" - 25

E2-43

Positive Pressure "E" Type Mixers

PART NUMBER	MIXER	FITS HANDLE	TIP TUBES	ACETYLENE WELDING TIPS	ACETYLENE HEATING TIPS
9100312	E-43	43-2, 63-2, 18-5*	- 8593	23A90-0 thru 10 1390-0 thru 10	J-63-1 and 2 1390-HA
9100314	E2-43	43-2, 63-2, 18-5*	- T-43	23A90-13 and 15 1390-13	J-63-3 and 4 -
9100316	E3-43/(F-43)	43-2	-	-	J-43-5
9100896	W-2030	2000,3000*	- 8593	23A90-0 thru 10 1390-0 thru 10	J-63-1 and 2 1390-HA
9100894	H-2030	3000* 2000*	- T-43 - T-43	23A90-13 and 15 1390-13 23A90-13 thru 10 1390-13	J-63-3 and 4; J-43-5 - J-63-3 and 4 -
9100614	D-85	85	- 8593	23A90-0 thru 10 1390-0 thru 10	J-63-1 and 2 1390-HA
9100096	H-16-E	16, 50-9, 19	- TH-50-2 D-50-C	5090-0 thru 10 1390-0 thru 8 1390-0 thru 10	J-16-1 and 2 8490-6-65 1390-HA
9100787	H-16-2E	16, 50-9, 19	- 8593	23A90-0 thru 10 1390-0 thru 10	J-63-1 and 2 1390-HA
9100070	B-15-3	15-3	- D-50-C TH-50-2	5090-0 thru 8 1390-0 thru 8 8490-2 thru 8	- - 8490-6-65

* Model 18-5 Torch Handle not recommended for heating.
* Model 3000 Torch Handle is no longer available.



1/2" - 25

H-2030



5/16" - 27

B-15-3



23/64" - 26

W-2030



23/64" - 26

D-85



Positive Pressure "E" Mixers Using Alternate Fuels



5/16" - 27

H-16-E



23/64" - 26

E-43



1/2" - 25

E3-43/(F-43)



23/64" - 26

H-16-2E



1/2" - 25

E2-43

Positive Pressure "E" Type Mixers

NUMBER	MIXER	HANDLE	TUBES	BRAZING	PROPANE/PROPYLENE HEATING
9100312	E-43	43-2, 63-2, 18-5	8593	1390-4N thru 10N	1390-B and H
9100314	E2-43	43-2, 63-2, 18-5	T-43	1390-13N and 15N	1390-3H
9100316	E3-43/(F-43)	43-2	2393-1F thru 5F	-	2290-H and HPM (1 thru 5)
		63-2	2393-1F thru 5F	-	2290-H and HPM (1 thru 4)
		43-2, 63-2	T-43	1390-13N thru 80N	1390-3H
9100896	W-2030	2000,3000*	8593	1390-4N thru 10N	1390-B and H
9100894	H-2030	3000*	2393-1F thru 5F	-	2290-H and HPM (1 thru 5)
			T-43	1390-13N thru 80N	1390-3H
		2000	2393-1F thru 5F	-	2290-H and HPM (1 thru 5)
			T-43	1390-13N thru 15N	1390-3H
9100614	D-85	85	8593	1390-4N thru 10N	1390-B and H
9100096	H-16-E	16, 50-9, 19	D-50-C	1390-4N thru 10N	1390-B and H
			TH-50-2	8490-2N thru 8N	8490-6-65
9100787	H-16-2E	16, 50-9, 19	8593	1390-4N thru 10N	1390-B and H
9100070	B-15-3	15-3	D-50-C	1390-4N thru 8N	-
			TH-50-2	8490-4N thru 8N	8490-6-65

* Model 3000 Torch Handle is no longer available.



1/2" - 25

H-2030



5/16" - 27

B-15-3



23/64" - 26

W-2030



23/64" - 26

D-85

Acetylene Heating Tips and Assemblies







Tube and Tip Assembly



Tube, Tip and Mixer Assembly

HANDLES	MIXER	HEATING ASSEMBLY LESS MIXER	HEATING TIP PART NO.	HEATING ASSEMBLY WITH MIXER	HEATING ASSEMBLY PART NO.
43-2, 63-2*	E-43	J-63-1	1800710	H-63-1	1800810
	E-43	J-63-2	1800720	H-63-2	1800820
	E2-43	J-63-3	1800730	H-63-3	1800830
	E2-43	J-63-4	1800740	H-63-4	1800840
43-2	E3-43/F-43	J-43-5	1800117	H-43-5	1800115
85	D-85	J-63-1	1800710	H-85-1	1800500
	D-85	J-63-2	1800720	H-85-2	1800510
16	H-16-E	J-16-1	1800102	H-16-1	1800100
	H-16-E	J-16-2	1800112	H-16-2	1800110
	H-16-2E	J-63-1	1800710	NOT AVAILABLE AS AN ASSEMBLY	
	H-16-2E	J-63-2	1800720		
2000	W-2030	J-63-1	1800710		
	W-2030	J-63-2	1800720		
	H-2030	J-63-3	1800730	NOT AVAILABLE AS AN ASSEMBLY	
	H-2030	J-63-4	1800740		
3000*	H-2030	J-63-3	1800730		
	H-2030	J-63-4	1800740		
	H-2030	J-43-5	1800117		

* Model 3000 and 63-2 Torch Handles are no longer available.

"J" Series Heating Tip Information

TIP SIZE	ORIFICE SIZE	OXYGEN & ACETYLENE "EQUAL PRESSURE" MAX. PSI	OXYGEN & ACETYLENE "EQUAL PRESSURE" MIN.PSI	ACETYLENE FLOWS MAX. FLOW CFH	ACETYLENE FLOWS MIN. FLOW CFH	APPROXIMATE GROSS HEATING OUTPUT BTU/HR. MAX.	APPROXIMATE GROSS HEATING OUTPUT BTU/HR. MIN.
1	(6) #60 (.040)	6	2	35	20	51,500	29,500
2	(8) #60 (.040)	7	3	50*	30	74,000	44,000
3	(8) #56 (.0465)	8	4	80*	50*	118,000	74,000
4	(12) #56 (.0465)	15	8	140*	80*	206,500	118,000
5	(13) #52 (.0635)	OXY. 20 ACETY. 15	OXY. 12 ACETY. 8	300*	160*	442,500	236,000

1. Maximum Pressure - Neutral flame with no flame blow-off (highest stable flame). 2. Minimum Pressure - Neutral flame with no flame pop-out lowest stable flame). 3. Acetylene flows shown - Oxygen flow theoretically 1.1 of acetylene flow for neutral flame. 4. Heat output calculated with 1475 BTU/cu.ft. heating 3/8" I.D. hose recommended for tip sizes 3, 4 and 5.

*Exceeds the capacity of one standard 320 CF acetylene cylinder (1/7 rule).



Oxy-Acetylene RBA Flame Cleaning Heads

PART NO.	MODEL NO.	PRESSURE PSIG OXYGEN	PRESSURE PSIG ACET.	FLOW C.F.H. OXYGEN	FLOW C.F.H. ACET.
1800440	RBA-2	6-10	6-10	29-40	25-35
1800450	RBA-4	10-12	10-12	55-59	49-53
1800460	RBA-6	12-14	12-14	63-66	50-58

Use Torch Handle 43-2 or 63-2* with E2-43 Mixer or Model 2000/3000* Handle and select Model 2393 tip tube from page 23.

* Model 3000 and 63-2 Torch Handles are no longer available.

Acetylene Welding, Brazing and Heating Tips



23A90
23/64" - 26



5090
5/16" - 27



1390
3/8" - 24



8490
1/4" - 27



1390-HA
3/8" - 24



8490-6-65
1/4" - 27

23A90 PART NO.	1390 PART NO.	5090 PART NO.	8490 PART NO.	TIP SIZE	METAL THICKNESS INCHES	OXYGEN PSIG	ACETYLENE PSIG
1600840	1600020	1601690	-	0	1/64	1	1
1600850	1600030	1601700	-	1	1/32	1	1
1600860	1600040	1601710	1601990	2	3/64	2	2
1600870	1600050	1601730	-	3	1/16	3	3
1600880	1600060	1601740	1602010	4	3/32	4	4
1600890	1600070	1601760	-	5	1/8	5	5
1600900	1600080	1601780	1602030	6	3/16	6	6
1600910	1600090	1601800	-	7	1/4	7	7
1600920	1600100	1601810	1602060	8	5/16	8	8
1600930	1600140	1601830	-	9	3/8	9	9
1600940	1600150	1601840	-	10	1/2	10	10
1600960	1600160	-	-	13	3/4	13	13
1600970	-	-	-	15	1	15	15
-	1800025	-	-	HA	HEATING	5	5
-	-	-	1602040	6-65	HEATING	8	8

Tip Tubes for Separable Welding, Brazing and Heating Tips

TORCH HANDLE	MIXER	TIP TUBE	TIP
43-2,63-2*,18-5	E-43 E2-43	8593 T-43	1390-0 THRU 10,HA 1390-13
85	D-85	8593	1390-0-10,HA
16,19,50-9	H-16-2E H-16-E H-16-E	8593 TH-50-2 D-50-C	1390-0 THRU 10,HA 8490-2 THRU 8,6-65 1390-0 THRU 10,HA
15	B-15-3 B-15-3	TH-50-2 D-50-C	8490-2 THRU 8,6-65 1390-0 THRU 8
2000,3000*	W-2030 H-2030	8593 T-43	1390-1 THRU 10,HA 1390-13

* Model 3000 and 63-2 Torch Handles are no longer available.

TH-50-2
P/N 1601590
Tube Length: 5-1/2"

P/N 1601596
Tube Length: 7-1/4"





D-50-C
P/N 9100379
LENGTH: 4"

D-50-CXL
P/N 9100379
LENGTH: 7"



8593
P/N 9003678
LENGTH: 4"



8493-N
P/N 9003656
LENGTH: 5"



T-43
P/N 9100322
LENGTH: 9.8"

See page 16, 17 and 20 for appropriate mixer usage.

Low Pressure "F" Injector Mixers using Alternate Fuels



5/16" - 27

H-16-S



1/2" - 25

B-43-N



1/4" - 32

B-15-3S

"F" or Low Pressure Injector Type Mixers

PART NUMBER	MIXER	FITS HANDLE	TIP TUBES	NATURAL GAS/ PROPANE/ PROPYLENE BRAZING TIPS	HEATING TIPS
9100306	B-43-N	43-2, 63-2	2393-1-5 T-43	 1390-20N, 30N, 80N	2290 1 thru 3H & HPM 1390-3H
9100304	B-43-15	43-2, 63-2	T-43	1390-13N, 15N	-
9100302	B-43-10	43-2, 63-2, 18-5	8593	1390-10N	1390-B, H
9100298	B-43-8	43-2, 63-2, 18-5	8593	1390-8N	-
9100296	B-43-7	43-2, 63-2, 18-5	8593	1390-7N	-
9100294	B-43-6	43-2, 63-2, 18-5	8593	1390-6N	-
9100292	B-43-5	43-2, 63-2, 18-5	8593	1390-5N	-
9100290	B-43-4	43-2, 63-2, 18-5	8593	1390-4N	-
9100100	H-16-S	16, 50-10, 19	D-50-C TH-50-2	1390-4N, 10N 8490-4N, 8N	1390-H, B 8490-6-65
9100072	B-15-3S	15-3	8493-N	8490-4N, 8N	8490-6-65

NOTE: Not for use with acetylene. Tip tubes shown on page 19 & 23.

Alternate Fuel Tips
Brazing and Light Heating Tips for Propane and Natural Gas

Brazing Tips



3/8" - 24
1390-N



1/4" - 27
8490-N

Low Pressure "F" Injector Brazing Equipment

HEAVY DUTY* HANDLES	MIXER	PART NO.	TIP TUBES	1390-N TIPS
43-2, 63-2 & 18	B-43-4	9100290	8593	4N
	B-43-5	9100292		5N
	B-43-6	9100294		6N
	B-43-7	9100296		7N
	B-43-8	9100298		8N
	B-43-10	9100302		10N
	B-43-15	9100304		13N, 15N
	B-43-N	9100306	T-43	20N, 30N, 80N

*For other handle, mixer and tip tube combinations, see page 20.

1390-N/8490-N Tip Chart for Low Pressure "F" Injector Equipment

1390-N PART NO.	8490-N PART NO.	TIP SIZE	OXYGEN PSIG	FUEL GAS 4oz. TO 2 PSIG
1600180	-	2N	15	
1600190	-	3N	15	
1600200	1602090	4N	20	
1600210	1602100	5N	25	
1600220	1602110	6N	25	
1600230	1602120	7N	30	
1600240	1602130	8N	30	
1600250	-	9N	35	
1600260	-	10N	40	
1600270	-	13N	40	4OZ. TO 2 PSIG
1600280	-	15N	45	
1600290	-	20N	50	
1600300	-	30N	50	
1600310	-	80N	60	
1800020	-	1390-H	50	
1800098	-	1390-3H	50	
1800015	-	1390-B	50	
-	1602040	8490-6-65	50	

NOTE: For proper tip tube selection, see Mixers, page 20.

Heating Tips



1/2" - 25
1390-3H



3/8" - 24
1390-H



3/8" - 24
1390-B



1/4" - 27
8490-6-65



3/8" - 24
1390-B



3/8" - 24
1390-H

1390 Light Heating Tip Chart for Positive Pressure "E" Equipment

TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	OXYGEN PSIG	FUEL GAS PSIG	BTUS/HR. 1000'S
	E-43, D-85, H-16		PRO SERIES W2030 MIXER		
1390-B	5-25	2-12	5-25	5-7	30-100
1390-H	5-25	2-12	5-25	5-7	30-100

Brazing Tip Chart for Positive Pressure "E" Equipment

TIP SERIES AND SIZE	OXYGEN PSIG	FUEL GAS PSIG	OXYGEN PSIG	FUEL GAS PSIG
1390-N 8490-N	E-43, D-85, H-16-E, AND H-16-2E MIXERS		PRO SERIES W-2030 MIXER	
4N	2	1	4	1
5N	2	1	4	1
6N	2	2	5	1
7N	3	2	5	1
8N	3	2	5	1
9N	4	3	6	1
10N	4	3	6	1
	E2-43 AND E3-43 (F-43)		PRO SERIES H-2030 MIXER	
13N	7	4	5	1
15N	12	8	6	1
20N	15	12	23	4
30N	18	14	26	5
810N	20	16	30	5

Alternate Fuel Heating Assemblies



The Harris 89-3 heating and soldering torch is designed to operate with natural gas (4oz. to 2 lbs.) or propane in combination with 50 P.S.I. to 100 P.S.I. of compressed air only. The 89-3 is completely automatic. Once adjusted to the proper flame, the pilot light can be retained during down time and full flame returned instantly by pressing the hand lever. The pilot light can be enlarged to a full "smoothing on" secondary flame when used for soldering. The tip can be positioned in any direction.

APPLICATIONS

- Large area soft soldering
- Preheating castings for welding
- Heating pipes in chemical plants
- Mold drying
- Metal cleaning (Brewery Vats, Rubber Molds, etc.)
- Burning plant
- Heating forming dies prior to hard facing
- Stress relieving die shoes
- For use with compressed air only
- Max. BTU output
  130,000 BTU with propane
  85,000 BTU with natural gas



81-12 Tip

89-3 Heating & Soldering Torch

MODEL NO.	PART NO.
89-3	1400382

*Tip not included with torch

81-12 Heating Tip

MODEL NO.	PART NO.
81-12	1601950

- Bell-shaped design has wide flame adjustment eliminating the need for numerous sizes.
- Stainless steel construction for long life and heat resistance.



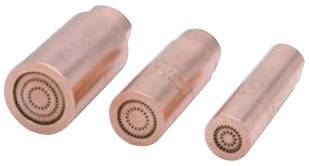
K - 43 Heating Assemblies*
Oxy-Propane / Propylene Based Fuel, Oxy-Natural Gas 10 PSI or More**

PART NO.	MODEL NO.	INCLUDES	TUBE LENGTH	TOTAL LENGTH
1801350	K-43-1	43-2 HANDLE, E3-43/F-43 MIXER AND 2393-1F TUBE	36"	46"
1801360	K-43-2	43-2 HANDLE, E3-43/F-43 MIXER AND 2393-2F TUBE	28"	38"
1801370	K-43-3	43-2 HANDLE, E3-43/F-43 MIXER AND 2393-3F TUBE	16"	16"
1801380	K-43-4	43-2 HANDLE, E3-43/F-43 MIXER AND 2393-4F TUBE	10"	20"

*Assembly does not include heating tip
** For fuel gas pressures of 10 PSIG or less order B-43-N MIXER (PN 9100306), Model 43-2 handle (PN1401150) and select 2393 Tip Tube from page 23. Limited to tip sizes 1-3 H or HPM.

Alternate Fuel Heating Tips

2290-HPM-Heating Tips



MODEL NO.	PART NO.
2290-1HPM	1800136
2290-2HPM	1800146
2290-3HPM	1800156
2290-4HPM	1800166
2290-5HPM	1800176

2290-H-Heating Tips



MODEL NO.	PART NO.
2290-1H	1800130
2290-2H	1800140
2290-3H	1800150
2290-4H	1800160
2290-5H	1800170

2290 - H and HPM Performance Data Chart

2290-H AND HPM	OXYGEN PSIG	OXYGEN SCFH	FUEL GAS PSIG	FUEL GAS SCFH	OXYGEN PSIG	OXYGEN SCFH	FUEL GAS PSIG	FUEL GAS SCFH	PROPANE	PROPYLENE	MAPP®	NATURAL GAS
	CLASSIC E3-43/(F43) MIXER				PRO SERIES H-2030 MIXER				BTU/HR. RATING			
TIP SIZE #1	10	160	4	40	15	160	3	40	103,000	95,000	96,000	65,000
	25	320	12	80	30	320	6	80	205,000	190,000	192,000	130,000
TIP SIZE #2	15	220	7	55	15	220	5	55	141,000	130,000	132,000	90,000
	45	520	22	130	40	520	10	130	333,000	308,000	312,000	212,000
TIP SIZE #3	25	340	8	85	20	340	7	85	218,000	201,000	204,000	139,000
	70	920	25	230	80	920	13	230	590,000	545,000	552,000	375,000
TIP SIZE #4	50	640	10	160	50	640	7	160	410,000	379,000	384,000	216,000
	110	1300	30	325	100	1200	21	325	833,000	770,000	780,000	530,000
TIP SIZE #5	60	720	14	180	60	720	8	180	461,000	427,000	432,000	293,000
	135	1600	40	400	150	1600	23	400	1,025,000	950,000	960,000	652,000

NOTES: (1) For Maximum Flow and BTU output - use 3/8" Hose.
(2) To calculate heat output for Propylene use 2375 BTU/Cu. FT. X Flow CFH.
(3) On continuous duty withdrawal manifolding of cylinders may be required.

2393 Tip Tube (1/2" - 25(M) X 1/2" - 25(M)



Multiple arrangements of 2290-H Heating Tips can be assembled using Harris coupling No. 2327, nipple No. 2357 and standard 1/4" pipe fittings when wider bands of heat are necessary. Capacity of K-43 heating torch is 5 #1-H tips. Use coupling No. 2543-3 to couple 2393 Tip Tubes for extended reach.

2393 Heating Tip Tube Chart

PART NO.	TUBE SIZE	LENGTH
1800200	2393-1F	36"
1800210	2393-2F	28"
1800211	2393-2F	28" Straight
1800220	2393-3F	16"
1800221	2393-3F	16" Straight
1800230	2393-4F	10 1/2"
1800231	2393-4F	10 1/2" Straight
1800240	2393-5F	36" Straight

NOTE: For extended tip life, use Tip Adapter 2357-3 (9000738).



2357-3
9000738



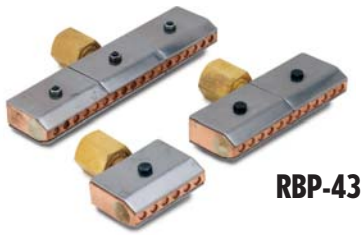
2357
9000734



2327
9000720



2543-3
8800584



RBP-43 TIPS

RBP Oxy-Propane, Propylene Based & Natural Gas Flame Cleaning Heads

PART NO.	TUBE SIZE	OXYGEN PRESSURE PER SQ. IN.	PROPANE PRESSURE PER SQ. IN.	OXYGEN CUBIC FEET PER HR.	PROPANE CUBIC FEET PER HR.
1800470	RBP-43-2	5-10	4-8	90-120	27-38
1800480	RBP-43-4	10-22	6-12	225-300	65-88
1800490	RBP-43-6	25-55	10-20	490-640	106-146

*Use 43-2 or 2000 handle and 2393 Tip Tubes.

Model 62-4E, F Hand Cutting Torch

- Cuts to 12"
- Solid forged head
- Triangular tube design
- Brazed connections
- Equipped with FlashGuard® check valves
- U.L. listed



Positive Pressure "E" Torches (For Acetylene and Alternate Fuels)

PART NO.	MODEL NO.	HEAD	LENGTH**	WEIGHT
1002350	62-4AE	70°	18"	3.0 lbs.
1002430	62-4E	90°	18"	3.0 lbs.
1002464	62-4AEL	70°	21"	3.1 lbs.
1002440	62-4EL	90°	21"	3.1 lbs.
1002351	62-4AEL	70°	36"	3.8 lbs.
1002441	62-4EL	90°	36"	3.8 lbs.

Low Pressure "F" Injector Torches (For Maximum Performance with Alternate Fuels*)

PART NO.	MODEL NO.	HEAD	LENGTH**	WEIGHT
1002360	62-4AF	70°	18"	3.0 lbs
1002450	62-4F	90°	18"	3.0 lbs
1002460	62-4BF	180°	18"	3.0 lbs
1002370	62-4AFL	70°	21"	3.1 lbs
1002470	62-4FL	90°	21"	3.1 lbs
1002390	62-4AFL	70°	27"	3.5 lbs
1002449	62-4FL	90°	27"	3.5 lbs
1002400	62-4AFL	70°	36"	3.8 lbs
1002480	62-4FL	90°	36"	3.8 lbs
1002426	62-4BFL	180°	36"	3.8 lbs
1002411	62-4AFL	70°	48"	4.4 lbs
1002481	62-4FL	90°	48"	4.4 lbs
1002421	62-4BFL	180°	48"	4.4 lbs

*Not for use with Acetylene

** NOTE: Other Lengths Available on Special Order



Model 880 E, F Hand Cutting Torch

- Cuts to 8" with acetylene
- Cuts to 6" with alternate fuels
- Unique patented head mix system
- Stainless steel cutting oxygen lever with locking clip
- Protected internal tip nut threads
- Ease-on cutting oxygen valve
- Solid forged head
- In-line tube design
- Equipped with Flash Guard® check valves

Low Pressure "F" Injector Torch (for Maximum Performance with Alternate Fuels*)

PART NO.	MODEL NO.	HEAD	LENGTH	WEIGHT
1001501	880-F	90°	19"	2lbs., 6oz.

*Not for use with Acetylene

Positive Pressure "E" Torches For Acetylene

PART NO.	MODEL NO.	HEAD	LENGTH	WEIGHT
1001500	880	90°	19"	2lbs., 6oz.



Positive Pressure "E" Torches (For Acetylene and Alternate Fuels)

PART NO.	MODEL NO.	HEAD	LENGTH	WEIGHT
1001204	42-4E	90°	17"	2.4lbs
1001206	42-4AE	70°	17"	2.4lbs
1001218	42-4EL-20	90°	20"	2.5lbs
1001208	42-4AEL-20	70°	20"	2.5lbs

Model 42-4E, F Hand Cutting Torch

- Cuts to 6"
- Lightweight
- Solid forged head
- Triangular tube design
- Brazed tube connections
- Equipped with Flash Guard® check valves
- U.L. listed

Low Pressure "F" Injector Torches (For Maximum Performance with Alternate Fuels*)

PART NO.	MODEL NO.	HEAD	LENGTH	WEIGHT
1001210	42-4	90°	17"	2.4lbs
1001212	42-4A	70°	17"	2.4lbs
1001214	42-4L	90°	20"	2.5lbs
1001216	42-4AL	70°	20"	2.5lbs

*Not for use with Acetylene

Model 136 Foundry Hand Cutting Torch

- Cuts to 36"
- Stainless steel head and tubes
- Triangular tube design
- Tip mix torch for propane or natural gas
- Requires 3/8" hose
- Internal tip nut

MODEL NO.	HEAD ANGLE	LENGTH
136-1A-21	70°	21"
136-1-21	90°	21"
136-1B-21	180°	21"
136-1AL-36	70°	36"
136-1L-36	90°	36"
136-1BL-36	180°	36"
136-1AL-48	70°	48"
136-1L-48	90°	48"
136-1BL-48	180°	48"

*The 136-1 Heavy Duty Torch is available with any length or head angle on special order.





16800 Series One-Piece Acetylene Tip Chart

PART NO.	TIP SIZE	PLATE THICKNESS INCHES	OPERATING PRESSURE PSIG	OXYGEN FUEL GAS CU.FT./HR.
168-12	12	14-16	Fuel Gas 6 Oxygen 25 to 30	100 1500 to 1700
168-13	13	18-22	Fuel Gas 8 Oxygen 25 to 35	135 1850 to 2400
168-15	15	30-36	Fuel Gas 8 Oxygen 25 to 40	200 3100 to 4150

13600 Series One-Piece Oxy-Propane, Natural Gas Tip Chart

PART NO.	TIP SIZE	PLATE THICKNESS INCHES	OPERATING PRESSURE PSIG	OXYGEN FUEL GAS CU.FT./HR.
136-11	11	12-19	Fuel Gas 8 Oxygen 60 to 80	60 to 120 950 to 2900
136-13	13	19-28	Fuel Gas Min. 10 Oxygen 60 to 80	60 to 120 2100 to 4000
136-15	15	28-36	Fuel Gas Min. 15 Oxygen 80 to 100	80 to 150 2500 to 4800

For proper cutting performance the following must be adhered to:

- Maximum length of 3/8" hose is 25 feet. For longer runs, use 1/2" hose with a 25ft. 3/8" whip hose.
- Oxygen supply and oxygen regulator must be capable of flows shown on cutting tip chart.

Acetylene Cutting Tips

For use with Positive Pressure "E" Torches



Oxy-Acetylene One Piece 6290 General Preheat Tip Chart

6290 GENERAL PREHEAT PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	CUTTING ACETYLENE PSIG	ORIFICE DRILL SIZE
1500810	Light Gauge to 3/16	000	15-20	5-15	#68
1500820	3/16-3/8	00	20-25	5-15	#64
1500830	3/8-5/8	0	35-40	5-15	#60
1500840	5/8-1	1	35-40	5-15	#56
1500850	1-2	2	40-45	5-15	#52*
1500860	2-3	3	45-50	5-15	#48
1500870	3-6	4	50-75	10-15	#42



Oxy-Acetylene One Piece 6290-S Heavy Preheat Tip Chart

6290-S HEAVY PREHEAT PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	ACETYLENE PSIG	CUTTING ORIFICE DRILL SIZE
1501470	To 5/8-1	1S	35-40	5-15	#56
1501480	1-2	2S	40-45	5-15	#52*
1501490	2-3	3S	45-50	5-15	#48
1501500	3-6	4S**	50-75	5-15	#42
1501510	6-8	5S	65-80	5-15	#35
1501520	8-12	6S	70-90	10-15	#30

*(2S-#51) ** To provide required gas flow, use 3/8" ID hose for size 4 and larger.



Oxy-Acetylene Two Piece 6290-AC Heavy Preheat Tip Chart

6290-AC PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	ACETYLENE PSIG	CUTTING ORIFICE DRILL SIZE
1502170	3/16-3/8	00AC	15-30	5-15	#64
1502171	3/8-5/8	0AC	20-35	5-15	#60
1502172	5/8-1	1AC	30-50	5-15	#56
1502173	1-2	2AC	40-65	5-15	#53
1502174	2-4	3AC	40-65	5-15	#52
1502175	4-7	4AC**	50-80	5-15	#42
1502176	7-10	5AC	65-80	5-15	#35
1502177	10-12	6AC	70-95	5-15	#31

** To provide required gas flow, use 3/8" ID hose for size 4 and larger.



3690 Acetylene Tip Chart

PART NO.	TIP SIZE	METAL THICKNESS INCHES	OXYGEN PSIG	ACETYLENE PSIG	WHERE USED
1500650	0	1/4-1/2	20-25	5	36-2
1500660	1	1/2-1	25-45	5	
1500670	2	1-3	40-60	5	



6290-G 6290-HA 6290-R

6290 Acetylene Specialty Tips

PART NO.	TIP	APPLICATION	OXYGEN PSIG	ACETYLENE PSIG	WHERE USED
1500910	6290-1G	Gouging 1/8-1/4" Wide	35	5-15	Recommended Only for "E" Straight Torches and 2101 and 3101 Cutting Attachments
1500920	6290-2G	Gouging 3/16-3/8" Wide	50	5-15	
1500930	6290-3G	Gouging 1/4-1/2" Wide	50	5-15	
1501290	6290-R	Rivet Cutting	45	5-15	
1800495	6290-1HA	Heating	12	12	
1800496	6290-2HA	Heating	14	14	

NOTE: 6290-HA cannot be used on 2101 and 3101 Cutting Attachments.
Cleaning Instructions: Use Tip Cleaner C-9 (P/N 9000156).



Alternate Fuel Cutting Tips
For use with Positive Pressure "E" Torches

General Preheat 6290-N & NX Oxy-Propane, Natural Gas Tip Chart



Plated Shell

6290-N PART NO.	6290-NX PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	CUTTING ORIFICE DRILL SIZE
1500970	1501200	Light Gauge To 3/16	000N& 000NX	15-30	5-15	#68
-	1501210	3/16-3/8	00NX	20-30	5-15	#64
-	1501220	3/8-5/8	0NX	30-40	5-15	#60
-	1501230	5/8-1	1NX	35-50	5-15	#56
-	1501240	1-2	2NX	40-55	5-15	#52
-	1501250	2-3	3NX	45-60	5-15	#48
-	1501260	3-6	4NX	50-75	5-15	#42
-	1501270	6-8	5NX	65-80	5-15	#35
-	1501280	8-12	6NX	70-90	5-15	#30

Heavy Preheat 6290-NFF Oxy-Propane, Natural Gas Tip Chart



Plated Shell

6290-NFF PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	CUTTING ORIFICE DRILL SIZE
1501020	To 5/8	1NFF	20-30	5-15	#56
1501030	5/8-2	2NFF	30-55	5-15	#53
1501040	2-4	3NFF	45-65	5-15	#47
1501050	4-7	4NFF	55-75	5-15	#42
1051060	7-10	5NFF	60-80	5-15	#35
1051070	10-12	6NFF	80-90	5-15	#31

6290-NXM Oxy-MAPP® and 6290-NXP Oxy-Propylene Tip Chart



Plated Shell

6290-NXM PART NO.	6290-NXP PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	CUTTING ORIFICE DRILL SIZE
1501530	1502150	Light Gauge To 3/16	000NXM/NXP	15-30	5-15	#68
1501540	1502152	3/16-3/8	00NXM/NXP	20-30	5-15	#64
1501550	1502154	3/8-5/8	0NXM/NXP	30-40	5-15	#60
1501560	1502156	5/8-1	1NXM/NXP	35-50	5-15	#56
1501570	1502158	1-2	2NXM/NXP	40-55	5-15	#52
1501580	1502160	2-3	3NXM/NXP	45-60	5-15	#48
1501590	1502162	3-6	4NXM/NXP	50-75	5-15	#42
1501600	1502164	6-8	5NXM/NXP	65-80	5-15	#35
1501610	1502166	8-12	6NXM/NXP	70-90	5-15	#30

3690-P Oxy-Propane, Natural Gas Tip Chart



Unplated Shell

PART NO.	TIP SIZE	METAL THICKNESS INCHES	OXYGEN PSIG	FUEL GAS PSIG	WHERE USED
1500600	00P	To 1/4	15-30	5	36 Cutting Attachments (No Longer Available)
1500610	0P	1/4-1/2	20-25	5	
1500620	1P	1/2-1	25-45	5	

CLEANING INSTRUCTIONS: The wire brush included with tip cleaner E-9 (P/N 9000160) should be used for cleaning preheat slots and for removing spatter from the tip face. When cleaning the preheat slots, do not brush across the slots as this motion can damage the slots. Always brush along the length of the slot to remove dirt or spatter.

Alternate Fuel Cutting Tips

For Use With Low Pressure Injector "F" Torches



Plated Shell

General Preheat 6290-N & NX Oxy-Propane, Natural Gas Tip Chart

6290-N PART NO.	6290-NX PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	CUTTING ORIFICE DRILL SIZE
1500970	1501200	Light Gauge To 3/16	000N& 000NX	15-30	4oz. TO 2 PSIG	#68
-	1501210	3/16-3/8	00NX	20-30	4oz. TO 2 PSIG	#64
-	1501220	3/8-5/8	0NX	30-40	4oz. TO 2 PSIG	#60
-	1501230	5/8-1	1NX	35-50	4oz. TO 2 PSIG	#56
-	1501240	1-2	2NX	40-55	4oz. TO 2 PSIG	#52
-	1501250	2-3	3NX	45-60	4oz. TO 2 PSIG	#48
-	1501260	3-6	4NX	50-75	4oz. TO 2 PSIG	#42
-	1501270	6-8	5NX	65-80	4oz. TO 2 PSIG	#35
-	1501280	8-12	6NX	70-90	4oz. TO 2 PSIG	#30



Plated Shell

Heavy Preheat 6290-NFF Oxy-Propane, Natural Gas Tip Chart

6290-NFF PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	CUTTING ORIFICE DRILL SIZE
1501020	To 5/8	1NFF	20-30	4oz. TO 2 PSIG	#56
1501030	5/8-2	2NFF	30-55	4oz. TO 2 PSIG	#53
1501040	2-4	3NFF	45-65	4oz. TO 2 PSIG	#47
1501050	4-7	4NFF	55-75	4oz. TO 2 PSIG	#42
1051060	7-10	5NFF	60-80	4oz. TO 2 PSIG	#35
1051070	10-12	6NFF	80-90	4oz. TO 2 PSIG	#31



Plated Shell

6290-NXM Oxy-MAPP® and 6290-NXP Oxy-Propylene Tip Chart

6290-NXM PART NO.	6290-NXP PART NO.	PLATE THICKNESS INCHES	TIP SIZE	OXYGEN PSIG	FUEL GAS PSIG	CUTTING ORIFICE DRILL SIZE
1501530	1502150	Light Gauge To 3/16	000NXM/NXP	15-30	4oz. TO 2 PSIG	#68
1501540	1502152	3/16-3/8	00NXM/NXP	20-30	4oz. TO 2 PSIG	#64
1501550	1502154	3/8-5/8	0NXM/NXP	30-40	4oz. TO 2 PSIG	#60
1501560	1502156	5/8-1	1NXM/NXP	35-50	4oz. TO 2 PSIG	#56
1501570	1502158	1-2	2NXM/NXP	40-55	4oz. TO 2 PSIG	#52
1501580	1502160	2-3	3NXM/NXP	45-60	4oz. TO 2 PSIG	#48
1501590	1502162	3-6	4NXM/NXP	50-75	4oz. TO 2 PSIG	#42
1501600	1502164	6-8	5NXM/NXP	65-80	4oz. TO 2 PSIG	#35
1501610	1502166	8-12	6NXM/NXP	70-90	4oz. TO 2 PSIG	#30



Unplated Shell

3690-P Oxy-Propane, Natural Gas Tip Chart

PART NO.	TIP SIZE	METAL THICKNESS INCHES	OXYGEN PSIG	FUEL GAS PSIG	WHERE USED
1500600	00P	To 1/4	15-30	4oz. TO 2 PSIG	36 Cutting Attachments (No Longer Available)
1500610	0P	1/4-1/2	20-25	4oz. TO 2 PSIG	
1500620	1P	1/2-1	25-45	4oz. TO 2 PSIG	

CLEANING INSTRUCTIONS: The wire brush included with tip cleaner E-9 (P/N 9000160) should be used for cleaning preheat slots and for removing spatter from the tip face. When cleaning the preheat slots, do not brush across the slots as this motion can damage the slots. Always brush along the length of the slot to remove dirt or spatter.

Alternate Fuel Specialty Tips
For Use With Low Pressure Injector "F" Torches


6290-NFFL


6290-GG


6290-NFW


6290-2NFFR


H-62-P

6290 Oxy-Propane, Propylene & Natural Gas Specialty Tips

PART NO.	TIP SIZE	APPLICATION	OXYGEN PSIG	FUEL GAS PSIG	WHERE USED
1500940	6290-1GG	GOUGING 1/8-1/4" WIDE	35	4OZ. TO 2 PSIG	
1500950	6290-2GG	GOUGING 3/16-3/8" WIDE	50	4OZ. TO 2 PSIG	
1500960	6290-3GG	GOUGING 1/4-1/2" WIDE	50	4OZ. TO 2 PSIG	
9100516	H-62-1P	HEATING*	45	4OZ. TO 2 PSIG	
9100518	H-62-2P	HEATING*	50	4OZ. TO 2 PSIG	
9100520	H-62-3P	HEATING*	55	4OZ. TO 2 PSIG	RECOMMENDED ONLY FOR STRAIGHT CUTTING TORCHES
1501090	6290-2NFFR	RIVET CUTTING*	45	4OZ. TO 2 PSIG	
1501100	6290-NFW	RIVET WASHING	50	4OZ. TO 2 PSIG	
1501110	6290-8NFW	RIVET WASHING	50	4OZ. TO 2 PSIG	
1501055	6290-1NFFL	8" CUTTING TIP	80	4OZ. TO 2 PSIG	
1501054	6290-0NFFL	8" CUTTING TIP	80	4OZ. TO 2 PSIG	
1501053	6290-2NFFL	8" CUTTING TIP	80	4OZ. TO 2 PSIG	
1501051	6290-4NFFL	8" CUTTING TIP	80	4OZ. TO 2 PSIG	
1501052	6290-6NFFL	8" CUTTING TIP	80	4OZ. TO 2 PSIG	

*NOTE: Heating Tips and Rivet Cutting Tips cannot be used on Pro Series Cutting Attachments or 880 Torch.



For Use With Positive Pressure "E" Torches
6290 Oxy-Propane, Propylene & Natural Gas Specialty Tips

PART NO.	TIP SIZE	APPLICATION	OXYGEN PSIG	FUEL GAS PSIG	WHERE USED
1500940	6290-1GG	GOUGING 1/8-1/4" WIDE	35	5-15	
1500950	6290-2GG	GOUGING 3/16-3/8" WIDE	50	5-15	
1500960	6290-3GG	GOUGING 1/4-1/2" WIDE	50	5-15	
9100516	H-62-1P	HEATING*	45	5-15	
9100518	H-62-2P	HEATING*	50	5-15	
9100520	H-62-3P	HEATING*	55	5-15	
1501090	6290-2NFFR	RIVET CUTTING*	45	5-15	RECOMMENDED ONLY FOR STRAIGHT CUTTING TORCHES
1501100	6290-NFW	RIVET WASHING	50	5-15	
1501110	6290-8NFW	RIVET WASHING	50	5-15	
1501055	6290-1NFFL	8" CUTTING TIP	80	5-15	
1501054	6290-0NFFL	8" CUTTING TIP	80	5-15	
1501053	6290-2NFFL	8" CUTTING TIP	80	5-15	
1501051	6290-4NFFL	8" CUTTING TIP	80	5-15	
1501052	6290-6NFFL	8" CUTTING TIP	80	5-15	

*NOTE: Heating Tips and Rivet Cutting Tips cannot be used on Pro Series Cutting Attachments or 880 Torch.



Model 98-6 Machine Torch

Harris machine cutting torches are designed to handle all types of machine cutting applications. Rugged and dependable, these torches provide up to 15" cutting capacity. The 98-6 series torches are available in two-hose and three hose design for all fuel gases at pressures as low as 4oz.

- Solid head for maximum strength
- Standard 1 3/8" diameter barrel
- Use with 6290 High Speed Machine Cutting Tips
- Equipped with Flash Guard® check valves
- U.L. Listed
- Rack supplied is 32 pitch (10.12 teeth/in.)



Positive Pressure "E" Type Torches for Acetylene and Alternate Fuels

PART NO.	MODEL NO.	STYLE	BARREL	WEIGHT
1101425	98-6ER-32	2 HOSE & RACK	10"	3.3 lbs.
1101435	98-6TER-32	3 HOSE & RACK	10"	3.3 lbs.
1101445	98-6TAER-32	3 HOSE & RACK	18"	4.2 lbs.

Low Pressure "F" Injector Type Torches for Maximum Performance with Alternate Fuels**

PART NO.	MODEL NO.	STYLE	BARREL	WEIGHT
1101455	98-6FR-32	2 HOSE & RACK	10"	3.3 lbs.
1101465	98-6TFR-32	3 HOSE & RACK	10"	3.3 lbs.
1101475	98-6TAFR-32	3 HOSE & RACK	18"	4.2 lbs.
1100231	98-3TFR-32	3 HOSE & RACK	5 1/2"	2.2 lbs.

**Not for use with Acetylene

98-6 Three Hose Torches

- Quick opening cutting oxygen valve for immediate full flow
- Separate preheat and cutting oxygen valves for high and low preheat control.
- Cutting capacity to 15"
- 98-6 Torches supplied with check valves on preheat oxygen and preheat fuel

98-6 Two Hose Torches:

- Cutting capacity to 8"
- 98-6 Torches supplied with check valves on preheat oxygen and preheat fuel

98-3 Torches:

- Three-hose valveless design for pipe beveling, multiple beveling and similar applications.
- Cutting capacity to 15"

Machine Cutting Accessories

Model S-98-C (P/N 1200080)
Adjustable Tip Adapter

Adjust tip to any angle without moving the torches. with 6290 tips. Use with any 6290 tips (not included).



Model BV-98-2 (P/N 1200124)
Beveling Head

Increases speed of quality bevel cuts. Preheat tip swivels for either left or right travel. Equipped with 1390-3H heating tip. Use with natural gas or propane 6290 tips (not included).



Model TH-98 (P/N 1200090)
Adjustable Twin Tip Holder

For making two cuts simultaneously with one torch. Adjusts from 1 1/2" to 12" width. Use with any 6290 tips (not included).



Model 80 Jumbo Machine Cutting Torch

Harris 80 "Jumbo" machine cutting torch has a recommended cutting range of 8" to 30". It operates on a fuel pressure of 10-15 PSIG using oxy-propane/propylene based fuels or oxy-natural gas.

- Solid head for maximum strength
- Standard 1 3/8" diameter barrel
- A 1/2" I.D. hose with Class "C" connections (7/8-14") is required for the cutting oxygen.



PART NO.	MODEL NO.	STYLE	BARREL
1100010	80	3 HOSE	20"
1100030	80-R*	3 HOSE & RACK	20"

*Rack supplied is 32 pitch (10.12 teeth/in.) unless 24 pitch (7.65 teeth/in.) is specified.



8090 Machine Cutting Tips

PART NO.	TIP NO.	METAL THICKNESS INCHES	SPEED IN./MIIN.	OPERATING PRESSURES PSIG	ORIFICE DIA INCHES	GAS FLOW CU.FT./HR.
1501910 1501920	0 1	8-12	6-3	CUT. OXYGEN - 30-60 P.H.OXYGEN - 20-40 PROPANE - 10-15	5/32 3/16 -	600-1500 200-375 55-105
1501920 1501930	1 2	12-16	6-3	CUT. OXYGEN - 30-60 P.H.OXYGEN - 25-50 PROPANE - 10-20	3/16 1/4 -	800-2500 250-425 56-125
1501930 1501940	2 3	16-20	4-2	CUT. OXYGEN - 25-50 P.H.OXYGEN - 25-50 PROPANE - 10-20	1/4 9/32 -	1900-3600 250-425 55-125
1501940 1501950	3 4	20-25	3-1 1/2	CUT. OXYGEN - 25-50 P.H.OXYGEN - 25-50 PROPANE - 10-20	9/32 5/16 -	1900-3600 250-425 55-125
1501950 1501960	4 4 1/2	OVER 25	3-1	CUT. OXYGEN - 40-90 P.H.OXYGEN - 25-50 PROPANE - 10-20	5/16 11/32 -	2100-4400 250-425 55-125



Machine Cutting Tips

VVC Plated Shell



- Minimizes kerf
- Increased cutting speeds, reduces heat input
- High quality machine cuts, reduces afterwork
- Used with low cost fuel gases

VVCU Unplated Shell



6290-VVC High Speed Oxy- Propane/Natural Gas Cutting Tip Chart-Plated Shell (.088" Cup Depth)

PART NO.	TIP SIZE	PLATE THICKNESS INCHES	CUTTING SPEED I.P.M.	CUTTING OXYGEN PSIG	PREHEAT OXYGEN PSIG HIGH	PREHEAT OXYGEN PSIG LOW	PREHEAT FUEL PSIG	CUTTING OXYGEN CONSUMPTION SCFH	LOW PREHEAT OXYGEN CONSUMPTION SCFH	PROPANE CONSUMPTION SCFH	NATURAL GAS CONSUMPTION SCFH	APPROX. KERF IN.
1501310	5/0	3/16	20	40	15	8	4 oz.-2PSIG	15	30	6	15	.05
1501320	4/0	1/4	20	50	15	10	4 oz.-2PSIG	40	35	7	18	.06
1501330	3/0	3/8	18	75	35	10	4 oz.-2PSIG	80	35	7	18	.07
1501340	2/0	1/2	18	75	35	10	4 oz.-2PSIG	90	35	7	18	.07
1501350	0	3/4	15	90	35	10	4 oz.-2PSIG	125	35	7	18	.08
1501360	0 1/2	1 1/4	14	100	35	12	4 oz.-2PSIG	170	40	8	20	.08
1501370	1	2	13	100	35	12	4 oz.-2PSIG	200	40	8	20	.09
1501380	1 1/2	3	9	100	35	12	4 oz.-2PSIG	250	40	8	20	.11
1501390	2	4	7	100	35	12	4 oz.-2PSIG	325	40	8	20	.12
1501400	2 1/2	5	6	100	35	12	4 oz.-2PSIG	395	40	8	20	.13
1501410	3	6	5	100	40	12	4 oz.-2PSIG	425	40	8	20	.14
1501420	4	8	5	100	40	12	4 oz.-2PSIG	525	40	8	20	.16
1501430	5	9	4	90	40	-	4 oz.-2PSIG	580	100	20	50	.20
1501440	5 1/2	10	4	90	40	-	4 oz.-2PSIG	600	100	20	50	.25
1501120	5NH*	10	4	60	40	-	4 oz.-2PSIG	600	100	20	50	.25
1501130	6NH*	11	4	60	40	-	4 oz.-2PSIG	690	100	20	50	.25
1501140	7NH*	12	4	60	40	-	4 oz.-2PSIG	825	100	20	50	.25
1501190	8NH*	15	3	60	40	-	4 oz.-2PSIG	925	100	20	50	.30

6290-VVCU High Speed Oxy- Propane/Natural Gas Cutting Tip Chart-Unplated Shell (.062" Cup Depth)

PART NO.	TIP SIZE	PLATE THICKNESS INCHES	CUTTING SPEED I.P.M.	CUTTING OXYGEN PSIG	PREHEAT OXYGEN PSIG HIGH	PREHEAT OXYGEN PSIG LOW	PREHEAT FUEL PSIG	CUTTING OXYGEN CONSUMPTION SCFH	LOW PREHEAT OXYGEN CONSUMPTION SCFH	PROPANE CONSUMPTION SCFH	NATURAL GAS CONSUMPTION SCFH	APPROX. KERF IN.
1502120	5/0	3/16	20	40	15	8	4 oz.-2PSIG	15	30	6	15	.05
1502121	4/0	1/4	20	50	15	10	4 oz.-2PSIG	40	35	7	18	.06
1502122	3/0	3/8	18	75	35	10	4 oz.-2PSIG	80	35	7	18	.07
1502123	2/0	1/2	18	75	35	10	4 oz.-2PSIG	90	35	7	18	.07
1502124	0	3/4	15	90	35	10	4 oz.-2PSIG	125	35	7	18	.08
1502125	0 1/2	1 1/4	14	100	35	12	4 oz.-2PSIG	170	40	8	20	.08
1502126	1	2	13	100	35	12	4 oz.-2PSIG	200	40	8	20	.09
1502127	1 1/2	3	9	100	35	12	4 oz.-2PSIG	250	40	8	20	.11
1502128	2	4	7	100	35	12	4 oz.-2PSIG	325	40	8	20	.12
1502129	2 1/2	5	6	100	35	12	4 oz.-2PSIG	395	40	8	20	.13
1502130	3	6	5	100	40	12	4 oz.-2PSIG	425	40	8	20	.14
1502131	4	8	5	100	40	12	4 oz.-2PSIG	525	40	8	20	.16
1502132	5	9	4	90	40	-	4 oz.-2PSIG	580	100	20	50	.20

NOTES: (1) Use next size larger tip with same pressure for contour cutting.
(2) Use highly carburizing preheat flame for light plate cutting.
(3) Cutting oxygen pressure should be measured at top of torch.

CLEANING INSTRUCTIONS: The wire brush included with tip cleaner E-9 (P/N 9000160) should be used for cleaning preheat slots and for removing spatter from the tip face. When cleaning the preheat slots, do not brush across the slots as this motion can damage the slots. Always brush along the length of the slot to remove dirt or spatter.



E-9 TIP
Two Piece Cleaners
P/N: 9000160

Machine Cutting Tips

VVCM Unplated Shell



- Minimizes kerf
- Increased cutting speeds, reduces heat input
- High quality machine cuts, reduces afterwork
- Used with low cost fuel gases

VVCP Unplated Shell



6290-VVCM High Speed Oxy- MAPP® Cutting Tip Chart-Unplated Shell (.010 Cup Depth)

PART NO.	TIP SIZE	PLATE THICKNESS INCHES	CUTTING SPEED I.P.M.	CUTTING OXYGEN PSIG	PREHEAT OXYGEN PSIG HIGH	PREHEAT OXYGEN PSIG LOW	PREHEAT FUEL PSIG	CUTTING OXYGEN CONSUMPTION SCFH	LOW PREHEAT OXYGEN CONSUMPTION SCFH	MAPP® CONSUMPTION SCFH	APPROX. KERF IN.
1501620	5/0	3/16	20	40	15	8	4 oz.-2PSIG	15	30	6	.05
1501630	4/0	1/4	20	50	15	10	4 oz.-2PSIG	40	35	7	.06
1501640	3/0	3/8	18	75	35	10	4 oz.-2PSIG	80	35	7	.07
1501650	2/0	1/2	18	75	35	10	4 oz.-2PSIG	90	35	7	.07
1501660	0	3/4	15	90	35	10	4 oz.-2PSIG	125	35	7	.08
1501670	0 1/2	1 1/4	14	100	35	12	4 oz.-2PSIG	170	40	8	.08
1501680	1	2	13	100	35	12	4 oz.-2PSIG	200	40	8	.09
1501690	1 1/2	3	9	100	35	12	4 oz.-2PSIG	250	40	8	.11
1501700	2	4	7	100	35	12	4 oz.-2PSIG	325	40	8	.12
1501710	2 1/2	5	6	100	35	12	4 oz.-2PSIG	395	40	8	.13
1501720	3	6	5	100	40	12	4 oz.-2PSIG	425	40	8	.14
1501730	4	8	5	100	40	12	4 oz.-2PSIG	525	40	8	.16
1501740	5	9	4	90	40	-	4 oz.-2PSIG	580	100	20	.20

6290-VVCP High Speed Oxy- Propylene Cutting Tip Chart-Unplated Shell (.034 Cup Depth)

PART NO.	TIP SIZE	PLATE THICKNESS INCHES	CUTTING SPEED I.P.M.	CUTTING OXYGEN PSIG	PREHEAT OXYGEN PSIG HIGH	PREHEAT OXYGEN PSIG LOW	PREHEAT FUEL PSIG	CUTTING OXYGEN CONSUMPTION SCFH	LOW PREHEAT OXYGEN CONSUMPTION SCFH	PROPYLENE CONSUMPTION SCFH	APPROX. KERF IN.
1502200	5/0	3/16	20	40	12	8	2	15	32	13	.05
1502202	4/0	1/4	20	50	12	8	2	40	32	13	.06
1502204	3/0	3/8	18	75	25	8	2	80	32	13	.07
1502206	2/0	1/2	18	75	25	8	2	90	32	13	.07
1502208	0	3/4	15	90	25	8	2	125	32	13	.08
1502210	0 1/2	1 1/4	14	100	25	8	2	170	32	13	.08
1502212	1	2	13	100	25	10	2	200	40	16	.09
1502214	1 1/2	3	9	100	25	10	2	250	40	16	.11
1502216	2	4	7	100	25	10	2	325	40	16	.12
1502218	2 1/2	5	6	100	30	10	2	395	40	16	.13
1502220	3	6	5	100	30	10	2	425	40	16	.14
1502222	4	8	5	100	30	10	2	525	40	16	.16
1502224	5	9	4	90	30	10	2	580	40	16	.20

NOTES: (1) Use next size larger tip with same pressure for contour cutting.
(2) Use highly carburizing preheat flame for light plate cutting.
(3) Cutting oxygen pressure should be measured at top of torch.

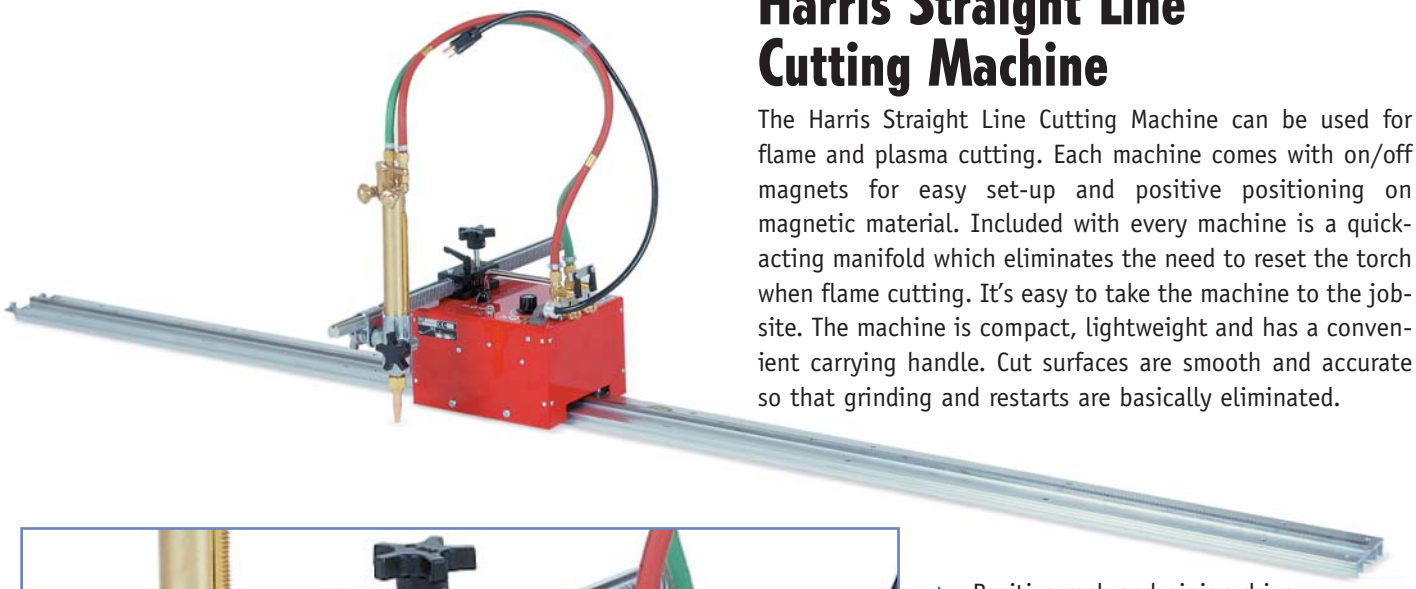
CLEANING INSTRUCTIONS: The wire brush included with tip cleaner E-9 (P/N 9000160) should be used for cleaning preheat slots and for removing spatter from the tip face. When cleaning the preheat slots, do not brush across the slots as this motion can damage the slots. Always brush along the length of the slot to remove dirt or spatter.



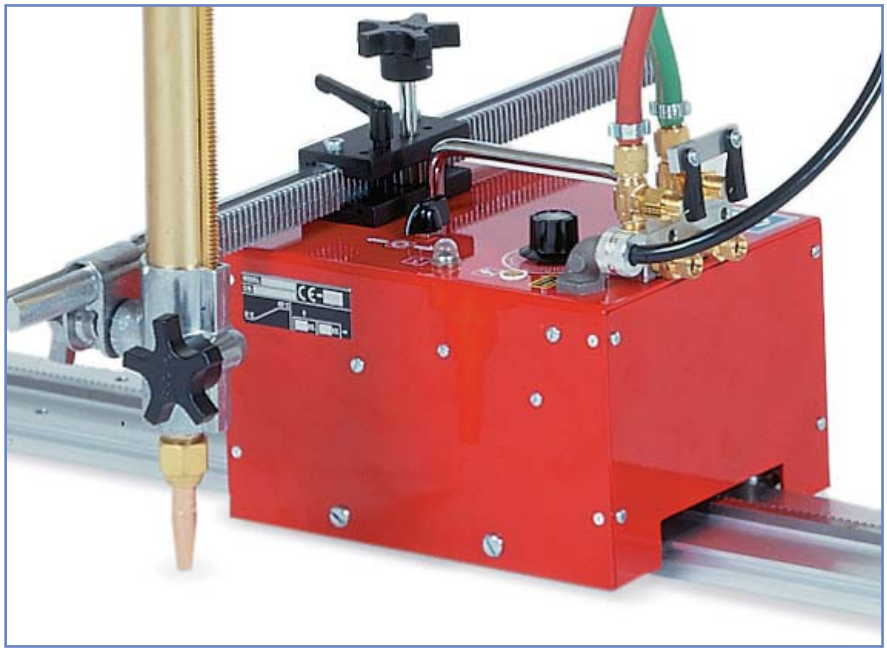
E-9 TIP
Two Piece Cleaners
P/N: 9000160



Harris Straight Line Cutting Machine



The Harris Straight Line Cutting Machine can be used for flame and plasma cutting. Each machine comes with on/off magnets for easy set-up and positive positioning on magnetic material. Included with every machine is a quick-acting manifold which eliminates the need to reset the torch when flame cutting. It's easy to take the machine to the job-site. The machine is compact, lightweight and has a convenient carrying handle. Cut surfaces are smooth and accurate so that grinding and restarts are basically eliminated.



- Positive rack and pinion drive
- Wide speed range (5-100 ipm)
- Dynamic brake
- Convenient carrying handle
- Torchholder assembly for standard 1 3/8" barrel/ 32 pitch rack

Technical Data

- Power Requirements: 120 VAC/50-60/1
- Travel Speed: Infinitely variable from 5- 100 ipm (127-2540 mm/min.)
- Load Capacity: 15 lbs. (6.8 kg) Vertical 60 lbs. (27.3 kg) Horizontal
- Magnet Holding Capacity: 150 lbs. (68 kg) (per magnet plate assembly)
- Net Weight of Drive Unit: 18 lbs. (8kg)
- Use with Model 98 machine torches

Torch not included. See pages 30 and 31 for Machine Torches.

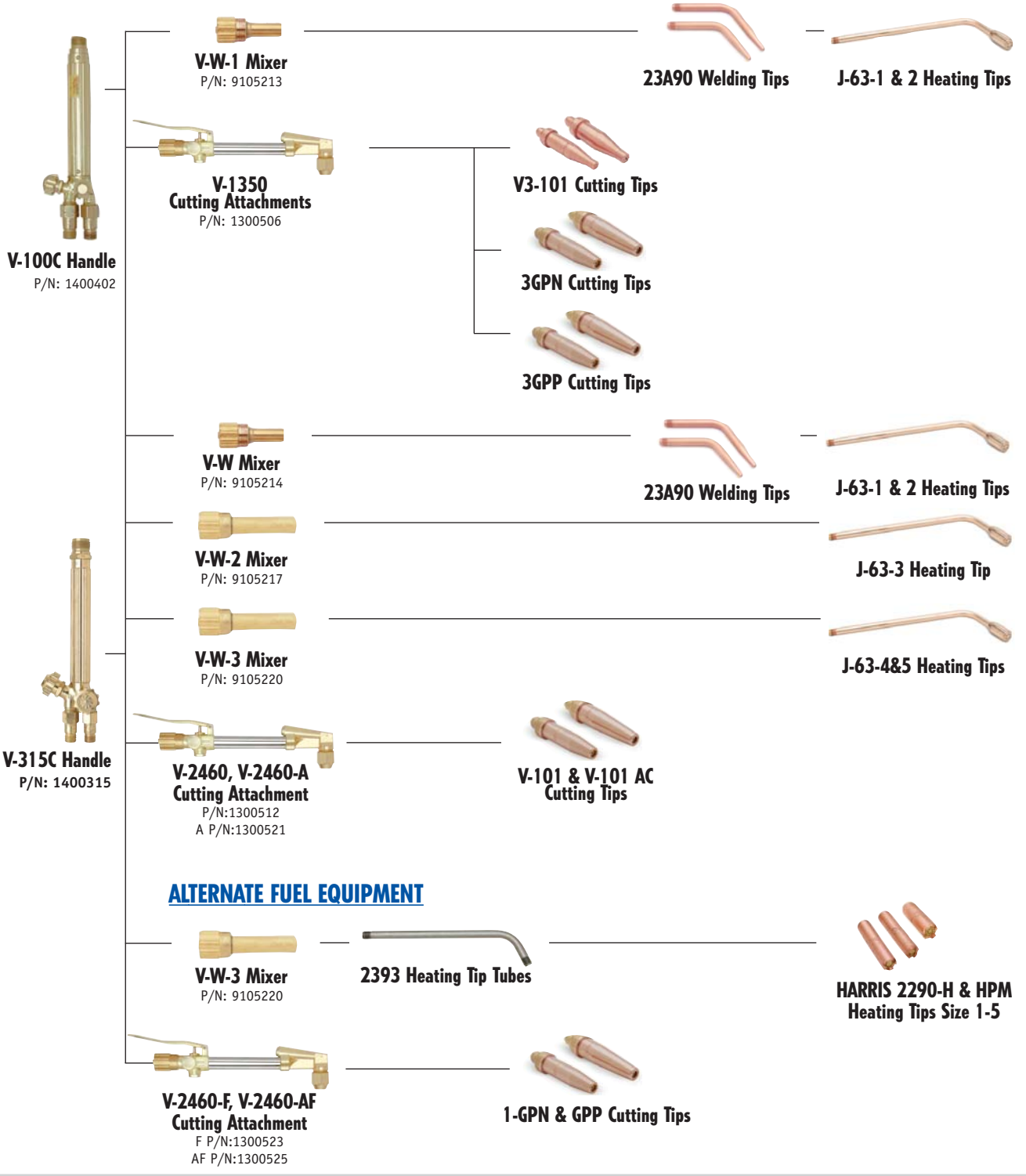
Standard Package

- Cutting Machine
- Torchholder Assembly
- 8' Heavy Duty Rail (4300953)
- On/Off Magnet Plate Assembly (2) (4300952)
- Spacer Bar Assembly (2) (4300951)
- 2 Hose Manifold
- Twin Hose Assembly 32" (812mm)
- Tool Kit

PART NO.	MODEL	DESCRIPTION
4300950	GOF-3250-HS	Deluxe Cutting Machine
Replacement Parts		
4300951	ARM-2505	Spacer Bar Assembly
4300952	ARM-2500	On/Off Magnet Plate Assembly
4300953	ARM-1080	Heavy Duty Rigid Rail 93.5" (2.37m)
4300962	BUG-2915	Torch Holder Assembly
4300954	ARR-1085	Heavy Duty Rigid Rail 48" (1.18m)
4300955	BUG-2975	Plasma Cable Mounting Assembly

*Number in ( ) indicates quantity if more than one in standard package.

Use the chart below to select the proper handle, cutting attachment and mixer combinations.





V-SERIES® by Harris Calorific

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



- Torch handle includes replaceable reverse flow Flashguard® check valves
- Cutting attachments feature a solid forged head and triangular tube design for added strength
- Protected torch union
- Head mix system - safe and efficient
- Uses Victor® style cutting tips
- Available in both acetylene and alternate fuel versions

V-Series® Pipeliner* - Cuts 6", Welds 1" with Larger Tips.

PART NO.	MODEL NO.	TORCH HANDLE	MIXER	CUTTING ATTACHMENTS	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-125 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403048	V-3152500-510 DXL	V-315C	V-W	V-2460	V1-101-1	23A90-5	2500-125-540	2500-15-510	Goggles,Striker 20'X1/4" Hose
4403051	V-3152500-300 DXL	V-315C	V-W	V-2460	V1-101-1	23A90-5	2500-125-540	2500-15-300	Goggles,Striker 20'X1/4" Hose
4403097	V-3152500-510 DLX PLUS	V-315C	V-W	V-2460	V1-101-1	23A90-3,5,8	2500-125-540	2500-15-510	Goggles,Striker & J-63-2 Heating Tip

V-Series® Steelworker* - Cuts 4", Welds 1/2" with Larger Tips.

PART NO.	MODEL NO.	TORCH HANDLE	MIXER	CUTTING ATTACHMENTS	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-100 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403046	V-10025-510 DLX	V-100C	V-W-1	V-1350	V3-101-1	23A90-5	25-100C-540	25-15C-510	Goggles,Striker 20'X1/4" Hose
4403050	V-10025-300 DLX	V-100C	V-W-1	V-1350	V3-101-1	23A90-5	25-100C-540	25-15C-300	Goggles,Striker 20'X1/4" Hose
4403124	V-10025-510 DLX PLUS	V-100C	V-W-1	V-1350	V3-101-1	23A90-3,5,8	25-100C-540	25-15C-510	Goggles,Striker, Hose & J-63-2 Heating Tip

V-Series® Expert* - Cuts 4", Welds 1/2" with Larger Tips.

PART NO.	MODEL NO.	TORCH HANDLE	MIXER	CUTTING ATTACHMENTS	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-125 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403131	V-100201-510 DLX	V-100C	V-W-1	V-1350	V3-101-1	23A90-5	201-100C-540 (3000274)	201-15C-510 (3000272)	Goggles,Striker 20'X1/4" Hose
4403132	V-100201-300 DLX	V-100C	V-W-1	V-1350	V3-101-1	23A90-5	201-100C-540 (3000274)	201-15C-510 (3000271)	Goggles,Striker 20'X1/4" Hose

V-Series® Alternate Fuel Combos - Cuts 6" with Proper Tips.

PART NO.	MODEL NO.	TORCH HANDLE	MIXER	CUTTING ATTACHMENTS	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REG. 0-125 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403178	V-3152500-510P DLX	V-315C	Not Included	V-2460-F	Not Included	Not Included	2500-125-540	2500-15-510P	Goggles, Striker, 20' x 1/4" T -Grade Hose

* Cuts 1" with #1 tip; Welds 1/8" with #5 tip.

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V-1350



V-2460

Victor® Compatible Hand Cutting Attachments

MODEL NO.	PART NO.	HEAD ANGLE/STYLE	COMPATIBLE HANDLES	TIP SERIES
Positive Pressure "E" Equipment For Acetylene/MAPP®				
V-1350	1300506	90°/VICTOR® STYLE	Harris V-100C Victor® 100, Medalist® 260	V3-101, 3 GPN & 3-GPP
V-2460	1300512	90°/VICTOR® STYLE	Harris V-315C Victor® 315C Medalist® 350	V1-101 V1-101AC
V-2460-A	1300521	70°/VICTOR® STYLE		
V-73-3*	1300382	90°/VICTOR® STYLE		Harris 6290AC
Low Pressure "F" Equipment For Alternate Fuel				
V-2460-F	1300523	90°/VICTOR® STYLE	Harris V-315C Victor® 315C Medalist® 350	V-1-GPN, GPP
V-2460-AF	1300525	70°/VICTOR® STYLE		

* Model V-73-3 cutting attachment is no longer available.



V Port-A-Torch

The Port-A-Torch stores all the equipment you need for cutting, welding and brazing in a rugged, molded, plastic carrying case. Includes one MC acetylene cylinder and one 20 CF oxygen cylinder (both shipped empty). Cuts to 1" and welds to 1/16" with equipment supplied. Can cut 4" and weld to 1/2" with larger tips and acetylene cylinder (sold separately).

PART NO.	MODEL NO.	TORCH HANDLE	MIXER	CUTTING ATTACHMENTS	CUTTING TIPS	WELDING TIPS	SINGLE STAGE OXYGEN REG. 0-80 PSIG	SINGLE STAGE FUEL GAS REG. 0-15 PSIG	ACCESSORIES
4403116	V-100601-200 DLX	V-100C	V-W-1	V-1350	V3-101-1	23A90-3	601-80-540 (3000296)	601-15-200 (3000295)	Goggles,Striker 12'x3/16" Hose 20 CU. FT. OXY CYL., 10 CU.FT. "MC" ACTE. CYL. (cylinders shipped empty)
4403125	V-100601-200 STD	V-100C	V-W-1	V-1350	V3-101-1	23A90-3	601-80-540 (3000296)	601-15-200 (3000295)	Goggles,Striker 12'x3/16 Hose

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MAPP® is a registered trademark of the BOC Group, Inc.

VSERIES by Harris Calorific

Model V-62-4E, F Hand Cutting Torch

- Cuts to 12"
- Solid forged head
- Triangular tube design
- Brazed connections
- Equipped with FlashGuard® check valves
- U.L. listed

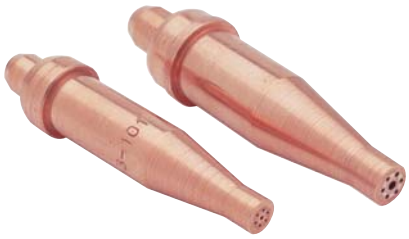


Victor® Compatible Hand Cutting Torches
Positive Pressure "E" Torches (For Acetylene and Alternate Fuels)

MODEL NO.	PART NO.	HEAD ANGLE/STYLE	LENGTH	HARRIS TIPS
V-62-4EL	1002223	90°/VICTOR® STYLE	21"	V1-101, V1-101 AC (000 THRU 6)
V-62-4AEL	1002259	70°/VICTOR® STYLE	21"	V1-101, V1-101 AC (000 THRU 6)

Low Pressure Injector"F" Torches
(For Maximum Performance with Alternate Fuels*)

V-62-4FL	1002261	90°/VICTOR® STYLE	21"	1-GPP, 1-GPN (000 THRU 6)
V-62-4AFL	1002266	70°/VICTOR® STYLE	21"	1-GPP, 1-GPN (000 THRU 6)
V-62-4AFL	1002287	70°/VICTOR® STYLE	36"	1-GPP, 1-GPN (000 THRU 6)
V-62-4FL	1002274	90°/VICTOR® STYLE	36"	1-GPP, 1-GPN (000 THRU 6)



V1-101 and V3-101 Oxy-Acetylene Tip Chart - One Piece

TIP SIZE	V1-101 TIPS PART NO.	V3-101 TIPS PART NO.	PLATE THICKNESS INCHES	OXYGEN PRESSURE PSIG	ACETYLENE PRESSURE PSIG	CUTTING ORIFICE DRILL SIZE
000	1502088	1502080	1/8	20-30	5	#70
00	1502089	1502081	1/8-5/16	20-30	5	#69
0	1502090	1502082	5/16-5/8	30-40	7	#61
1	1502091	1502083	5/8-1	40-50	7	#56
2	1502092	1502084	1-2	45-55	8	#53
3	1502093	1502085	2-3	50-60	9	#50
4	1502094	1502086	3-4	60-75	10	#46
5	1502095	1502136	4-6	70-80	12	#39
6*	1502096	1502137	6	75-80	15	#31

*For optimal performance, use 3/8" I.D. hose for tip size 6 and larger

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V1-101 AC Oxy-Acetylene Tip Chart - Two Piece

TIP SIZE	V1-101 AC TIPS PART NO.	PLATE THICKNESS INCHES	OXYGEN PRESSURE PSIG	ACETYLENE PRESSURE PSIG	CUTTING ORIFICE INCHES
000	1502069	1/8	20-25	3-5	.031
00	1502070	1/8-1/4	20-25	3-5	.036
0	1502071	1/4-1/2	25-35	7	.040
1	1502072	1/2-3/4	30-35	3-5	.046
2	1502073	3/4-1 1/2	35-45	3-7	.059
3	1502074	1 1/2-3 1/2	40-50	4-10	.067
4	1502075	1 1/2 -2 1/2	40-50	5-10	.093
5	1502076	2 1/2-3	45-55	5-13	.110
6*	1502077	5-8	45-55	7-14	.120





1-GPN and 3-GPN LP/Natural Gas Tip Chart - Two Piece

TIP SIZE	1-GPN TIPS PART NO.	3-GPN TIPS PART NO.	PLATE THICKNESS INCHES	OXYGEN PRESSURE PSIG	FUEL GAS** PRESSURE PSIG	CUTTING ORIFICE DRILL SIZE
000	1502300	1502309	1/8	20-25	3-5	#71
00	1502301	1502310	1/4	20-25	3-5	#67
0	1502302	1502311	3/8-1/2	25-35	3-5	#60
1	1502303	1502312	3/4	30-35	4-6	#56
2	1502304	1502313	1-1 1/2	35-45	4-9	#53
3	1502305	1502314	2-2 1/2	40-50	5-10	#50
4	1502306	1502315	3	45-50	8-12	#45
5	1502307	1502316	4-5	45-55	8-12	#39
6*	1502308	-	6	45-55	10-15	#31

*When using injector equipment fuel gas pressure should be 4oz - 2lbs.

1-GPP and 3-GPP Propylene/MAPP® Tip Chart - Two Piece

TIP SIZE	1-GPP TIPS PART NO.	3-GPP TIPS PART NO.	PLATE THICKNESS INCHES	OXYGEN** PRESSURE PSIG	FUEL GAS PRESSURE PSIG	CUTTING ORIFICE DRILL SIZE
000	1502317	1502330	1/8"	20-25	3-5	71
00	1502318	1502331	1/4"	20-25	3-5	67
0	1502319	1502332	3/8 - 1/2"	25-35	3-5	60
1	1502320	1502333	3/4"	30-35	4-6	56
2	1502321	1502334	1 -1 1/2"	35-45	4-9	53
3	1502322	1502335	2 -2 1/2"	40-50	5-10	50
4	1502323	1502336	3	45-50	8-12	45
5	1502324	1502337	4-5	45-55	8-12	39
6	1502325		6-8	45-65	10-15	31

*For optimal performance, use 3/8" I.D. hose for tip size 6 and larger.

**When using injector equipment fuel gas pressure should be 4oz - 2lbs.



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Replacement Tips

AIRCO®, Acetylene One Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502401	164	00
1502400	164	0
1502402	164	1
1502404	164	2
1502405	164	3
1502406	164	4
1502407	164	5
1502408	164	6
1502409	164	7
1502410	164	8
1502411	164	9
1502403	164	1



AIRCO®, Propylene/MAPP® Two Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502413	265	00
1502412	265	0
1502414	265	1
1502415	265	2
1502416	265	3
1502417	265	4
1502418	265	5
1502419	265	6
1502420	265	7
1502421	265	8



SMITH EQUIPMENT®, Acetylene One Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502422	SC 12	00
1502423	SC 12	0
1502424	SC 12	1
1502425	SC 12	2
1502426	SC 12	3
1502427	SC 12	4
1502428	SC 12	5
1502429	SC 12	6



SMITH EQUIPMENT®, Natural Gas/Propane Two Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502430	SC 40	0
1502431	SC 40	1
1502432	SC 40	2
1502433	SC 40	3
1502434	SC 40	4
1502435	SC 40	5
1502436	SC 40	6



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SMITH EQUIPMENT® is a registered trademark of Illinois Tool Works, Inc.



Replacement Tips

OXWELD®/PUROX®, Acetylene One Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502437	1502	2
1502438	1502	3
1502439	1502	4
1502440	1502	6
1502441	1502	8
1502442	1502	10
1502443	1502	12
1502444	1502	16
1502445	1502	18
1502446	1502	20



OXWELD®/PUROX®, Natural Gas/Propane Two Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502447	1534L	10
1502448	1534L	12
1502449	1534L	16
1502450	1534L	2
1502451	1534L	20
1502452	1534L	3
1502453	1534L	4
1502454	1534L	5
1502455	1534L	6
1502456	1534L	7
1502457	1534L	8



OXWELD®/PUROX®, Propylene/MAPP® Two Piece Tip Chart

PART NUMBER	MODEL NUMBER	TIP SIZE
1502458	1534M	10
1502459	1534M	12
1502460	1534M	16
1502461	1534M	2
1502462	1534M	20
1502463	1534M	3
1502464	1534M	4
1502465	1534M	6
1502466	1534M	8



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Model 301
Single Stage Regulator

COMPACT

- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- 2" dual scale gauges
- U.L. listed
- Additional technical data on page 71



PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3000165	301-15-200MC		0-15	30	400
3000160	301-15-300		0-15	30	400
3000161	301-15-510	ACETYLENE	0-15	30	400
3000166	301-15-520B		0-15	30	400
3000162	301-100-540	OXYGEN	0-100	150	4000
3000187	301-100-580	Ar,N_2,He	0-100	150	4000
3000192	301-100-320	CO_2	0-100	150	4000

Model 25
Single Stage Regulator

BEST VALUE

- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- Chrome-plated bonnet with Forged brass body
- 2" dual scale gauges
- U.L. listed
- Featured in the Steelworker Pro and Classic outfits
- Additional technical data on page 72

Gauge Guards



4300140 Fuel Gas

4300139 Oxygen



PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3000350	25-15C-300	ACETYLENE	0-15	30	400
3000380	25-15C-510	ACETYLENE	0-15	30	400
3000450	25-50C-510P	PROPANE*	0-50	60	400
3000510	25-100C-540	OXYGEN	0-100	150	4000
3000540	25-100C-580	Ar,N_2,He	0-100	150	4000
3000550	25-100C-590	IND. AIR	0-100	150	4000
3000806	25-200C-580	N_2	0-200	400	4000
MODEL 25 HVAC REGULATOR					
3000606	25-500C-580	Ar,N_2,He	0-500	1000	4000

*Regulator designated for propane service can be used with any of the other welding grade liquid petroleum gases. NOT FOR USE WITH ACETYLENE.
**For additional information on 25-500C see page 74.

Model 425 Single Stage Regulator

PREMIUM

- Tamper proof, self reseating internal HP safety valve*
- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- Bronze adjusting screw for smooth adjusting
- Brass bonnet and body
- 2-½" dual scale gauges
- Conforms to CGA E-4
- Featured in the Pipeliner Pro and Classic outfits
- Additional technical data on page 72

Gauge Guards



4300140 Fuel Gas

4300139 Oxygen



PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3000816	425-15-300	ACETYLENE	0-15	30	400
3000815	425-15-510		0-15	30	400
3000762	425-125-346	MEDICAL AIR	0-125	200	4000
3000764	425-200-346	MEDICAL AIR	0-200	400	4000
3000837	425-15-580		0-15	30	4000
3000843	425-50-580	ARGON,	0-50	50	4000
3000767	425-125-580	NITROGEN,	0-125	200	4000
3000765	425-125A-580*	HELIUM	0-125	200	4000
3000773	425-200-580		0-200	400	4000
3000775	425-125-320	CARBON DIOXIDE	0-125	200	4000
3000784	425-50A-350*	HYDROGEN	0-50	60	4000
3000794	425-125A-350*	HYDROGEN	0-125	200	4000
3000787	425-125-350	ETHYLENE	0-125	200	4000
3000795	425-50-540	OXYGEN	0-50	60	4000
3000714	425-125-540	OXYGEN	0-125	200	4000
3000796	425-200-540	OXYGEN	0-200	400	4000
3000713	425-50-510P	PROPANE**	0-50	60	400

* Models with anti-vibrator "A" for He and H_2 applications feature the standard Harris internal safety.
** Regulators designed for propane service can be used with any of the other welding grade liquid petroleum gases. NOT FOR USE WITH ACETYLENE.

Model 2500 Single Stage Regulator

- Stainless steel diaphragm
- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- Tamper proof, self reseating internal HP safety valve
- Brass bonnet and bronze adjusting screw
- 2-½" dual scale gauges
- Conforms to CGA E-4
- Additional technical data on page 71

STAINLESS STEEL DIAPHRAGM



PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3002508	2500-15-300	ACETYLENE	0-15	30	400
3002500	2500-15-510		0-15	30	400
3002502	2500-50-510P	PROPANE*	0-50	100	400
3002511	2500-50-540		0-50	100	4000
3002504	2500-125-540	OXYGEN	0-125	200	4000
3002519	2500-125-580	Ar, H_2, N_2	0-125	200	4000

* Regulator designed for propane service can be used with any of the other welding grade liquid petroleum gases. NOT FOR USE WITH ACETYLENE.



Model 3500 Single Stage High Flow Manifold Regulator

HIGH FLOW

- Operates on high pressure cylinders of up to 5500 PSIG
- 2-¾" neoprene diaphragm
- One-piece encapsulated seat design with an internal fiter and a PTFE teflon seat
- Tamper proof, self seating internal H.P. safety valve
- Brass bonnet and body
- Optional high capacity 3/8" NPT outlet 180° - 400 and 600 PSIG models have 3/8" outlet as standard
- 2-½" dual scale gauges
- Conforms to CGA E-4
- 1/4" NPT Plug P/N: 9000306
  3/8" NPT Plug P/N: 9000373
- Additional technical data on page 73



PART NO.	MODEL NO.	GAS	MAXIMUM INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3003504	3500-15-510	ACETYLENE	500	0-15	30	400
3003505	3500-15-300		500	0-15	30	400
3003514	3500-50-510P	PROPANE	500	0-50	100	400
3003500	3500-125-540	OXYGEN	3000	0-125	200	4000
3003510	3500-200-540		3000	0-200	400	4000
3003501	3500-125-580		3000	0-125	200	4000
3003507	3500-125-680		5500	0-125	200	6000
3003511	3500-200-580	Ar, N_2, He	3000	0-200	400	4000
3003516	3500-200-680		5500	0-200	400	6000
3003540	3500-400-580		3000	0-400	600	4000
3003541	3500-600-580		3000	0-600	1000	4000
3003502	3500-125-346	AIR	3000	0-125	200	4000
3003508	3500-125-347		5500	0-125	200	6000
3003512	3500-200-346		3000	0-200	400	4000
3003517	3500-200-347		5500	0-200	400	6000
3003503	3500-125-350	H_2, METHANE	3000	0-125	200	4000
3003509	3500-125-695		5500	0-125	200	6000
3003513	3500-200-350		3000	0-200	400	4000
3003518	3500-200-695		5500	0-200	400	6000

LINCOLN ELECTRIC MOTORSPORTS

MOTORSPORTS REGULATORS - Chrome Plated

3003538	3500-400-580	Ar, NITROGEN, HELIUM	3000	0-400	600	4000
3003539	3500-600-580		3000	0-600	1000	4000



3510 MANIFOLD REGULATOR

Model 3510 - 125 RH 3003549
Model 3510 - 200 RH 3003550
Model 3510 - 15 RH 3003546
Model 3510 - 125 LH 3003548
Model 3510 - 200 LH 3003551
Model 3510 - 15 (Acetylene)3003547

- All brass construction
- High flow - 1/4" encapsulated seat
- Neoprene diaphragm
- Internal relief valve
- C_V = .55
- 1.00-11.5 NPS inlet/outlet fittings
- 3/8" Body Ports
- CGA 996-RH; 997-LH



Model 8700
High Pressure Regulator

HIGH PRESSURE

The Model 8700 high pressure regulator is designed to operate on high pressure cylinders up to 7500 PSIG. All inert gas and air models are self-relieving. Typical applications include high pressure testing, charging accumulators and pressurizing aircraft struts.

- One piece encapsulated valve design with CTFE seats and an internal filter
- Elastomeric diaphragm for longer life
- 1/4" NPT Stainless Steel Swagelok® outlet
- 2-½" dual scale gauges (PSI/Bar)
- Conforms to CGA E-4
- Model 8700 Panel Mount Kit P/N: 9100887
- Additional technical data on page 74



PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3200300	8700-1500-580	N_2, Ar, He	0-1500	3000	400
3200301	8700-2500-580	N_2, Ar, He	0-2500	4000	400
3200302	8700-1500-350	H_2/METHANE	0-1500	3000	4000
3200303	8700-2500-350	H_2/METHANE	0-2500	4000	4000
3200304	8700-1500-590	INDUSTRIAL AIR	0-1500	3000	4000
3200305	8700-2500-590	INDUSTRIAL AIR	0-2500	4000	4000
3200306	8700-1500-540	OXYGEN	0-1500	3000	4000
3200307	8700-2500-540	OXYGEN	0-2500	4000	4000
3200310	8700-1500-346		0-1500	3000	4000
3200311	8700-2500-346		0-2500	3000	4000
3200312	8700-1500-347	MEDICAL AIR	0-1500	3000	6000
3200314	8700-3000-347		0-3000	4000	6000
3200315	8700-4500-347		0-4500	6000	6000
3200316	8700-1500-695		0-1500	3000	6000
3200318	8700-3000-695	H_2 METHANE	0-3000	4000	6000
3200319	8700-4500-695		0-4500	6000	6000
3200320	8700-1500-677		0-1500	3000	10000
3200321	8700-3000-677	N_2, Ar, He	0-3000	4000	10000
3200322	8700-4500-677		0-4500	6000	10000
3200323	8700-6000-677		0-6000	10000	10000
3200324	8700-1500-680		0-1500	3000	6000
3200326	8700-3000-680	N_2, Ar, He	0-3000	4000	6000
3200327	8700-4500-680		0-4500	6000	6000





LIQUID CYLINDER

Model 330
Liquid Cylinder Regulator

The Model 330 regulator allows for gaseous withdrawal from oxygen, carbon dioxide, argon and nitrogen liquid cylinders.

- 2-¾" stainless steel diaphragm
- PTFE teflon seals
- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- Tamper proof, self seating internal H.P. safety valve
- Forged brass body and bonnet
- Designed specifically to operate on liquid cylinders but can be used on high pressure cylinders without damage
- 2-½ dual scale gauges
- Conforms to CGA E-4
- Additional technical data on page 75

PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	OUTLET CONN.
3001092	330-125-320		0-125	200	9/16"-18
3001095	330-350-320	CARBON DIOXIDE	0-350	500	9/16"-18
3001099	330-500-320		0-500	600	1/4"-NPT
3001090	330-125-540		0-125	200	9/16"-18
3001093	330-350-540	OXYGEN	0-350	500	9/16"-18
3001097	330-500-540		0-500	600	1/4"-NPT
3001091	330-125-580		0-125	200	9/16"-18
3001094	330-350-580	ARGON/NITROGEN	0-350	500	9/16"-18
3001098	330-500-580		0-500	600	1/4"-NPT



GAUGELESS

Model 29
Single Stage Gaugeless Regulator

Gaugeless regulators are specifically designed for use in installations where rough handling and abuse of gas apparatus is commonplace. The color coded cylinder contents indicator and the delivery pressure calibration on the bonnet are easily read.

- 2-¾" diaphragm
- U.L. Listed
- Additional technical data on page 72

PART NO.	MODEL NO.	GAS	DELIVERY PRESSURE RANGE PSIG	MAX PRESSURE RISE PSIG
3600260	29-15C-510	ACETYLENE	0-15	0.5
3600250	29-15C-300		0-15	0.5
3600340	29-100C-540	OXYGEN	0-100	6
3600200	29-100C-540SG		0-100	6
3600320	29-50C-510P	PROPANE*	0-50	0
3600345	29-100C-580	HELIUM/ARGON/NITROGEN	0-100	8

* Regulator designed for propane service can be used with any of the other welding grade liquid petroleum gases. NOT FOR USE WITH ACETYLENE.



Color coded cylinder contents indicator



Delivery pressure calibration on regulator bonnet





Model 447
Back Entry
"C" Connection Shown

BACK ENTRY

Model 447 High Flow Station and Pipeline Regulators

The Model 447 regulators provide high gas flows from gas distribution systems.

- 2-¾" neoprene diaphragm
- One-piece encapsulated seat design with an internal filter and PTFE teflon seats
- Forged brass body and bonnet
- 2-½" dual scale brass gauge
- Conforms to CGA E-4
- Low pressure models use a neoprene seat (NC)
- 447-20p-¼ for pipeline flowmeter regulator service
- Additional technical data on page 75

PART NO.	MODEL NO.	GAS	MAXIMUM INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	INLET CONN.	OUTLET CONN.
STATION REGULATORS							
4000548	447NC-1-CL		200	0-1	15	7/8"-14-LH(F)	9/16"-18-LH
4000549	447NC-15CL	FUEL GASES	200	0-15	30	7/8"-14-LH(F)	9/16"-18-LH
4000551	447-50-CL		200	0-50	100	7/8"-14-LH(F)	9/16"-18-LH
4000566	447NC-15-CR		200	0-15	30	7/8"-14-RH(F)	9/16"-18-RH
4000553	447-50-CR	OXYGEN	200	0-50	100	7/8"-14-RH(F)	9/16"-18-RH
4000555	447-125-CR		200	0-125	200	7/8"-14-RH(F)	9/16"-18-RH
4000557	447-200-CR		200	0-200	400	7/8"-14-RH(F)	9/16"-18-RH
4000559	447-50-CRM	AIR/INLET GAS	200	0-50	100	7/8"-14-RH(M)	5/8"-18-RH(F)
4000561	447-125-CRM	"OIL FREE"	200	0-125	200	7/8"-14-RH(M)	5/8"-18-RH(F)
4000563	447-200-CRM		200	0-200	400	7/8"-14-RH(M)	5/8"-18-RH(F)

PART NO.	MODEL NO.	GAS	MAXIMUM INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	INLET CONN.	OUTLET CONN.
PIPELINE REGULATORS							
4000565	447-FG-1/4	Ar, CO2	400	0-100 SCFH	0-100 SCFH	1/4 NPT(F)	5/8"-18-RH(F)
4000568	447NC-1-1/4"L		400	0-1	15	1/4 NPT(F)	9/16"-18-LH
4000569	447NC-15-1/4"L	FUEL GASES	400	0-15	30	1/4 NPT(F)	9/16"-18-LH
4000571	447-50-1/4"L		400	0-50	100	1/4 NPT(F)	9/16"-18-LH
4000579	447NC-15-1/4"R		400	0-15	30	1/4 NPT(F)	9/16"-18-RH
4000573	447-50-1/4"R	OXYGEN	400	0-50	100	1/4 NPT(F)	9/16"-18-RH
4000575	447-125-1/4"R		400	0-125	200	1/4 NPT(F)	9/16"-18-RH
4000577	447-200-1/4"R		400	0-200	400	1/4 NPT(F)	9/16"-18-RH
4000588	447NC-1-1/4"RF		400	0-1	15	1/4 NPT(F)	5/8"-18-RH(F)
4000580	447-50-1/4"RF	AIR/INERT GAS	400	0-50	100	1/4 NPT(F)	5/8"-18-RH(F)
4000582	447-125-1/4"RF	"OIL FREE"	400	0-125	200	1/4 NPT(F)	5/8"-18-RH(F)
4000584	447-20p-1/4"R		400	20 Preset	(no gauge)	1/4 NPT(F)	9/16"-18-RHM

NOTE: Station Regulator CGA Connections - Fuel Gas: 025, Oxygen: 024, Inert Gases: 034.

NOTE: The maximum inlet pressure for a station regulator is 200 PSIG. The maximum inlet pressure for a Model 447 station regulator with the "C" connection removed is 400 PSIG.



Model 547
High Flow Station Regulators



SIDE ENTRY

The Model 547 provides high gas flows from gas distribution systems.

- One-piece encapsulated seat design with an internal filter and PTFE teflon seats*
- Forged brass body and bonnet
- 2-¾" neoprene diaphragm
- 2-½" dual scale brass gauge
- Conforms to CGA E-4
- Low pressure models use a Neoprene (NC) seat
- Additional technical data on page 75

PART NO.	MODEL NO.	GAS	MAXIMUM INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	INLET CONN.	OUTLET CONN.
4000601*	547NC-15-CL	FUEL GASES	200	0-15	30	7/8"-14-LH(F) 025	9/16"-18-LH
4000603	547-50-CL		200	0-50	100	7/8"-14-LH(F) 025	9/16"-18-LH
4000605*	547-50-CR		200	0-15	200	7/8"-14-RH(F) 024	9/16"-18-RH
4000607	547-125-CR	OXYGEN	200	0-125	200	7/8"-14-RH(F) 024	9/16"-18-RH
4000609	547-200-CR		200	0-200	400	7/8"-14-RH(F) 024	9/16"-18-RH
4000620*	547NC-1-CRM		200	0-1	15	7/8"-14-RH(M) 034	5/8"-18-RH(F)
4000611	547-50-CRM	AIR/INLET GAS	200	0-50	100	7/8"-14-RH(M) 034	5/8"-18-RH(F)
4000613	547-125-CRM	"OIL FREE"	200	0-125	200	7/8"-14-RH(M) 034	5/8"-18-RH(F)
4000615	547-200-CRM		200	0-200	400	7/8"-14-RH(M) 034	5/8"-18-RH(F)
4000617	547-FG-1/4	Ar, CO2	500	0-100 SCFH	0-100 SCFH	1/4 NPT(F) 034	9/16"-18-RH

NOTE: The maximum inlet pressure for a station regulator is 200 PSIG. The maximum inlet pressure for a Model 547 station regulator with the "C" connection removed is 500 PSIG

Model 2548
High Flow Pipeline Regulator



STAINLESS STEEL DIAPHRAGM

Ideal for general purpose specialty gas applications with high pressure pipeline pressures up to 3000 PSIG.

- 2-¾"stainless steel diaphragm
- One-piece encapsulated seat design with an internal filter and PTFE teflon seat
- Forged brass body and bonnet
- Models available to operate on inlet pressures of up to 3000 PSIG
- Tamper-proof, self reseating internal H.P. safety valve on selected models
- Converts to either right hand or left hand operation
- 2-½" dual scale brass gauge
- Conforms to CGA E-4
- Additional technical data on page 76

PART NO.	MODEL NO.	GAS	MAX. INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	INTERNAL RELIEF VALVE
4000701	2548-15-1/4		500	0-15	30	NO
4000702	2548-50-1/4	FUEL GASES	500	0-50	100	NO
4000705	2548-125-1/4		500	0-125	200	NO
4000708	2548-200-1/4		500	0-200	400	NO
4000704	2548-50-1/4	OXYGEN	3000	0-50	100	YES
4000707	2548-125-1/4		3000	0-125	200	YES
4000710	2548-200-1/4		3000	0-200	400	YES
4000703	2548-50-1/4	AIR/INLET GAS	3000	0-50	100	YES
4000706	2548-125-1/4		3000	0-125	200	YES
4000709	2548-200-1/4		3000	0-200	400	YES



Model 9200

PREMIUM

Model 9200, 9235 Two Stage Regulators

Multi-Stage regulator designed for applications where a constant delivery pressure is required over a wide range of inlet pressure. The Model 9200 is the standard for general purpose, laboratory, industrial and welding applications. The Model 9235 is designed for high flow applications.



Model 9235

HIGH FLOW

- 2-¾" neoprene diaphragm
- One-piece encapsulated seat design with an internal filter and PTFE teflon seats*
- Self-seating internal H.P. safety valve
- Brass body and bonnets
- 2-½" dual scale gauge
- Low pressure models use a neoprene seat (NC)
- Conforms to CGA E-4
- Model 9235 features a 3/8" NPT outlet port 180° from the inlet
- Additional technical data on page 78

PART NO.	MODEL NO.	GAS	MAXIMUM INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
MODEL 9200 MULTI-STAGE REGULATOR						
3302210*	9200NC-15-300	ACETYLENE	500	0-15	30	400
3302211*	9200NC-15-510	ACET./FUEL GASES	500	0-15	30	400
3302212	9200-50-510P	PROPANE	500	0-50	100	400
3302213	9200-50-540		3000	0-50	100	4000
3302214	9200-125-540	OXYGEN	3000	0-125	200	4000
3302284*	9200NC-5-580		3000	0-5	15	4000
3302216*	9200NC-15-580		3000	0-15	30	4000
3302217	9200-50-580	Ar, He, N2	3000	0-50	100	4000
3302218	9200-125-580		3000	0-125	200	4000
3302219	9200-250-580		3000	0-250	400	4000
3302276	9200-15-320		3000	0-15	30	4000
3302273	9200-15-320	CARBON DIOXIDE	3000	0-50	100	4000
3302274	9200-125-320		3000	0-125	200	4000
3302275	9200-250-320		3000	0-250	400	4000
3302220*	9200NC-15-350		3000	0-15	30	4000
3302221	9200-50-350	H2, METHANE	3000	0-50	100	4000
3302222	9200-125-350		3000	0-125	200	4000
3302223	9200-250-350		3000	0-250	400	4000
3302224	9200-50-346		3000	0-50	100	4000
3302225	9200-125-346	AIR	3000	0-125	200	4000
3302226	9200-250-346		3000	0-250	400	4000
3302227	9200-50-590		3000	0-50	100	4000
3302228	9200-125-590	INDUSTRIAL AIR	3000	0-125	200	4000
3302229	9200-250-590		3000	0-250	400	4000
MODEL 9235 MULTI-STAGE HIGH FLOW MANIFOLD REGULATOR						
3302300	9235-350-350	H2, METHANE	3000	0-350	600	4000
3302301	9235-350-540	OXYGEN	3000	0-350	600	4000
3302302	9235-350-580	Ar, He, N2	3000	0-350	600	4000



ECONOMICAL



Model 9296, 9296SS Two Stage Regulators

The Model 9296 Multi-Stage regulator is designed for applications where a constant delivery pressure is required over a wide range of inlet pressures. The Model 9296, a standard for general purpose laboratory, industrial and welding applications where neoprene diaphragms are acceptable. The Model 9296SS with stainless steel diaphragms is recommended for applications where outgassing and permeation is a concern.

- Available with stainless steel or neoprene diaphragms
- One-piece encapsulated seat design, with an internal filter and a PTFE teflon seats
- Self reseating internal H.P. safety valve
- Brass body
- 2" dual scale gauge
- Conforms to CGA E-4
- Low pressure models use a neoprene seat (NC)
- Additional technical data on page 80

9296 PART NO.	9296SS PART NO.	MODEL NO.	GAS	MAX. INLET PSIG	DELIVERY PRESSURE RANGE PSIG	DELIVERY PRESSURE GAUGE PSIG	SUPPLY PRESSURE GAUGE PSIG
3302600*	-	9296NC-15-300	Acetylene	500	0-15	30	400
3302601*	3302681	9296NC-15-510	Acet./Fuel Gas	500	0-15	30	400
3302602	-	9296-50-510P	Propane	500	0-50	60	400
3302603	3302683	9296-50-540		3000	0-50	60	4000
3302604	3302684	9296-125-540	Oxygen	3000	0-125	150	4000
3302605	3302685	9296-250-540		3000	0-250	400	4000
3302606*	3302686	9296NC-15-580		3000	0-15	30	4000
3302607	3302687	9296-50-580	Ar, He, N2	3000	0-50	60	4000
3302608	3302688	9296-125-580		3000	0-125	150	4000
3302609	3302689	9296-250-580		3000	0-250	400	4000
3302614	3302690	9296-50-320		3000	0-50	60	4000
3302615	3302691	9296-125-320	Carbon Dioxide	3000	0-125	150	4000
3302616	3302692	9296-250-320		3000	0-250	400	4000
3302610*	3302693	9296NC-15-350		3000	0-15	30	4000
3302611	3302694	9296-50-350		3000	0-50	60	4000
3302612	3302695	9296-125-350	H2, Methane	3000	0-125	150	4000
3302613	3302696	9296-250-350		3000	0-250	400	4000
-	3302697	9296SS-50-590		3000	0-50	60	4000
-	3302698	9296SS-125-590	Industrial Air	3000	0-125	150	4000
-	3302699	9296SS-250-590		3000	0-250	400	4000
-	3302701	9296SS-50-346		3000	0-50	60	4000
-	3302702	9296SS-125-346	Medical Air	3000	0-125	150	4000
-	3302703	9296SS-250-346		3000	0-250	400	4000

Model 301, 425 & 330 Flowgauge Regulators

- For accurate measurement of gas flow to 100 SCFH
- Lightweight, rugged designs
- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- U.L. Listed
- 3 year warranty



301-AR/CD



425 AR/CD

PART NO.	MODEL NO.	GAS	RATED FLOW CAPACITY SCFH	DELIVERY GAUGE SCFH	SUPPLY PRESSURE GAUGE PSIG
3000232	301-AR30-580	Argon	5-30	5-30	4000
3000163	301-AR60-580	Argon	0-60	60	4000
3000244	301-AR60-680	Argon	0-60	60	6000
3000164	301-CD60-320	Carbon Dioxide	0-60	60	4000
3000774	425-AR100-580	Argon	0-100	100	4000
3000776	425-CD100-320	Carbon Dioxide	0-100	100	4000
3001096	330-CD100-320	Carbon Dioxide	0-100	100	-
3001089	330-AR100-580	Argon	0-100	100	-

Shielding Gas Kits

- Outfit available with Flowgauge or Flowmeter Regulator
- Flowgauge kit features Model 301, pg. 49
- Flowmeter regulator kit features Model 355, pg. 63
- Outfit includes 10 feet of 3/16" approved hose with inert gas fittings



Flowgauge (0-60 SCFH)



Flowmeter (0-70 SCFH)

PART NO.	MODEL NO.	GAS	FLOW CAPACITY SCFH	REGULATOR TYPE	ACCESSORIES
4400229	301AR-58010	Argon	0-60	FLOWGAUGE	3/16"X10' HOSE
4400231	301CD-32010	Carbon Dioxide	0-60	FLOWGAUGE	3/16"X10' HOSE
4400235	355-2AR-58010	Argon	0-70	FLOWMETER	3/16"X10' HOSE
4400234	355-2CD-32010	Carbon Dioxide	0-70	FLOWMETER	3/16"X10' HOSE





Model 55-2 Flowmeter

- Flows to 140 SCFH
- For accurate measurement of gas flow for gas shielded arc welding and laboratory applications
- Sensitive needle valve for fingertip control
- Tamper proof, self seating H.P. safety valve
- Durable, easy-to-read flow tube and cover
- 3 year warranty



For pipeline applications, use the Harris Pre-set 447-20P-1/4R Regulator (P/N 4000584).
Inlet - 1/4" NPT Port
Outlet - 9/16"-18-RH (m)

PART NO.	MODEL NO.	GAS	FLOW CAPACITY SCFH	INLET CONNECTION	OUTLET CONNECTION
5400609	55-2 Ar/CD 70	Argon/Carbon Dioxide	0-70@20 PSIG*	9/16"-18(F)	5/8"-18(F)
5400614	55-2 Ar/CD 70(M)	Argon/Carbon Dioxide	0-70@20 PSIG*	5/8"-18(M)	5/8"-18(F)
5400610	55-2 Ar/CD 70-1/4	Argon/Carbon Dioxide	0-70@20 PSIG*	1/4" NPT(M)	5/8"-18(F)
5400611	55-2 Ar/CD 100	Argon/Carbon Dioxide	0-100@50 PSIG*	9/16"-18(F)	5/8"-18(F)
5400616	55-2 Ar/CD 100	Argon/Carbon Dioxide	0-100@50 PSIG*	1/4" NPT(M)	5/8"-18(F)
5400612	55-2 He/H2 90	Helium/Hydrogen	0-100 (0-140)@20 PSIG	9/16"-18(F)	5/8"-18(F)
5400613	55-2 N2/AIR 90	Nitrogen/Air	0-100@20 PSIG	9/16"-18(F)	5/8"-18(F)
5400615	55-2 Ar/He	Argon/Helium	0-45 (0-140)@20 PSIG	9/16"-18(F)	5/8"-18(F)

* On maximum continuous duty cycle, CO_2 flow to 20 SCFH

Model 355-2 Flowmeter Regulator

- Regulator is pre-set at 20 PSIG
- Construction incorporates regulator and flowmeter into one compact unit
- Flow tube and float are easily changed for different gases
- Dual calibration on Argon/Carbon Dioxide flow tube
- Sensitive needle valve for fingertip control
- One-piece encapsulated seat design, with an internal filter and PTFE seat
- Durable, easy-to-read flow tube and cover
- Conforms to CGA E-4 Standard for Gas Pressure Regulators
- 3 year warranty



PART NO.	MODEL NO.	FLOW CAPACITY GAS	OUTLET SCFH	CONNECTION
3100200	355-2-Ar-580	Argon (CO_2)	0-70	5/8"-18(F)
3100201	355-2-CD-320	Carbon Dioxide (AR)	0-70*	5/8"-18(F)
3100205	355-2-He-580	Helium (H_2)	0-100 (0-140)	5/8"-18(F)
3100207	355-2-N2/Air-580	Nitrogen (Air)	0-100	5/8"-18(F)
3100204	355-2-AR/He-580	Argon (He)	0-45(0-140)	5/8"-18(F)

* On maximum continuous duty cycle, CO_2 flow to 20 SCFH

HIGH FLOW CO_2



Model 4F Multi-Stage Flowmeter Regulator

- Designed specifically for CO2 flow rates up to 100 SCFH on continuous duty cycle without freezing
- Regulator preset at 50 PSIG
- Multi-stage design spreads out the cooling effect of pressure reduction
- One-piece encapsulated seat design with an internal filter and a PTFE teflon seat
- Multi-finned black body design provides high rate of heat transfer into the regulator
- Sensitive needle valve permits highly accurate flow settings
- Durable easy-to-read flow tube and cover
- 1/4 NPT inlet stem
- U.L. Listed
- 3 year warranty

PART NO.	MODEL NO.	GAS	FLOW CAPACITY SCFH	DELIVERY RATE SCFH	SUPPLY PRESSURE GAUGE PSIG
3100071	4-CD100F-320	Carbon Dioxide	0-100	100	3000

Model 356 Single Stage Dual Flowmeter Regulator

- Model 301 Regulator with two Model 55 type Flowmeters
- Ideal for back purge TIG welding
- 3 year warranty



Model 2555 High Pressure Cylinder Flowmeter Regulator

- Model 2500 Regulator with a Model 55 type Flowmeters
- For use with 5500 PSIG cylinders
- 3 year warranty



PART NO.	MODEL NO.	GAS	RATED FLOW CAPACITY SCFH	DELIVERY PRESSURE GAUGE SCFH	SUPPLY PRESSURE GAUGE PSIG
3100140	356-Ar/He-580	Argon/Helium	0-45(0-140)@20 PSIG	CGA 580	5/8" - 18(F)
3102555	2555-AR70-680	Argon/Helium	0-70 @20 PSIG	CGA 680	5/8" - 18(F)

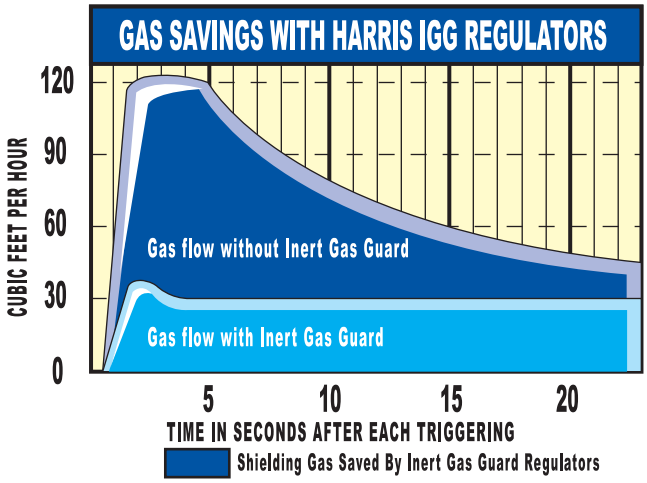


Inert Gas Guard Regulators

Harris Inert Gas Guard Regulators are designed to save shielding gases in two ways.

First, Inert Gas Guard Regulators reduce the gas surge when a MIG gun or TIG torch is activated. The gas surge is created by excess pressure trapped in the supply hose between the pressure control system and the valve or solenoid. Inert Gas Guard regulators lower the excess pressure on the supply hose and reduce the surge or gas waste when the gas system is activated.

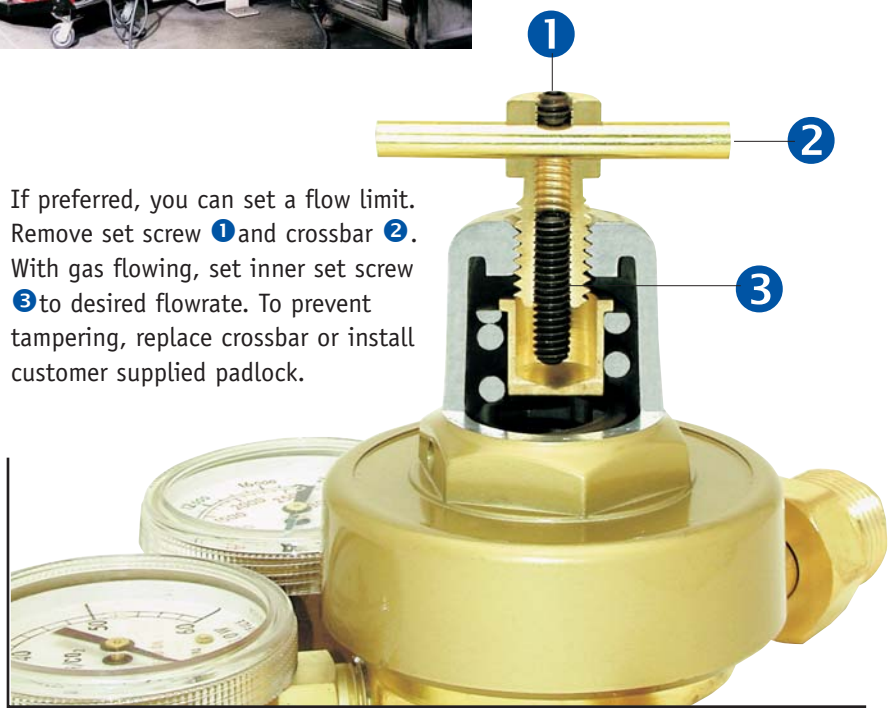
Secondly, Inert Gas Guard Regulators deliver a more controlled flow rate. Operators tend to set shielding gas rates much higher than necessary for a welding operation. Inert Gas Guard Regulators can be set to deliver the precise amount of flow for the operation, eliminating this needless waste of shielding gas.





- Flows up to 80 SCFH
- Compact, rugged design.
- One piece, encapsulated seat design.
- Adjustable, fixed, fixed maximum or fixed locked flow rates.
- 3-year warranty.
- All Harris Inert Gas Guard Regulators are shipped with the T-Bar fully adjustable over the delivery range.

If preferred, you can set a flow limit. Remove set screw ❶ and crossbar ❷. With gas flowing, set inner set screw ❸ to desired flowrate. To prevent tampering, replace crossbar or install customer supplied padlock.





Customer supplied padlock prevents tampering

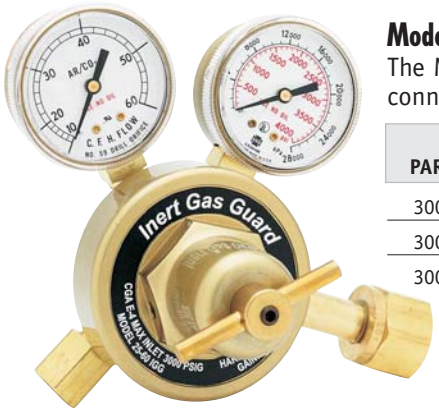
Inert Gas Guard Regulators



Model 447 Pipeline

The Model 447 Inert Gas Guard Regulators are designed for pipeline applications. Models available for MIG or TIG workstations.

PART NO.	MODEL NO.	MOUNTING STYLE	FLOW SETTINGS	INLET CONNECTION	OUTLET CONNECTION
4000547	447-40-IGG-1/4	Pipeline	Adjustable 0-40 SCFH	1/4"-FNPT	5/8"-18 R.H. Female
4000546	447-80-IGG-1/4	Pipeline	Adjustable 0-80 SCFH	1/4"-FNPT	5/8"-18 R.H. Female



Model 25 Cylinder

The Model 25 Inert Gas Guard Regulators are designed for cylinders. Available in 320 and 580 connections. Models available for MIG or TIG applications.

PART NO.	MODEL NO.	MOUNTING STYLE	FLOW SETTINGS	INLET CONNECTION	OUTLET CONNECTION
3000433	25-40-IGG-580	Cylinder	Adjustable 0-40 SCFH	CGA-580	5/8"-18 R.H. Female
3000432	25-60-IGG-320	Cylinder	Adjustable 0-60 SCFH	CGA-320	5/8"-18 R.H. Female
3000431	25-80-IGG-580	Cylinder	Adjustable 0-80 SCFH	CGA-580	5/8"-18 R.H. Female





Model 301



Model 301-RF

Model 301 Flowmeter or Feeder Mount

The Model 301-Inert Gas Guard Regulators are designed to connect to an existing flowmeter, flowmeter regulator or to a wire feeder. Available with or without a gauge.

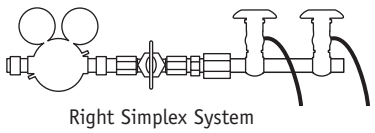
PART NO.	MODEL NO.	MOUNTING STYLE	FLOW SETTINGS	INLET CONNECTION	OUTLET CONNECTION
3000326	301-80-IGG-032 Without Gauge	Flowmeter	0-80 SCFH	5/8"-18 Male	5/8"-18 R.H. Female
3000328	301-80-IGGRF-032 With Gauge	At Wire Feeder	0-80 SCFH	5/8"-18 Female	5/8"-18 R.H. Male
3000340	301-80-IGGRFNG-032 Without Gauge	At Wire Feeder	0-80 SCFH	5/8"-18 Female	5/8"-18 R.H. Male



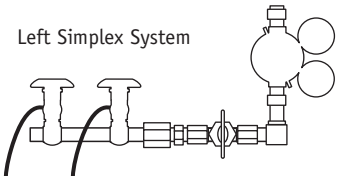
Series 200
Single Regulator Manifold

The Series 200 Single Regulator Manifold features the high flow Model 3510 regulator. The ½" brass headers are available in left and right configurations. The outlet regulator is ordered separately based on the required delivery pressure.

- Maximum inlet pressure 3000 PSIG
- Acetylene systems (CGA 510) include dry type flash arrestors on pigtail end
- All systems include SS Braided pigtails with PTFE lined inner core except those for Helium and Hydrogen which have a thermoplastic inner core.
- Available in Simplex style (order OR,OL, OR36, or OL36)

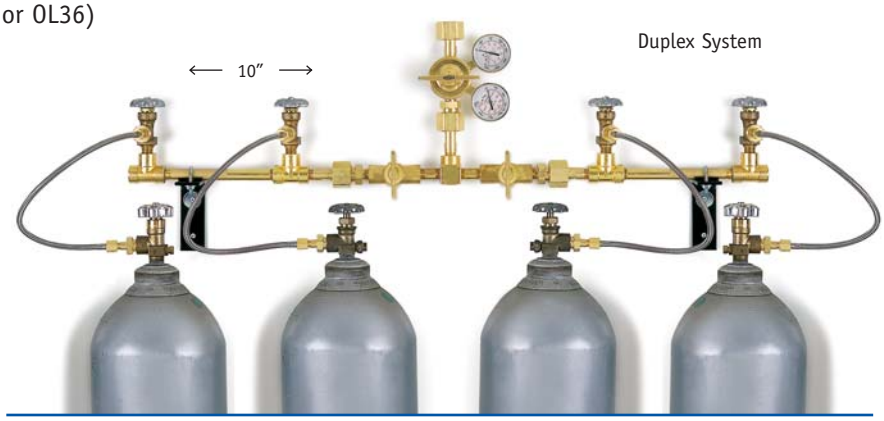


Right Simplex System



Left Simplex System

Duplex System



ORDERING INFORMATION

200	XX(XX)	XX(XX)	XXX
SERIES	RIGHT HEADER (# CYLINDERS)	LEFT HEADER (# CYLINDERS)	GAS SERVICE
200	**24" PIGTAILS**	**24" PIGTAILS**	320-Carbon Dioxide
	0R	0L	346-Air
	1R	1L	350H-Hydrogen
	2R	2L	510A-Acetylene
	3R	3L	540-Oxygen
	4R	4L	580-N_2/Ar
	36" PIGTAILS	**36" PIGTAILS**	590-Industrial Air
	0R36	0L36	580H- Helium
	1R36	1L36	510 - LPG Fuel Gas
	2R36	2L36	
	3R36	3L36	
	4R36	4L36	

Model 3510



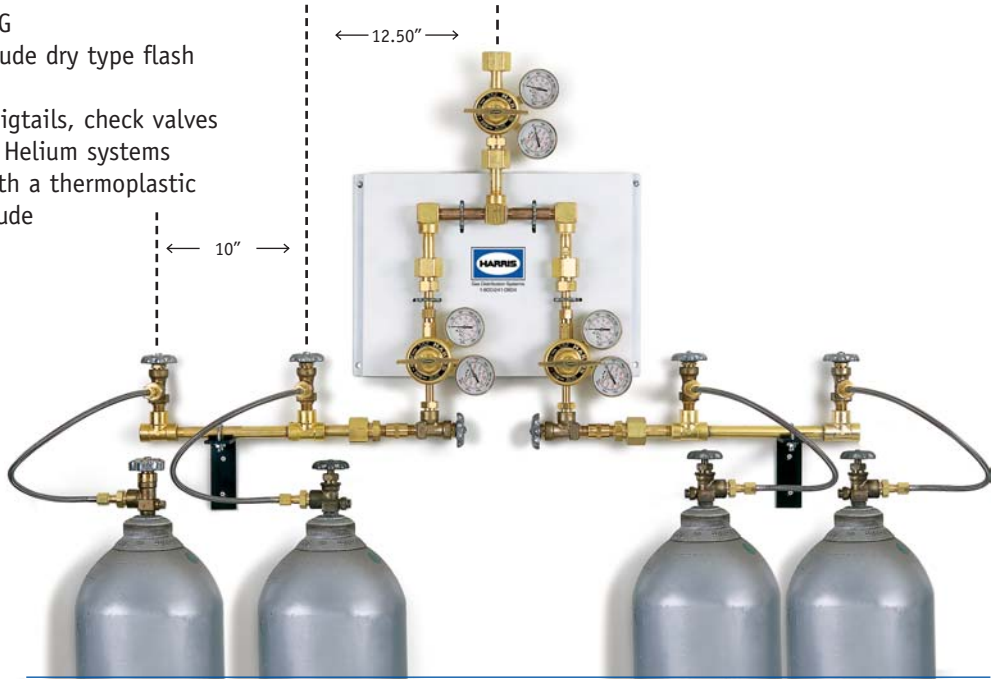
- All brass construction
- High flow - 1/4" encapsulated seat
- Neoprene diaphragm
- Internal relief valve
- C_V = .55
- 1.00-11.5 NPS inlet/outlet fittings
- 3/8" Body Ports

Description	Part Number
Model 3510 - 125 RH	3003549
Model 3510 - 200 RH	3003550
Model 3510 - 15 RH	3003546
Model 3510 - 125 LH	3003548
Model 3510 - 200 LH	3003551
Model 3510 - 15 LH	3003547

Series 210
Pressure Differential Switchover

The Series 210 Manifold automatically switches gas supply from the primary cylinder bank to the reserve cylinder bank. Regulators must be manually reset to change the primary and reserve bank. The Series 210 Manifold features 1/2" brass construction with silver brazed connections. The Series 210 features the Model 3510 high flow brass regulator. The outlet regulator is ordered separately based on delivery pressure requirements.

- Master shut off valves included
- Maximum inlet pressure 3000 PSIG
- Acetylene systems (CGA 510) include dry type flash arrestors on pigtail end
- Headers include: Stainless steel pigtails, check valves and header valves. Hydrogen and Helium systems include stainless steel pigtails with a thermoplastic inner core. All other systems include stainless steel pigtails with a PTFE lined inner core.



ORDERING INFORMATION

210	XX(XX)	XX(XX)	XXX
SERIES	RIGHT HEADER (# cylinders)	LEFT HEADER (# cylinders)	GAS SERVICE
210	24" PIGTAILS	24" PIGTAILS	320-Carbon Dioxide
	1R	1L	346-Air
	2R	2L	350H-Hydrogen
	3R	3L	510A-Acetylene
	4R	4L	540-Oxygen
	36" PIGTAILS	36" PIGTAILS	580-N_2/Ar
	1R36	1L36	590-Air(Industrial)
	2R36	2L36	580H-Helium
	3R36	3L36	510-LPG Fuel Gas
	4R36	4L36	

Model 3510



- All brass construction
- High flow - 1/4" encapsulated seat
- Neoprene diaphragm
- Internal relief valve
- Cv = .55
- 1.00-11.5 NPS inlet/outlet fittings
- 3/8" Body Ports

Description	Part Number
Model 3510 - 125 RH	3003549
Model 3510 - 200 RH	3003550
Model 3510 - 15 RH	3003546
Model 3510 - 125 LH	3003548
Model 3510 - 200 LH	3003551
Model 3510 - 15 LH	3003547

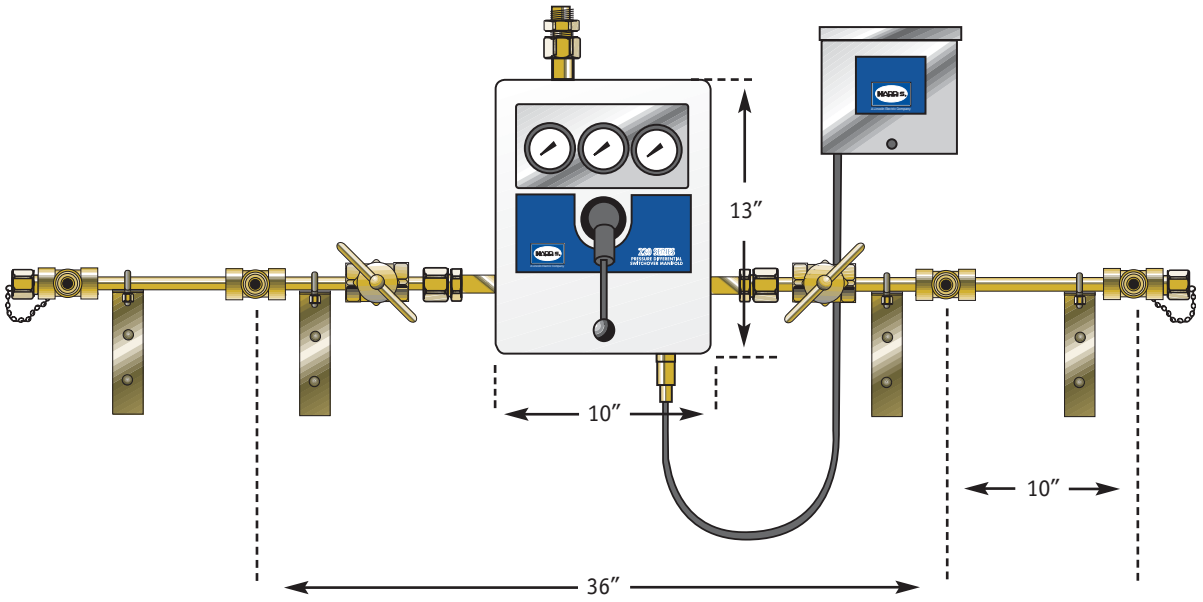


Series 220
Pressure Differential Switchover

The Series 220 Manifold prevents downtime by automatically switching gas supply from the primary cylinder bank to the reserve cylinder bank. All components are enclosed and protected inside a tamper-resistant case. A green light indicates the primary cylinder bank is functioning and the reserve cylinder bank is ready for service. A red light alerts the user that the unit has changed over and one or both banks are depleted (except on fuel gas units). The user resets the primary bank by turning the lever.

- Connects to remote alarm systems.
  Up to 3 amps 30 volts (DC) or 2 amps 250 volts (AC)
  Visual remote alarm is standard.
  Audio/Visual alarm optional.
- Electrical - 115 volts (AC).
- Master shut off valves included.
- **Maximum inlet pressure**
  220 . . . . . .3000 PSIG
  220 (CO_2, N_2O) . . . . . .2000 PSIG
  200 (Acetylene, LPG) . . . .400 PSIG
  220HL (CO_2, N_2O) . . . . .2000 PSIG
  220HP . . . . . .3000 PSIG
  220HP (CO_2, N_2O) . . . . .2000 PSIG
- **Maximum flow rate**
  220 . . . . . .1200 SCFH
  220 (Acetylene) . . . . . .300 SCFH
  220 (LPG) . . . . . .400 SCFH
  220 (CO_2, N_2O) . . . . . .35 SCFH
  220HL (CO_2, N_2O) . . . . . .500 SCFH
  220HP . . . . . .2000 SCFH
- **Internal adjustable line regulator:**
  220 and 220HL . . . . . .30-125 PSIG
  Acetylene . . . . . .0-15 PSIG
  LPG . . . . . .0-30 PSIG
  220 HP . . . . . .50-200 PSIG
- Manifold outlet - 1/2" NPT.
- Relief valve outlet - 3/4" NPT.
- 1/2" brass, silver brazed headers.
- All systems include stainless steel braided pigtails with PTFE lined inner core except Helium and Hydrogen systems which have a thermoplastic inner core.
- Acetylene systems include:
  300 SCFH flashback arrestor and piping.
  Stainless steel braided pigtails with individual flashback arrestors and check valves.





Manifold Depth: 8″
Cabinet Weight: 35 lbs

ORDERING INFORMATION

220	XX(XX)	XX(XX)	XXX
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
220			
(30-125 PSIG)	**24″ PIGTAILS**	**24″ PIGTAILS**	320-Carbon Dioxide
Acetylene (0-15 PSIG)	1R	1L	326-Nitrous Oxide
LPG (0-30 PSIG)	2R	2L	346-Air
	3R	3L	510A-Acetylene
220HL	4R	4L	510-Propane, LPG, Fuel Gases
(30-125 PSIG)			
(For CO_2 and N_2O,	**36″ PIGTAILS**	**36″ PIGTAILS**	300-Acetylene
500 SCFH heater included)	1R36	1L36	540-Oxygen
220HP	2R36	2L36	590-Air(Industrial)
(50-200 PSIG)	3R36	3L36	580H-Helium
Delivery Pressures	4R36	4L36	580-Argon/Nitrogen
up to 235 available			350H-Hydrogen
upon request			350-Fuel Gases (Methane)



Series 230
Fully Automatic Switchover

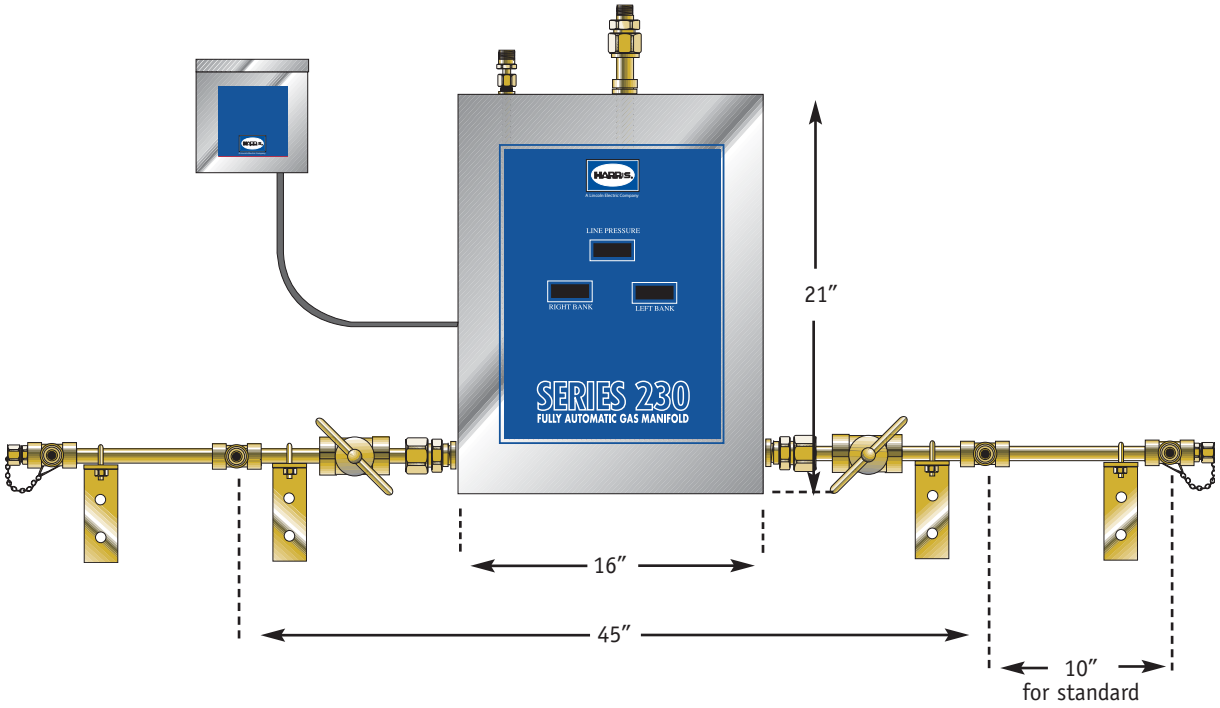
The Series 230 Manifold provides fully automatic system control. An Integrated Circuit Board monitors cylinder bank pressure electronically, controlling changeover and eliminating the need to manually reset levers or valves. Easy-to-read digital displays show the line and individual bank pressures. A series of lights for each bank indicates whether the bank is "in service", "ready for use", or bank depleted".

- Connects to remote alarm systems.
  Up to 3 amps 30 volts (DC) or 2 amps 250 volts (AC)
  Visual remote alarm is standard.
  Audio/Visual alarm optional.
- Electrical - 115 volts (AC).
- Fully Automatic Changeover - No levers to reset. Continuous, uninterrupted gas flow. The only manual function it has to replace depleted cylinders.
- LED indicators provide system status for each bank. Lights will indicate "In Service", "Ready for use" or "Bank Depleted".
- Large digital display provides constant read out of bank pressure and delivery pressure.
- Displays readout in PSIG, KPA or BAR.
- Micro controller monitors all functions and controls changeover.
- Built to accommodate future cylinder expansion by adding header extensions.
- Special header configurations available upon request.
- Available for the following gases: Air, Argon, Carbon Dioxide, Helium, Nitrogen, Nitrous Oxide, and Oxygen.
- Optional Audio/Visual Alarm and Floor Stand available.



SPECIFICATIONS

- Maximum inlet pressure 3000 PSIG
  (2000 PSIG for CO_2 & N_2O)
- Delivery Pressure:
  230 . . . . . .40-100 PSIG
  230HL . . . . . .40-100 PSIG
  230HP . . . . . .100-190 PSIG
- Maximum Flow:
  230 . . . . . .2000 SCFH
  230 . . . . . .35 SCFH
  (CO_2 & N_2O)
  230HL . . . . . .500 SCFH
  (CO_2 & N_2O with heater)
  230HP . . . . . .2500 SCFH
- Manifold Outlet: 1/2" MNPT.
- Relief Valve Outlet: 1/2" MNPT.
- 24" flexible stainless steel pigtails with check valves.
- 1/2" brass, silver brazed headers



Manifold Depth: 10″
Cabinet Weight: 55 lbs

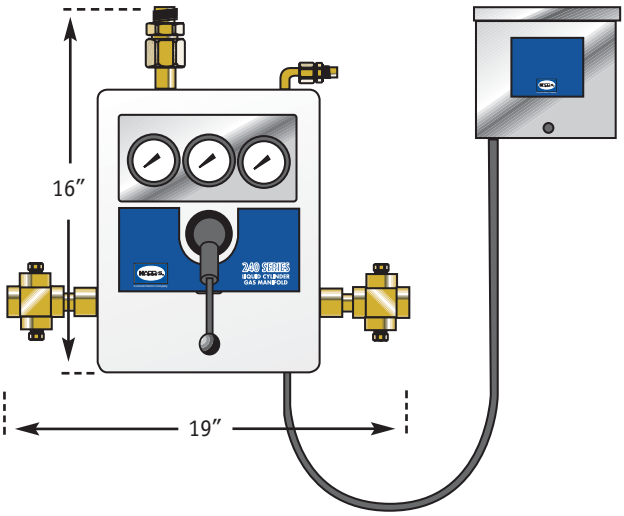
ORDERING INFORMATION

230	XX(XX)	XX(XX)	XXX
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
230 (40-100 PSIG)	24″ PIGTAILS	24″ PIGTAILS	320-Carbon Dioxide
230HL (40-100 PSIG) (For CO_2 and N_2O, 500 SCFH heater included)	1R	1L	326-Nitrous Oxide
	2R	2L	346-Air
	3R	3L	540-Oxygen
	4R	4L	580-Argon/Nitrogen
230HP (100-190 PSIG)	36″ PIGTAILS	36″ PIGTAILS	580H-Helium
	1R36	1L36	590-Air
	2R36	2L36	
	3R36	3L36	
	4R36	4L36	



Series 240
Liquid Cylinder Gas Manifold

The Series 240 Manifold is designed specifically to regulate and monitor vaporized gas from cryogenic cylinders. The Series 240 Manifold prevents downtime by automatically switching over when the primary cylinder bank is depleted. A green light indicates the primary cylinder service bank is functioning and the reserve cylinder bank is ready for service. A red light signals that the system has changed over and one or both banks are depleted. The user resets the primary bank by turning the lever.





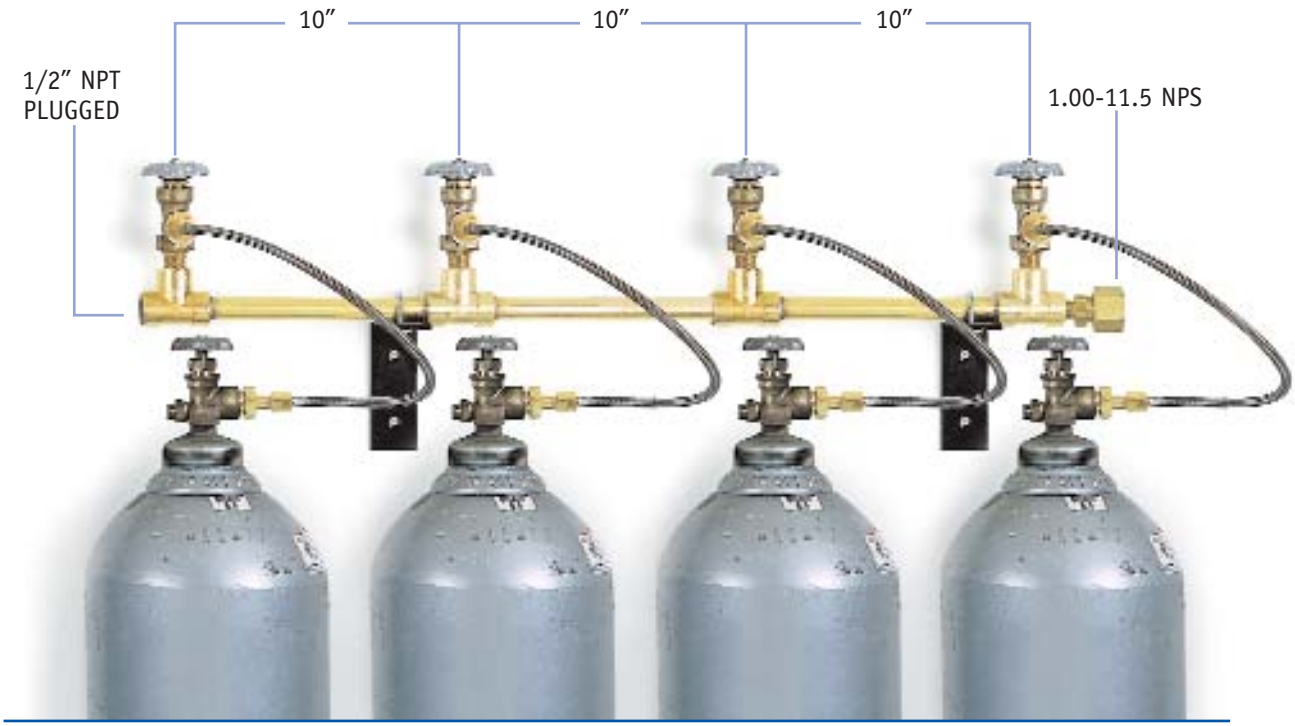
- Connects to remote alarm systems.
  Up to 3 amps 30 volts (DC) or 2 amps 250 volts (AC)
  Visual remote alarm is standard.
  Audio/Visual alarm optional.
- Electrical - 115 volts (AC).
- Maximum inlet pressure 350 PSIG
- Maximum flow rate
  240 . . . . . .750 SCFH
  240HP . . . . . .800 SCFH
- Adjustable line regulator
  240 . . . . . .40-85 PSIG
  240HP . . . . . .40-180 PSIG
- Manifold outlet - 1/2″ NPT
- Relief valve outlet - 1/4″ NPT
- Minimum inlet
  240 . . . . . .125 PSIG
  240HP . . . . . .250 PSIG
- 240 Series for use with 235 PSIG relief valve Dewars.
- 240HP Series for use with 350 PSIG relief valve Dewars.

ORDERING INFORMATION

240	XX(XX)	XX(XX)	XXX
SERIES	**RIGHT HEADER (# cylinders)**	**LEFT HEADER (# cylinders)**	**GAS SERVICE**
240	**72″ PIGTAILS**	**72″ PIGTAILS**	320-Carbon Dioxide
240HP	1R72	1L72	540-Oxygen
	2R72	2L72	580-Argon/Nitrogen
	3R72	3L72	326-Nitrous Oxide

Manifold Headers

- Wall brackets and header valves included
- Brass headers feature packed stem valve design
- Stainless steel header valves feature packless valve design
- Brass headers are 1/2" NPT silver brazed pipe
- Stainless headers are 1/2" NPT GTAW pipe, electropolished
- Order pigtails separately



MATERIAL	CYLINDERS	RIGHT HEADER		LEFT HEADER	
		RIGHT HAND THREAD	LEFT HAND THREAD	RIGHT HAND THREAD	LEFT HAND THREAD
BR-Brass	2 Cylinders	9103309	9103311	9103310	9103312
	3 Cylinders	9103313	9103315	9103314	9103316
	4 Cylinders	9103317	9103319	9103318	9103320



STATION VALVES

FOR USE WITH:	VALVE NO.	PART NO.	INLET (NPT-MALE)	OUTLET CLASS "C"
OXYGEN	260	9005086	1/2"	7/8-14-RH
ALL FLAMMABLE GASSES	261	9005088	1/2"	7/8-14-LH

Manifold Accessories

Header Extension

Part No.	Materials	Length	Connection	Header Plug
9103300	Brass	10″	1/2″ NPT	9005711
9103304	Stainless Steel	10″	1/2″ NPT	9005715



Adjustable Wall Bracket

Part No.	Description
9103308	90°, Black, includes u-bolt and mounting clamp



Header Valves

Part No.	Material	Valve Type	Inlet	Outlet
9005700	Brass	Packed Stem	1/2″ MNPT	580 CGA
9107062	Stainless Steel	Diaphragm	1/4″ MNPT	1/4″ FNPT
9005706	Brass	Master Shut-Off Valve	1/2″ FNPT	1/2″ FNPT



Diaphragm Valve



Packed Stem



Master Shutoff

Flash Arrestors

Part No.	Material
4300378	1/4″ FNPT x 1/4″ FNPT



Provides 3-way protection which prevents the flashback of fuel gas and oxygen. An internal check valve prevents backflow while 3 feet of coiled stainless steel tubing absorbs the heat and extinguishes the flame from a flashback. The flashback closes the shut-off valve eliminating the possibility of the flame propagating upstream. The flash arrestor can be used with oxygen and/or fuel gases.



Union Nipple



Union Nut



Union Bushing

Manifold Connection Fittings

Part No.	Material	Description	Pressure Rating PSIG
9005701	Brass	1.00 - 11.5 NPS union nut, RH	3000
9005725	Brass	1.00-11.5 NPS union nut, LH	3000
9005703	Brass	1/2 NPT union nipple, 3″ long	3000
9005708	Brass	1.00 - 11.5 NPS x 1/2 NPT union bushing, RH	3000
9005726	Brass	1.00 - 11.5 NPS x 1/2 NPT union bushing, LH	3000
9005747	Brass	1.00 - 11.5 NPS x 3/8 NPT union bushing, RH	3000
9005727	Brass	1.00 - 11.5 NPS x 3/8 NPT union bushing, LH	3000



Manifold Accessories

Remote Alarm Kits Not For Fuel Gas Service

PART NO.	DESCRIPTION	USE WITH MANIFOLD SERIES
4300340	Visual Only	Standard on 220, 230, 240 Systems
4300341	Visual and Audio	Optional on 220, 230, 240 Systems
4300342	Visual and Audio for Two Gas System	Optional on 220, 230, 240 Systems

Remote Alarm Kits For Fuel Gas Service

PART NO.	GAS SERVICE	DESCRIPTION	USE WITH MANIFOLD SERIES
4300343	Acetylene	Visual and Audio	Standard on 220 Acetylene Systems
4300344	Hydrogen	Visual and Audio	Standard on 220 Hydrogen Systems
4300345	LPG Gases	Visual and Audio	Standard on 220 LPG Gas Systems

Fuel Gas Safety Kits

PART NO.	GAS SERVICE	DESCRIPTION	FLOW CAPACITY	USE WITH MANIFOLD SERIES
4300346	Acetylene	Dry Arrestor Kit	300 SCFH	Standard on 220 Acetylene Systems
4300347	Acetylene	Hydraulic Arrestor Kit	300 SCFH	Standard on 220 Hydrogen Systems

Flashback Arrestors

PART NO.	GAS SERVICE	DESCRIPTION	FLOW CAPACITY	INLET AND OUTLET CONNECTIONS
4300348	Acetylene	Dry Arrestor	300 SCFH	1/2" NPT
4300349	LPG/Hydrogen	Dry Arrestor	300 SCFH	1/2"NPT
4300350	Acetylene	Hydraulic Arrestor	300 SCFH	1" NPT
4300354	LPG/Hydrogen	Hydraulic Arrestor	300 SCFH	1" NPT
4300355	Acetylene	Hydraulic Arrestor	1000 SCFH	1-1/2" NPT
4300356	LPG/Hydrogen	Hydraulic Arrestor	1000 SCFH	1-1/2" NPT
4300357	Acetylene	Hydraulic Arrestor	300 SCFH	1" NPT Floor Stand
4300358	LPG/Hydrogen	Hydraulic Arrestor	1000 SCFH	1-1/2" NPT Floor Stand

Flexible Pigtails

PART NO.	OUTER MATERIAL & FITTINGS	INNER CORE	LENGTH	CONNECTIONS	PRESSURE RATING PSIG
9005745	Stainless Steel	PTFE	24"	1/4" FNPT x 1/4" FNPT	3000
9005731	Stainless Steel	Stainless Steel	24"	1/4" FNPT x 1/4" FNPT	3000
4300534	Stainless Steel	PTFE	36"	1/4" MNPT x 1/4" MNPT	5500
4300537	Stainless Steel	PTFE	72"	1/4" MNPT x 3/8" MNPT	5500
9005769	Stainless Steel	Stainless Steel	36"	1/4" FNPT x 1/4" FNPT	3000
9005770	Stainless Steel	PTFE	36"	1/4" FNPT x 1/4" FNPT	3000
9005771	Stainless Steel	Stainless Steel	36"	1/4" FNPT x 3/8" FNPT	3000
9005754	Stainless Steel	Stainless Steel	24"	1/4" FNPT x 3/8" FNPT	3000
9005729	Stainless Steel	PTFE	24"	1/4" FNPT x 3/8" FNPT	3000
9005768	Stainless Steel	PTFE	36"	1/4" FNPT x 1/4" FNPT	3000



Manifold Accessories

Replacement Pigtails

PART NO.	INNER CORE	CYLINDER CONNECTION	LENGTH	MANIFOLD CONNECTIONS	PRESSURE RATING PSIG
9103352	PTFE	300 A	24″	510	500
9103353	PTFE	320	24″	580	3000
9103354	PTFE	326	24″	580	3000
9103355	PTFE	346	24″	580	3000
9103356	PTFE	350	24″	350	3000
9103357	Thermo Plastic	350 H	24″	350	3000
9103358	PTFE	510	24″	510	500
9103359	PTFE	510 A	24″	510	500
9103360	PTFE	540	24″	540	3000
9103361	PTFE	580	24″	580	3000
9103362	Thermo Plastic	580 H	24″	580	3000
9103363	PTFE	300 A	36″	510	500
9103364	PTFE	320	36″	580	3000
9103365	PTFE	326	36″	580	3000
9103366	PTFE	346	36″	580	3000
9103367	PTFE	350	36″	350	3000
9103368	Thermo Plastic	350 H	36″	350	3000
9103369	PTFE	510	36″	510	500
9103370	PTFE	510 A	36″	510	500
9103371	PTFE	540	36″	540	3000
9103372	PTFE	580	36″	580	3000
9103373	Thermo Plastic	580 H	36″	580	3000

Station Drops

PART NO.	GAS SERVICE	OUTLET CONNECTION	LENGTH	DESCRIPTION
4300361	Acetylene	7/8″-14 LH	25″	1/2″ Single Outlet Station Drop
4300362	Compressed Air	9/16″-18 RH	25″	1/2″ Single Outlet Station Drop
4300363	Argon	5/8″-18 RH	25″	1/2″ Single Outlet Station Drop
4300364	Carbon Dioxide	5/8″-18 RH	25″	1/2″ Single Outlet Station Drop
4300365	Helium	5/8″-18 RH	25″	1/2″ Single Outlet Station Drop
4300366	Hydrogen	7/8″-14 LH	25″	1/2″ Single Outlet Station Drop
4300367	Nitrogen	5/8″-18 RH	25″	1/2″ Single Outlet Station Drop
4300368	Oxygen	7/8″-14 RH	25″	1/2″ Single Outlet Station Drop
4300369	LPG GASES	7/8″-14 LH	25″	1/2″ Single Outlet Station Drop
4300391	Acetylene	7/8″-14 LH	35″	1/2″ Double Outlet Station Drop
4300392	Compressed Air	9/16″-18 RH	35″	1/2″ Double Outlet Station Drop
4300393	Argon	5/8″-18 RH	35″	1/2″ Double Outlet Station Drop
4300394	Carbon Dioxide	5/8″-18 RH	35″	1/2″ Double Outlet Station Drop
4300395	Helium	5/8″-18 RH	35″	1/2″ Double Outlet Station Drop
4300396	Hydrogen	7/8″-14 LH	35″	1/2″ Double Outlet Station Drop
4300397	Nitrogen	5/8″-18 RH	35″	1/2″ Double Outlet Station Drop
4300398	Oxygen	7/8″-14 RH	35″	1/2″ Double Outlet Station Drop
4300399	LPG GASES	7/8″-14 LH	35″	1/2″ Double Outlet Station Drop



Regulator & Torch Safety Accessories

Harris Model 88-5 FBR Flash-Guard® Regulator & Torch Flashback Arrestors

- Prevents reverse flow of gases with built-in check valves
- Extinguishes flashback fire with stainless steel sintered element
- 9/16" - 18 outlets
- 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 - #5 (except for NFF TIPS - #4
  - Machine Cutting Tips - #5 1/2
  - Acetylene Heating Tips - #4
  - Alternate Fuel Heating Tips - #2
  - Cleaning Heads - #2 RBP (no limitation with RBA)
- U.L. Listed



Torch Type
Model 88-5FBT (R&L)
(P/N 4301650)
Sold in pairs only

Regulator Type
Model 88-5FBR (R&L)
(P/N 4301651)
Sold in pairs only



Harris Model 88-5 FBHR Flash-Guard® High Flow Regulator Flashback Arrestors



High Flow Regulator Type
Model 88-5FBHFR (R&L)
(P/N 4301652) - Oxygen
(P/N 4301655) - Fuel
Sold separately

- Same features as Model 88-5FBR (R&L) above plus a thermal shut-off which positively shuts off the gas in case of hose fire, burn back or repeated flashbacks.
- High flow capacity - can be used with alL Harris tips
- U.L. Listed



Regulator Type
Model 26-QCR (R&L)
(P/N 4301653)
Sold in pairs only



Torch Type
Model 26-QCT (R&L)
(P/N 4301654)
Sold in pairs only

Harris Quick Connectors

- 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
- 9/16" - 18 ("B") outlets

Harris Flash-Guard® Check Valves

Check valves fully open with only ounces of pressure. If reverse flow starts, the valve closes immediately for total shutoff.

- High Capacity- adequate for cutting 15" steel and for operating the largest heating torches
- Quality Manufacture- valve spring made of stainless steel for long life
- 100% Production Tested- individually tested and packaged immediately to assure cleanliness
- 9/16" - 18 connections
- Conforms to OSHA regulations
- U.L. Listed

Torch Type
Model 88-6CVT (R&L)
Blister Pack Pair
(P/N 4300390)



88-6CVTL
(4300161)

88-6CVTR
(4300162)

Regulator Type
Model 88-6CVR (R&L)
Blister Pack Pair
(P/N 4300389)
Mounts on regulator outlet.



88-6CVRL
(4300384)

88-6CVRR
(4300383)

Regulator Type
Permanently mounts in the regulator replacing the outlet nipple.
(sold separately only)



88-7CVRL
(4300382)

88-7CVRR
(4300381)

Gauges



1 ½" Dual Scale (psi/kPa)

PART NO.	PRESSURE PSI/KPA
9006044	30/200 Red Zone
9006051	30/200
9006035	150/1000
9006030	400/2800
9006025	4000/28000

NOTE: 1/8-NPT Stem

2" Dual Scale (psi/kPa) 1/4-NPT

PART NO.	PRESSURE PSI/KPA
9006127	30/200
9006128	30/200
9006120	60/400
9006125	150/1000
9006130	400/2800
9006135	4000/28000

NOTE: 1/4-NPT Stem

Flowgauges* 1/4-NPT

PART NO.	FLOW SCFH
9006133	0-60
9006139	0-100
9006417	5-30

NOTE: 1/4-NPT Stem

* Flowgauge must be matched with the proper drilled orifice and gas to be accurate.

2 ½" Dual Scale (psi/kPa)

PART NO.	PRESSURE PSI/KPA
9006100	30/200 Red Zone
9006102	30/200
9006070	60/400
9006075	100/700
9006065	200/1400
9006060	400/2800
9006085	2000/14000
9006050	4000/28000
9006197	6000/40000

NOTE: 1/4-NPT Stem



Hose

PART NO.	DESCRIPTION
4300556	3/16" X 12' twin hose
4300005	3/16" X 12' twin hose, A & B fittings
4300557	3/16" X 12' twin hose
4300533	1/4" X 20' twin hose, 'T' grade (Alt. fuel)
4300532	3/16" X 20' twin hose, 'T' grade (Alt. fuel)
4300500	1/4" X 20' twin hose
4300530	1/4" X 50' twin hose
4300564	3/16" X 10' single line inert gas hose



Pro Series



Classic Series

Tip Nuts

PART NO.	DESCRIPTION
9002560	Tip Nut (for 98, 72-2, 72-3)
9005227	Tip Nut (for V-1350)
9005236	Tip Nut (for V-2460, V-62-4)
9002537	Tip Nut (for 2101, 3101, 880)



Inlet Nuts and Stems

Harris inlet assemblies feature forged brass nuts, machined brass inlet stems and sintered metal filters to protect the regulator from foreign particles.



CGA 200
"MC" TANK



CGA 300



CGA 320



CGA 326



CGA 346



CGA 350



CGA 510



CGA 520
"B" TANK



CGA 540



CGA 580

CGA CONN NO.	STANDARD CONN FOR (TYPE GAS)	NUT NO.	STEM NO. (1/2" - 27)*	STEM NO. (1/4" - NPT)	RETAINING RING NO.
CGA 200	ACETYLENE	9003056	9100335	-	9004030
		9005132	-	9005126	9005133
CGA 300	ACETYLENE	9002984	9100740	9005108	9004030
CGA 320	CARBON DIOXIDE	9002986	9100746	9005114	9004030
CGA 510P	(GASKET 9002910)				
CGA 326	NITROUS OXIDE	9002966	9101320	9005149	9004030
CGA 346	MEDICAL AIR	9002969	9100727	9000319	9004030
CGA 350	HYDROGEN	9003006	9100760	9005145	9004030
CGA 510	ACETYLENE	9002972	9100704	9005109	-
	PROPANE	9002974	9100704	9005109	-
CGA 520	ACETYLENE	9002980	9100738	9005125	9004030
CGA 540	OXYGEN	9002950	9100728	9005110	9004030
CGA 580	NITROGEN				
	ARGON, HELIUM	9003048	9100704	9005109	-
CGA 590	INDUSTRIAL AIR (WAS ARGON, HELIUM, NITROGEN)	9003052	9100704	9005109	-

NOTE: Additional lengths available. Contact Harris Calorific customer service for additional lengths.

High Pressure 5500 PSIG Inlet Stems and Nuts

CGA CONN NO.	STANDARD CONN FOR (TYPE GAS)	NUT NO.	STEM NO. (1/4" - NPT)	RETAINING RING NO.
CGA 347	AIR	9003001	9005161	-
CGA 680	Ar, He, N2	9003000	9005160	-
CGA 695	H2	9002963	9005160	-



Surge Guard Protection

CGA CONN NO.	STANDARD CONN OXY	STEM NO. (1/2" - 27)*	STEM NO. (1/4" - NPT)
540	OXYGEN	9105600	9105602

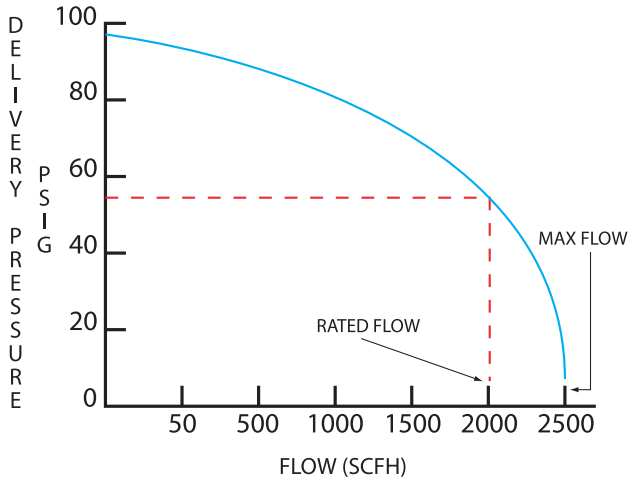
*Stem will fit Harris regulator only.



CGA 590

Regulator Performance Definitions

1. 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 (horizontal 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.

TABLE 1a.
GAS CORRECTION FACTORS

Carbon Dioxide	.81
Propane	.81
Propylene	.83
Argon	.85
Oxygen	.95
Air	1.00
Nitrogen	1.017
Acetylene	1.05
Methane	1.34
Helium	2.7
Hydrogen	3.8

2. What is a Cv?

The Cv or the flow coefficient is a number which represents the flow capacity of a regulator for a given set of conditions. The Cv can be used to compare flow capacity between two regulators. The higher the Cv, the greater the flow capacity. The Cv values listed in this catalog represent the overall Cv.

3. What is pressure rise?

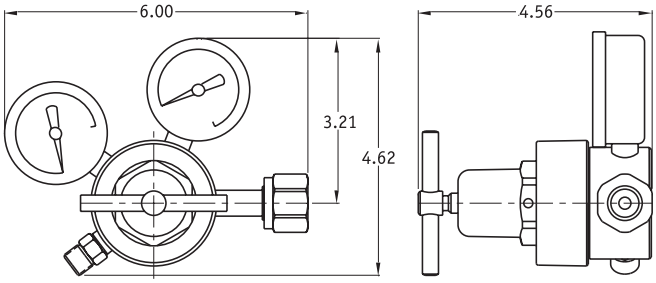
Pressure rise is the change in set delivery pressure as a result of a drop or decay in inlet pressure. For example, the rise on a Model 25 is expressed as .2 PSIG.

4. What is CGA E-4?

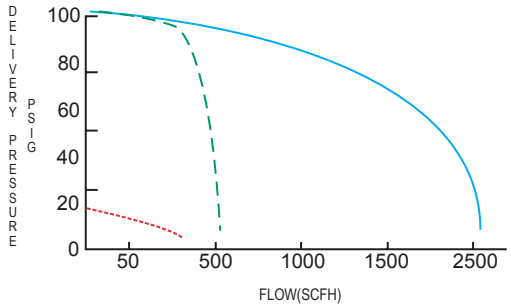
CGA E-4 is a regulator standard developed by the Industrial Gas Apparatus Committee of the Compressed Gas Association. The standard defines product safety requirements, product test requirements and performance characteristics to meet field applications.

Regulator Technical Data 301 & 2500

Model 301



Regulator Weight: 2.2lbs.
Pressure Rise: .4 PSIG per 100 PSIG
Cv: .08

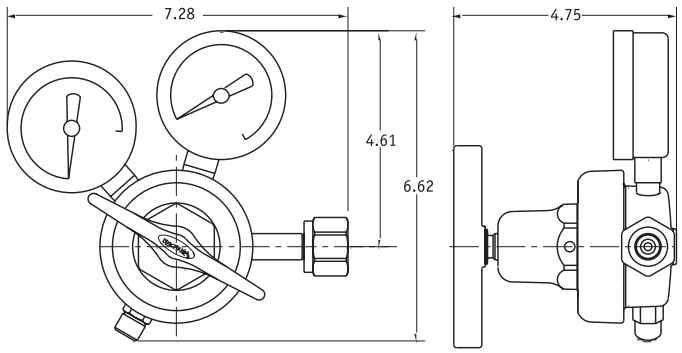


Model 301 Single Stage Regulator

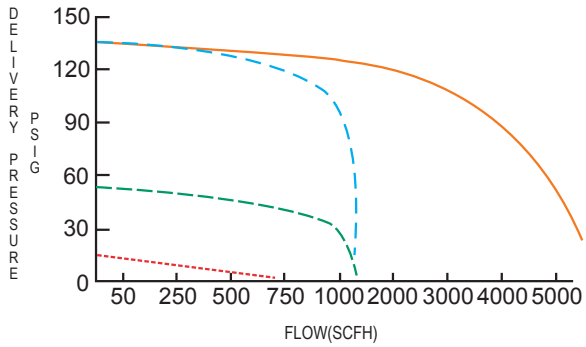
All flows based on air @ 70°F

- 301-100 @ 2000 PSIG inlet
- 301-100 @ 200 PSIG inlet
- 301-15 @ 200 PSIG inlet

Model 2500



Regulator Weight: 4.6lbs.
Pressure Rise: .3 PSIG per 100 PSIG
Cv: .17



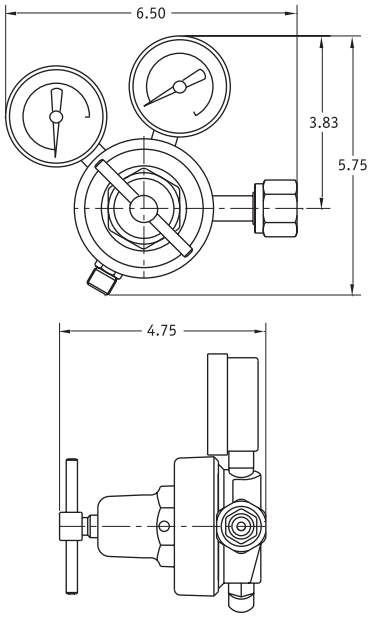
Model 2500 Single Stage Regulator

All flows based on air @ 70°F

- 2500-125 @ 2000 PSIG inlet
- 2500-125 @ 200 PSIG inlet
- 2500-50 @ 200 PSIG inlet
- 2500-15 @ 200 PSIG inlet

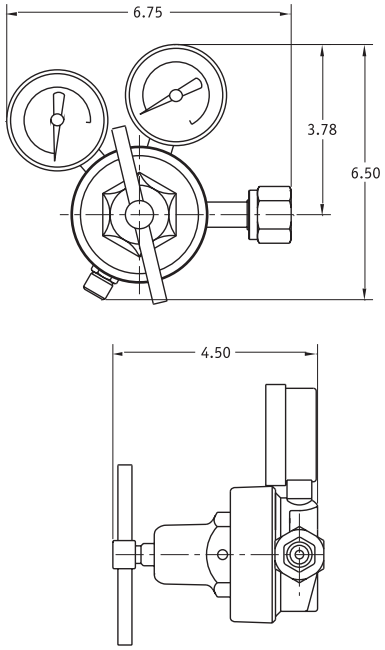
Regulator Technical Data 25, 29 & 425

Model 25



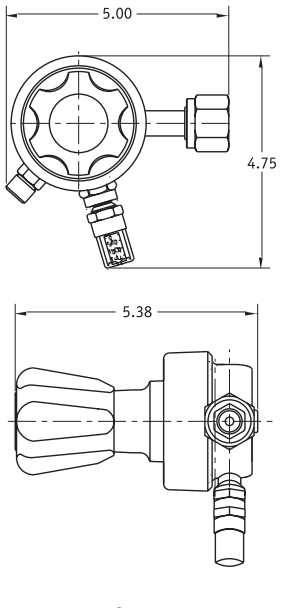
Regulator Weight: 2.9lbs.
Pressure Rise: .2 PSIG per 100 PSIG
Cv: .17

Model 425

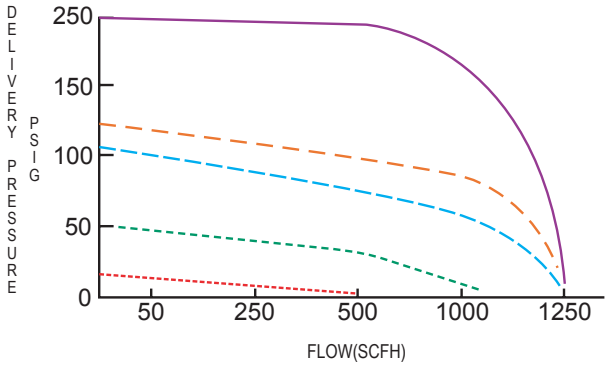


Regulator Weight: 3.7lbs.
Pressure Rise: .2 PSIG per 100 PSIG
Cv: .17

Model 29



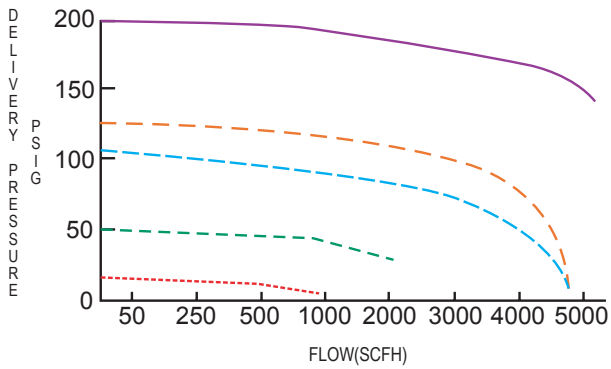
Regulator Weight: 2.7lbs.
Pressure Rise: .2 PSIG per 100 PSIG
Cv: .17



Model 25,29 & 425 - 200 PSIG Inlet

All flows based on air @ 70°F

- 25,29,425-200 @ 200 PSIG inlet
- 29,425-125 @ 200 PSIG inlet
- 25-100 @ 200 PSIG
- 25,29,425-50 @ 200 PSIG inlet
- 25,29,425-15 @ 200 PSIG inlet

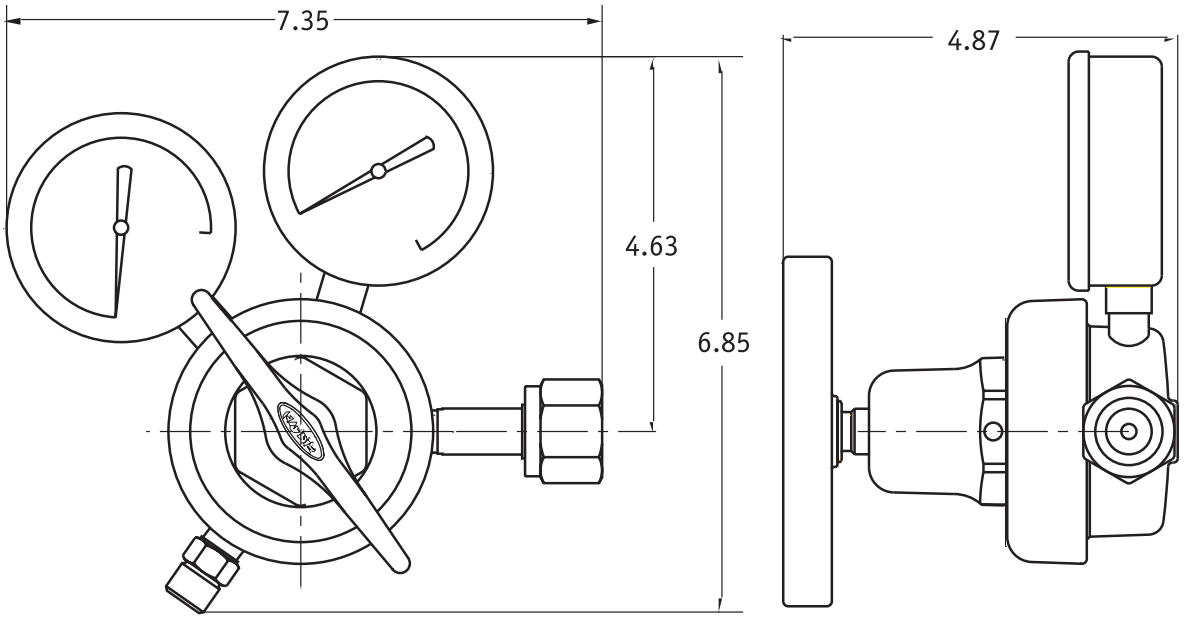


Model 25,29 & 425 - 2000 PSIG Inlet

All flows based on air @ 70°F

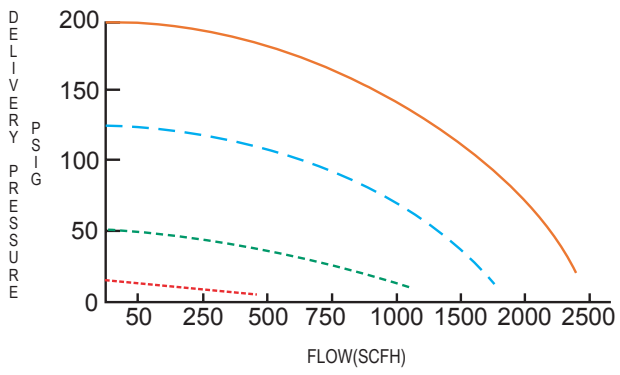
- 25,29,425-200 @ 2000 PSIG inlet
- 29,425-125 @ 2000 PSIG inlet
- 25-100 @ 2000 PSIG
- 25,29,425-50 @ 2000 PSIG inlet
- 25,29,425-15 @ 2000 PSIG inlet

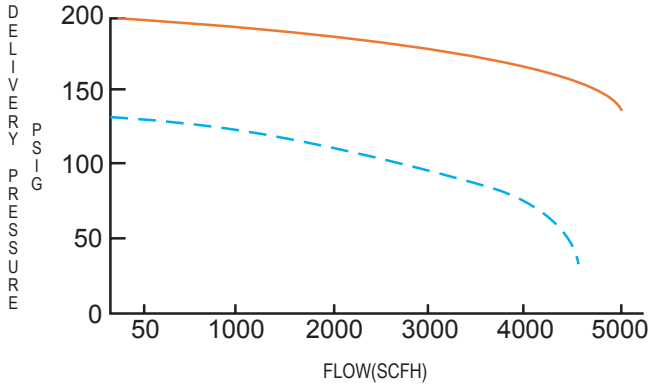
Regulator Technical Data 3500



Regulator Weight: 4.6lbs.
For Models 3003504, 3003505, 3003514, 3003540, 3003541, 3003538, 3003539 and all 3510 Manifold Regulators
Pressure Rise: 1.6 PSIG per 100 PSIG
Cv: .55

For other models:
Pressure Rise: .9 PSIG per 100 PSIG
Cv: .4





Model 3500 Regulator - 200 PSIG Inlet

All flows based on air @ 70°F

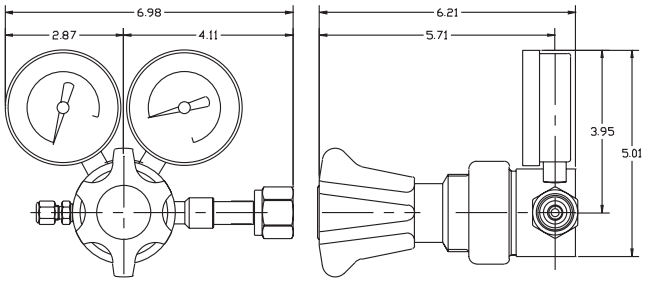
- 3500-200 @ 200 PSIG inlet
- 3500-125 @ 200 PSIG inlet
- 3500-50 @ 200 PSIG inlet
- 3500-15 @ 200 PSIG inlet

Model 3500 Regulator - 2000 PSIG Inlet

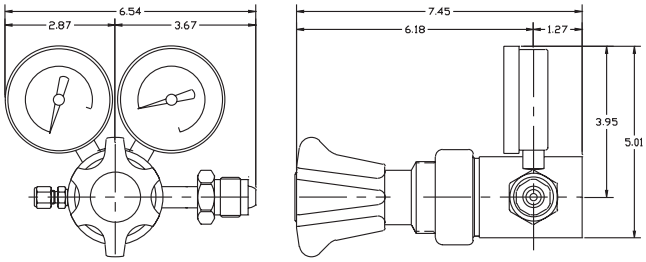
All flows based on air @ 70°F

- 3500-200 @ 2000 PSIG inlet
- 3500-125 @ 2000 PSIG inlet

Regulator Technical Data 8700 & 25-500C

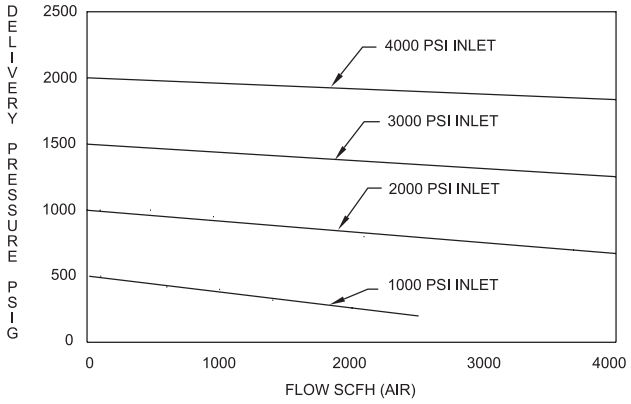


Regulator Weight: 5.8 lbs.
Pressure Rise: 3.3 PSIG per 100 PSIG
Cv: .08

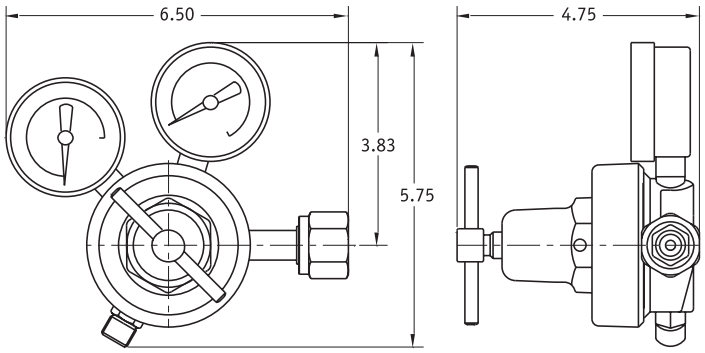


Regulator Weight: 7.0 lbs.
Pressure Rise: 3.3 PSIG per 100 PSIG
Cv: .08

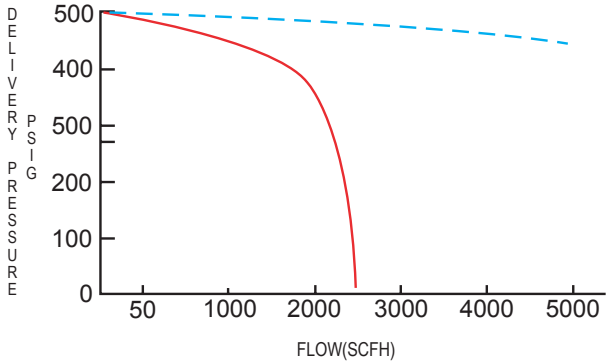
Model 8700



Model 25-500C



Regulator Weight: 3.4lbs.
Pressure Rise: .2 PSIG per 100 PSIG
Cv: .17



Model 25-500C High Pressure Single Stage Regulator

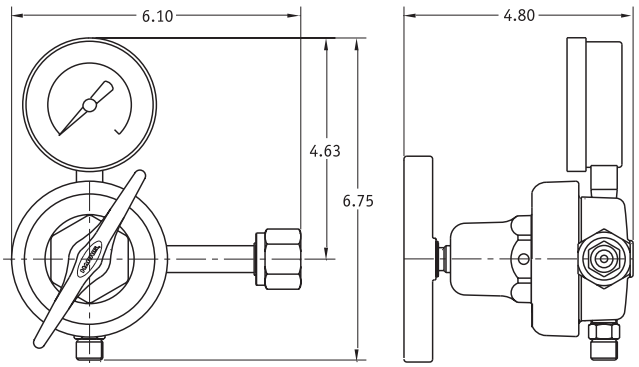
All flows based on air @ 70°F

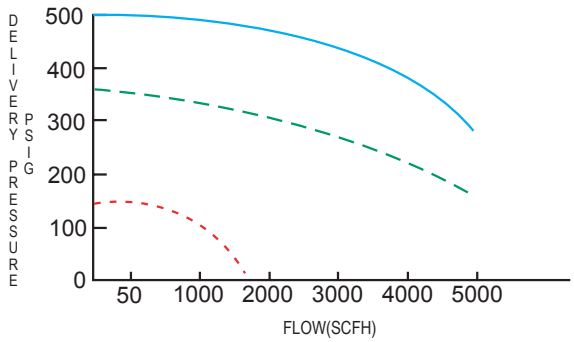
- – – – 25-500C @ 500 PSIG inlet
- ——— 25-500C @ 2000 PSIG inlet



Regulator Technical Data 330 & 447/547

Model 330





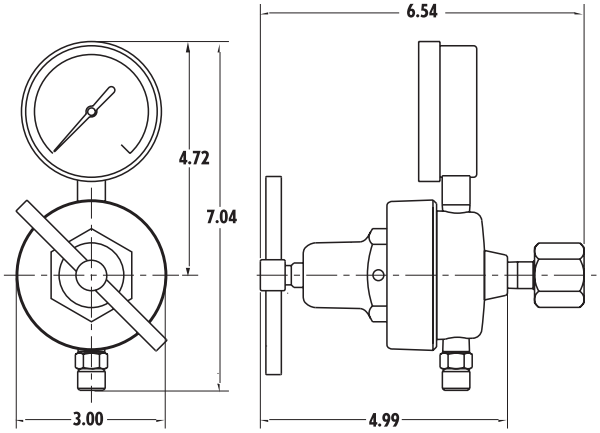
Regulator Weight: 4.3lbs.
Cv: .37

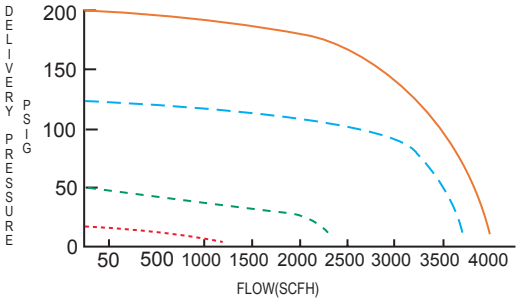
Model 330 Liquid Cylinder Regulator

All flows based on air @ 70°F

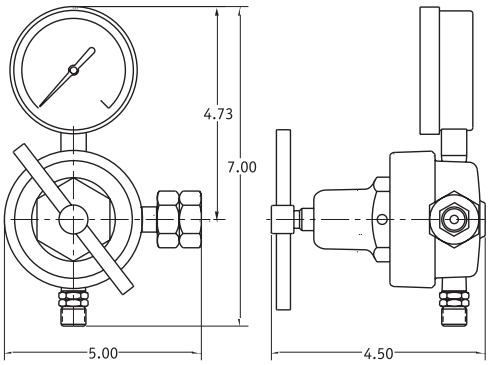
- 330-125 @ 200 PSIG inlet
- 330-350 @ 400 PSIG inlet
- 330-500 @ 600 PSIG inlet

Model 447





Model 547



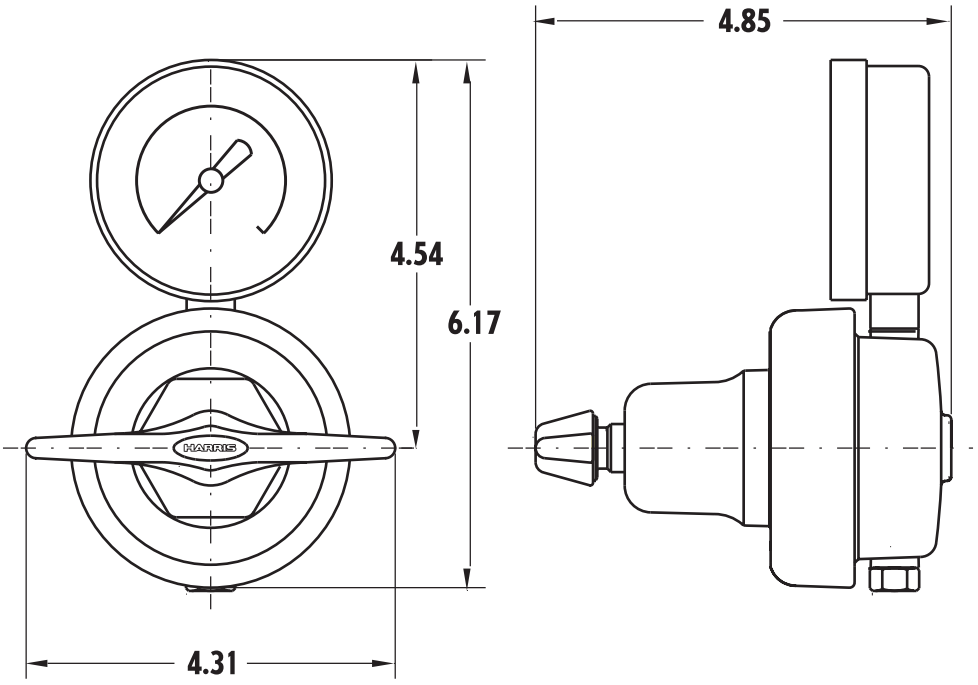
Regulator Weight: 3.6lbs.
Cv: .53

Model 447/547 Station/Pipeline Regulator

All flows based on air @ 70°F

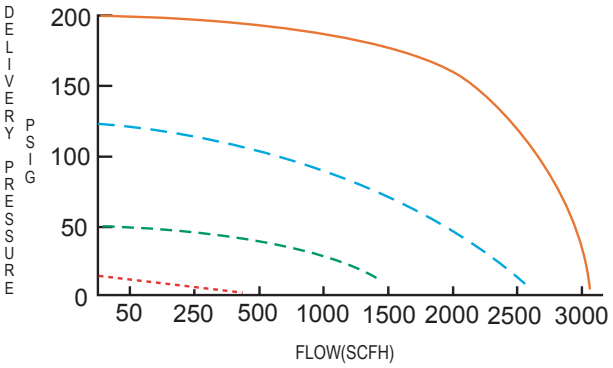
- 447/547-200 @ 200 PSIG inlet
- 447/547-125 @ 200 PSIG inlet
- 447/547-50 @ 200 PSIG inlet
- 447/547-15 @ 200 PSIG inlet

Regulator Technical Data 2548

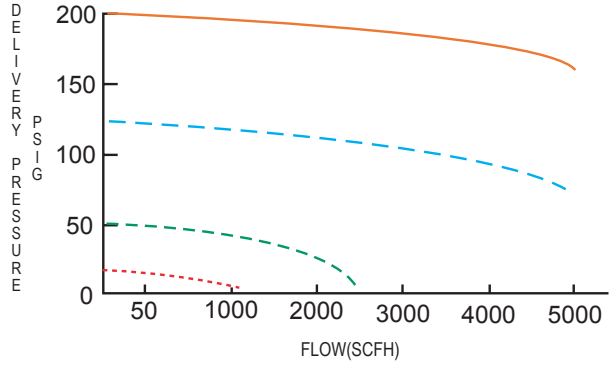


Regulator Weight: 3.8lbs.
Pressure Rise: .9 PSIG per 100 PSIG
Cv: .4

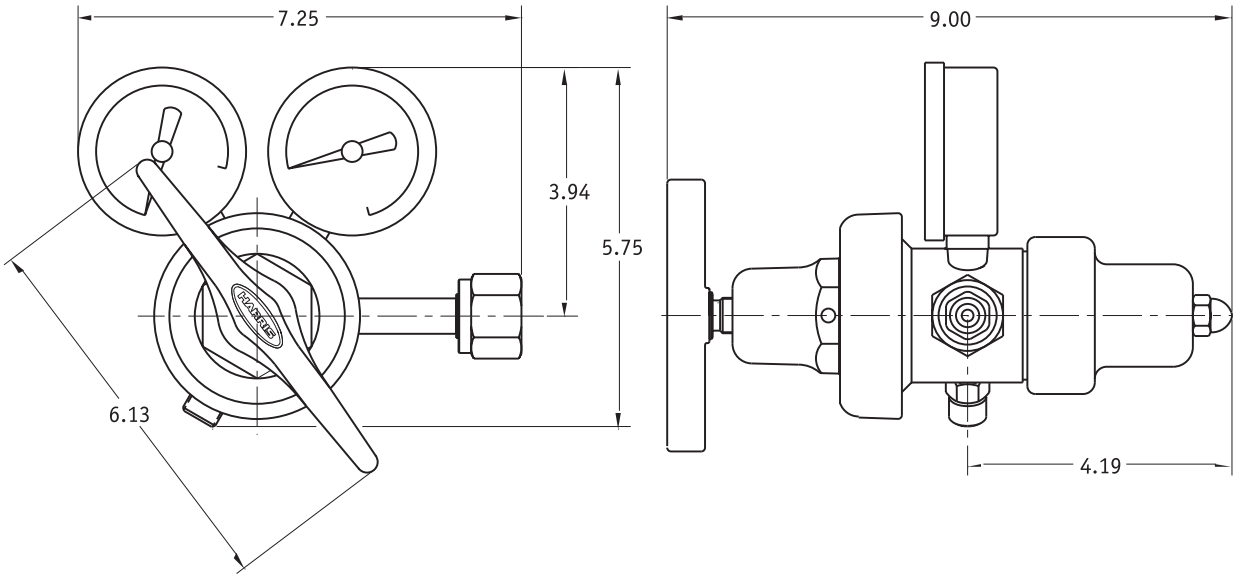
Model 2548 Pipeline Regulator - 200 PSIG Inlet
All flows based on air @ 70°F
2548-200 @ 200 PSIG inlet
2548-125 @ 200 PSIG inlet
2548-50 @ 200 PSIG inlet
2548-15 @ 200 PSIG inlet



Model 2548 Pipeline Regulator - 2000 PSIG Inlet
All flows based on air @ 70°F
2548-200 @ 2000 PSIG inlet
2548-125 @ 2000 PSIG inlet
2548-50 @ 2000 PSIG inlet
2548-15 @ 2000 PSIG inlet



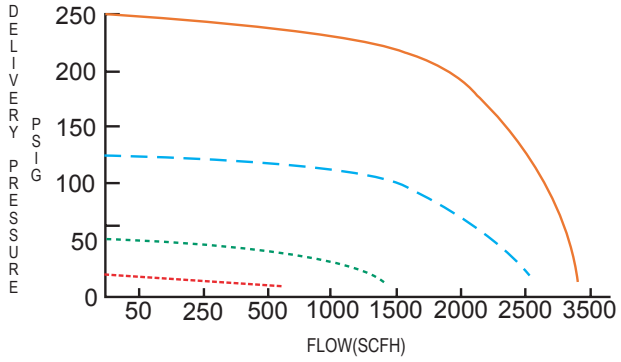
Regulator Technical Data 9200



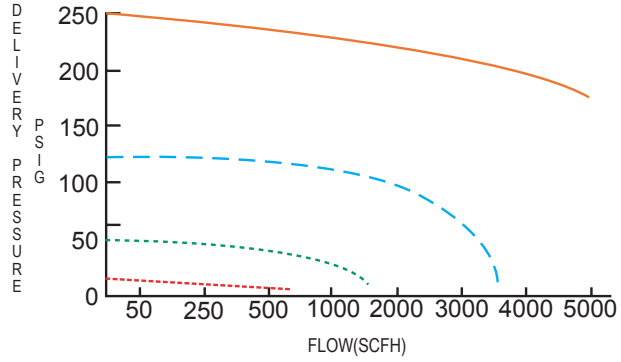
Regulator Weight: 6.8lbs.
FOR FUEL GAS MODELS (3302210, 3302211 and 3302212)
Pressure Rise: .05 PSIG per 100 PSIG
Cv: .53

FOR OTHER MODELS:
Pressure Rise: .03 PSIG per 100 PSIG
Cv: .37

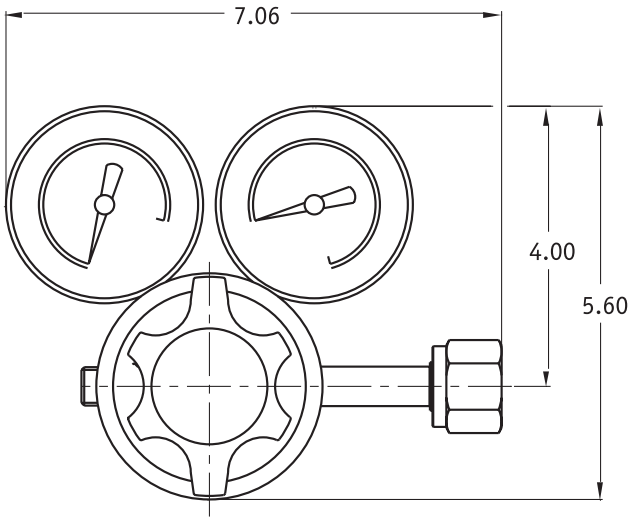
Model 9200 Two Stage Regulator - 200 PSIG Inlet
All flows based on air @ 70°F
9200-250 @ 250 PSIG inlet
9200-125 @ 200 PSIG inlet
9200-50 @ 200 PSIG inlet
9200-15 @ 200 PSIG inlet

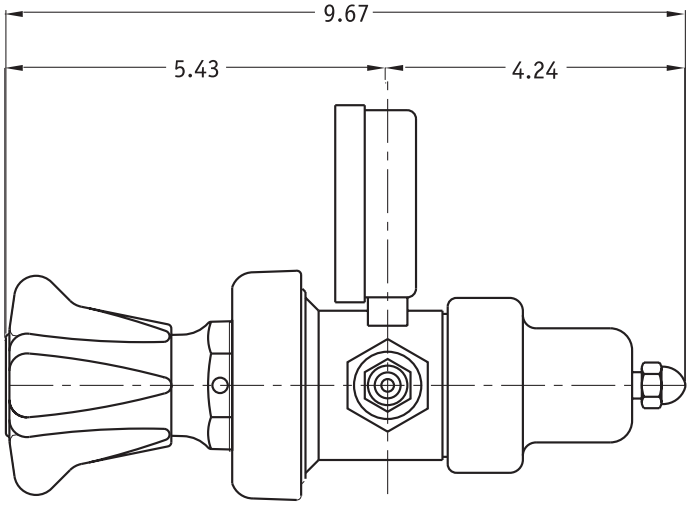


Model 9200 Two Stage Regulator - 2000 PSIG Inlet
All flows based on air @ 70°F
2548-200 @ 2000 PSIG inlet
2548-125 @ 2000 PSIG inlet
2548-50 @ 2000 PSIG inlet
2548-15 @ 2000 PSIG inlet

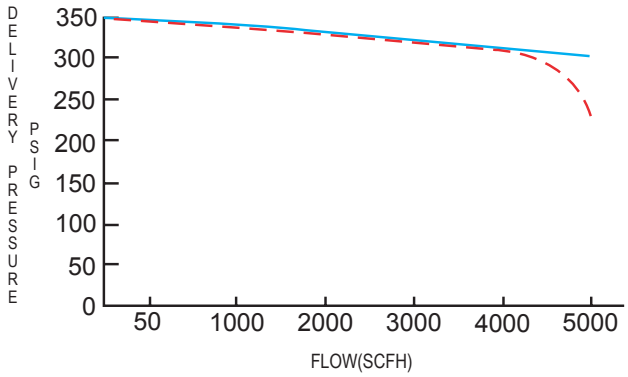


Regulator Technical Data 9235



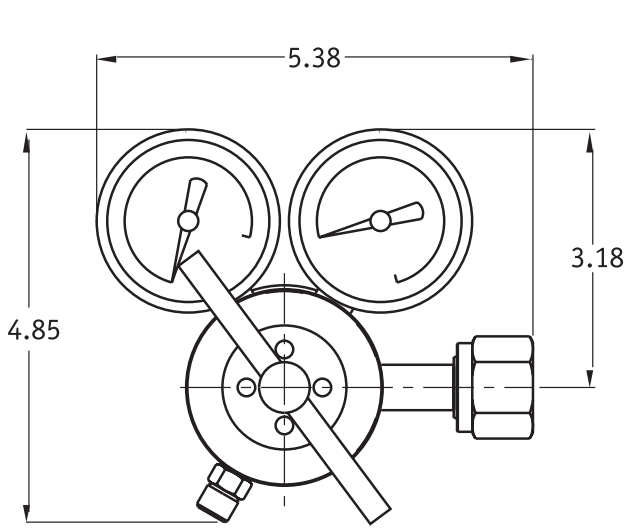


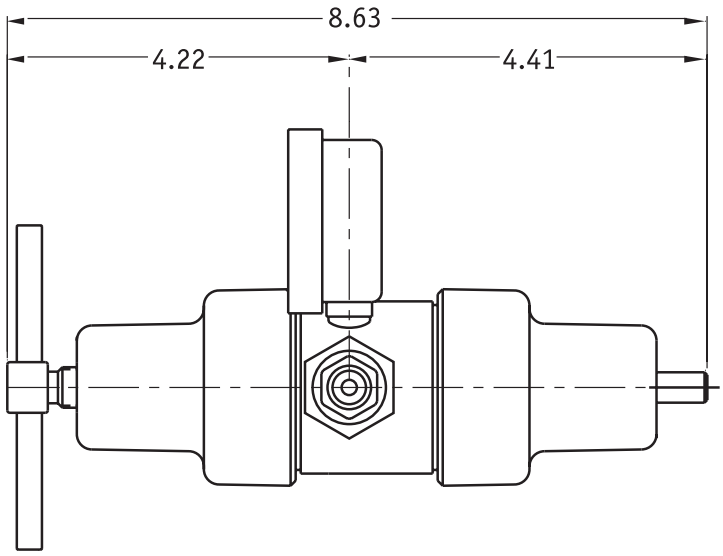
Regulator Weight: 6.9lbs.
Pressure Rise: .05 PSIG per 100 PSIG
Cv: .4



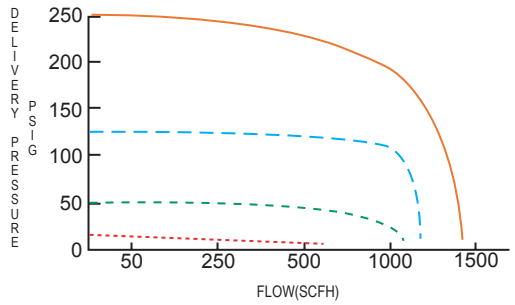
Model 9235 Two Stage Regulator
All flows based on air @ 70°F
9235-350 @ 2000 PSIG inlet
9235-350 @ 500 PSIG inlet

Regulator Technical Data 9296





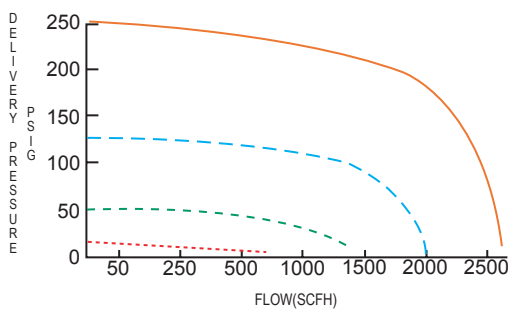
Regulator Weight: 4.8lbs.
Pressure Rise: .04 PSIG per 100 PSIG
Cv: .15



Model 9296 Two Stage Regulator

All flows based on air @ 70°F

- 9296-250 @ 250 PSIG inlet
- 9296-125 @ 200 PSIG inlet
- 9296-50 @ 200 PSIG inlet
- 9296-15 @ 200 PSIG inlet



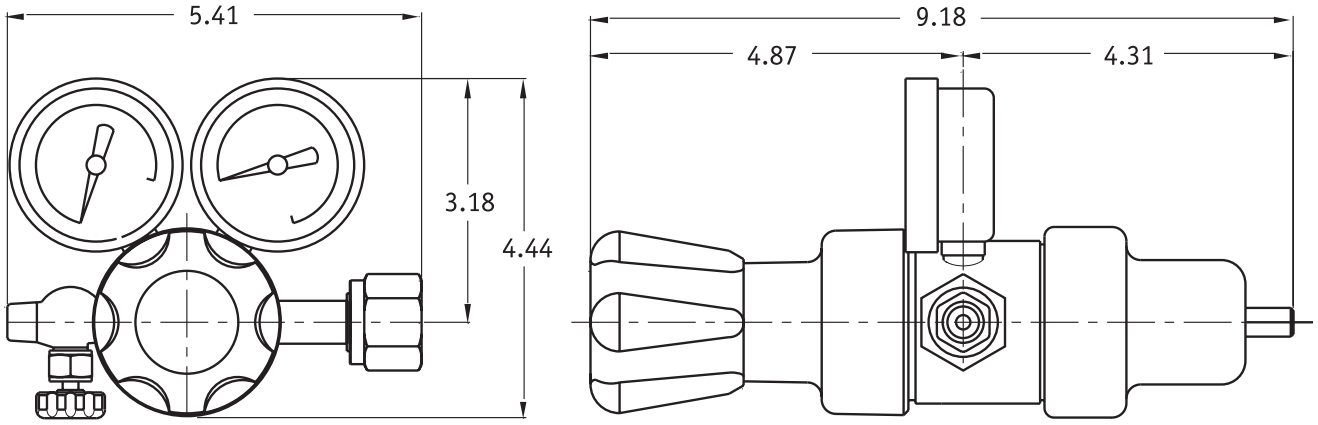
Model 9296 Two Stage Regulator

All flows based on air @ 70°F

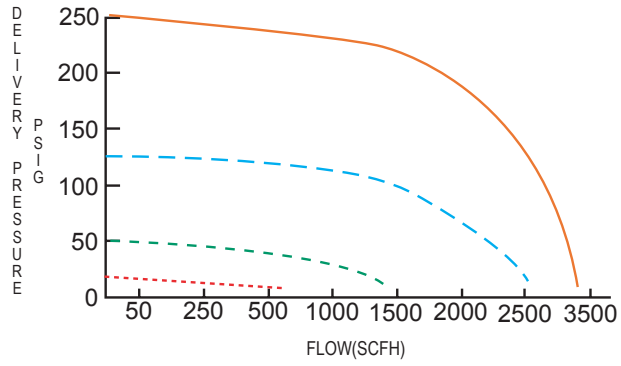
- 9296-250 @ 2000 PSIG inlet
- 9296-125 @ 2000 PSIG inlet
- 9296-50 @ 2000 PSIG inlet
- 9296-15 @ 2000 PSIG inlet



Regulator Technical Data 9296SS



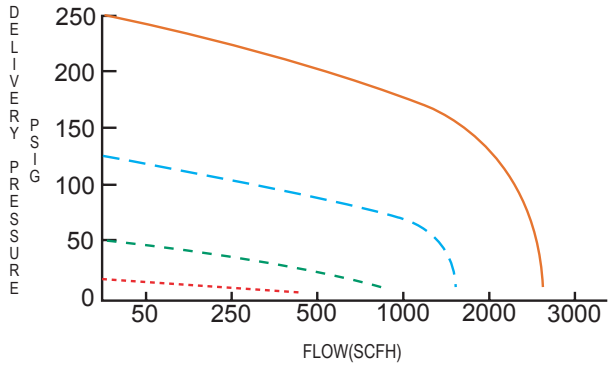
Regulator Weight: 5.4lbs.
Pressure Rise: .04 PSIG per 100 PSIG
Cv: .15



Model 9296 SS Two Stage Regulator

All flows based on air @ 70°F

- 9296 SS-250 @ 250 PSIG inlet
- 9296 SS-125 @ 200 PSIG inlet
- 9296 SS-50 @ 200 PSIG inlet
- 9296 SS-15 @ 200 PSIG inlet



Model 9296 SS Two Stage Regulator

All flows based on air @ 70°F

- 9296 SS-250 @ 2000 PSIG inlet
- 9296 SS-125 @ 2000 PSIG inlet
- 9296 SS-50 @ 2000 PSIG inlet
- 9296 SS-15 @ 2000 PSIG inlet



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