

# **HARRIS<sup>®</sup>**

***GAS APPARATUS & FLOW CONTROL EQUIPMENT***

## ***INTERNATIONAL EQUIPMENT CATALOGUE***



A LINCOLN ELECTRIC COMPANY

***The Harris Products Group - [www.harrisproductsgroup.com](http://www.harrisproductsgroup.com)***



**The Harris Products Group** was formed by combining two strong names in the gas apparatus business: Harris Calorific and JW Harris.

The merger resulted from a series of acquisitions by The Lincoln Electric Company.

Harris Calorific is a manufacturer of gas welding and cutting equipment, industrial and specialty gas regulation equipment and gas distribution systems. J.W. Harris is a major producer of soldering, brazing and welding rings; it manufactures high quality alloys and specializes in phosphorus/ copper and phosphorus/ copper/ silver brazing alloys for the air-conditioning and refrigeration industries.

The result of this merger is a very powerful combination of customer service teams working together to provide best-in-class service to Harris customers.

The Harris products are manufactured by skilled craftsmen using state-of-art technology, with a focus on quality and product testing, to provide customers with the best and most reliable products: 100% tested, 100% of the time, for consistency and precision.

The Harris Products Group includes facilities in the United States, Italy, Poland, Spain, Germany, Mexico and Brazil, giving the Company a broad global footprint.

Today Harris is very proud to supply products and equipment of the highest quality to the global cutting, brazing, soldering and welding markets in over 95 different countries.



**WELDING CUTTING BRAZING SOLDERING**



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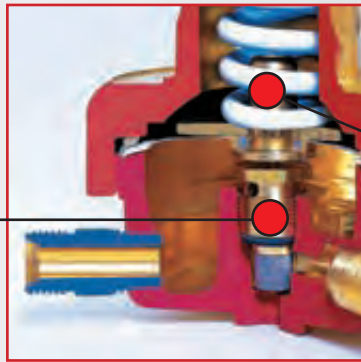
## Regulators

### General features:

- ▶ Harris regulators are designed and manufactured according to the most recent international standards:  
ISO 2503 FOR CYLINDER PRESSURE AND FLOW REGULATORS  
PRESSURE GAUGES CONFORM TO ISO 5171
- ▶ High pressure capsule seat with PTFE (Teflon) sealing surface
- ▶ Compressed gas regulators D version have tamperproof self reseating internal safety relief valve (IRV)
- ▶ All regulators supplied with inlet and outlet to suit country



One piece encapsulated seat with internal filter



Tamper proof, self reseating internal safety relief valve IRV

## Cylinder Pressure Regulators

### Model 601

### Compact single stage cylinder pressure regulator

#### Applications:

- ▶ Light duty cutting, welding and brazing

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ Forged brass body and bonnet
- ▶ Rear inlet connection (side entry optional)
- ▶ 50 mm safety gauge



601-1.5-AC

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
601-1.5-AC	-	Acetylene	25	0-1.5	7	0-2.5	0-40
601-4-LP	-	Propane	25	0-4	20	0-6	0-40
601P-4-LP	one gauge	Propane	25	0-4	20	0-6	
601D-10-OX	-	Oxygen	230	0-10	42	0-16	0-315
601D-10 *	-	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	42	0-16	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.





## Model 801

### Single stage cylinder regulator

#### Applications:

- ▶ Medium duty cutting, heating and welding

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut up to 300 mm steel
- ▶ Smooth adjustment, with high precision
- ▶ Side inlet connection
- ▶ Standard version with chromed bonnet, gold painted gauge case
- ▶ B version fitted with black bonnet and black gauge case



801DB-10-OX

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	SUPPLY PRESSURE GAUGE (bar)	DELIVERY PRESSURE GAUGE (bar)
801-1.5-AC 801B-1.5-AC	-	Acetylene	25	0-1.5	30	0-40	0-2.5
801-4-LP 801B-4-LP	-	Propane	25	0-4	16.5	0-40	0-6
801P-4-LP 801BP-4-LP	one gauge	Propane	25	0-4	16.5		0-6
801D-4-OX 801DB-4-OX	-	Oxygen	230	0-4	100	0-315	0-6
801D-4 * 801DB-4 *	-	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-4	100	0-315	0-6
801D-10-OX 801DB-10-OX	-	Oxygen	230	0-10	155	0-315	0-16
801D-10 * 801DB-10 *	-	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-315	0-16

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 821

### Single stage with rear entry

#### Applications:

- ▶ Medium duty cutting, heating and welding

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut up to 300 mm steel
- ▶ Smooth adjustment, with high precision
- ▶ Rear inlet connection ideal for better visibility on small cylinder
- ▶ B version fitted with black bonnet and black gauge case



821D-10-OX

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
821-1.5-AC 821B-1.5-AC	-	Acetylene	25	0-1.5	30	0-2.5	0-40
821-4-LP 821B-4-LP	-	Propane	25	0-4	16.5	0-6	0-40
821P-4-LP 821BP-4-LP	one gauge	Propane	25	0-4	16.5	0-6	
821D-10-OX 821DB-10-OX	-	Oxygen	230	0-10	155	0-16	0-315
821D-10 * 821DB-10 *	-	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-16	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.



## Model 841

### Single stage cylinder regulator

**Applications:**

- ▶ Medium duty cutting, heating and welding applications.

**Features:**

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut steel up to 300 mm thickness
- ▶ Smooth adjustment, with high precision
- ▶ Chromed bonnet and gold painted gauge case



841D-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
841-1.5-AC	Acetylene	25	0-1.5	30	0-2.5	0-40
841-4-LP	Propane	25	0-4	16.5	0-6	0-40
841D-10-OX	Oxygen	230	0-10	155	0-16	0-315

## Model 842

### Single stage cylinder regulator

**Applications:**

- ▶ Medium duty cutting, heating and welding applications.

**Features:**

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut steel up to 300 mm thickness
- ▶ Smooth adjustment, with high precision
- ▶ Black bonnet and black gauge case
- ▶ Without regulation outlet valve
- ▶ W version fitted with outlet valve



842D-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
842-1.5-AC	Acetylene	25	0-1.5	30	0-2.5	0-40
842-4-LP	Propane	25	0-4	16.5	0-6	0-40
842D-10-OX	Oxygen	230	0-10	155	0-16	0-315
842DW-10-OX	Oxygen	230	0-10	155	0-16	0-315
842D-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-16	0-315
842DW-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-16	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.





# REGULATORS



## Model 814

### Single stage with one gauge

#### Applications:

- ▶ Medium duty cutting, heating and welding

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut up to 300 mm steel
- ▶ Smooth adjustment, with high precision
- ▶ Side inlet connection
- ▶ Delivery pressure set by turning the knob on calibrated bonnet
- ▶ Cylinder pressure shown on HP pressure gauge
- ▶ B version fitted with black bonnet and black gauge case



Bonnet calibration



814D-10-OX

MODEL NO	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	SUPPLY PRESSURE GAUGE (bar)
814-1.5-AC 814B-1.5-AC	one gauge	Acetylene	25	0-1.5	30	0-40
814-4-LP 814B-4-LP	one gauge	Propane	25	0-4	16.5	0-40
814D-10-OX 814DB-10-OX	one gauge	Oxygen	230	0-10	155	0-315
814D-10 * 814DB-10 *	one gauge	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 818

### Single stage gaugeless

#### Applications:

- ▶ Medium duty cutting, heating and welding
- ▶ Designed for all industrial applications in the toughest working conditions

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut up steel 300 mm thickness
- ▶ Smooth adjustment, with high precision
- ▶ Side inlet connection
- ▶ Cylinder pressure shown on indicator with polycarbonate cover
- ▶ Delivery pressure set by turning the knob on calibrated bonnet
- ▶ B version fitted with black bonnet



Bonnet calibration



Indicator



818D-10-OX

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)
818-1.5-AC 818B-1.5-AC	gaugeless	Acetylene	25	0-1.5	30
818-4-LP 818B-4-LP	gaugeless	Propane	25	0-4	16.5
818D-10-OX 818DB-10-OX	gaugeless	Oxygen	230	0-10	155
818D-10 * 818DB-10 *	gaugeless	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155

\*The regulator is available for all the listed gases. When ordering always specify gas.



## Model 25GX

### Single stage cylinder regulator

#### Applications:

- ▶ Heavy duty, large, strong regulator for the professionals

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut up to 400 mm steel
- ▶ Large Ø 70 mm diaphragm stabilizes working pressure
- ▶ Durable chromed bonnet
- ▶ Side entry



25GX-1.5-AC

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
25GX-1.5-AC	Acetylene	25	0-1.5	52	0-2.5	0-40
25GX-4-LP	Propane	25	0-4	25	0-6	0-40
25GX-D4-OX	Oxygen	230	0-4	112	0-6	0-315
25GX-D4 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Methane	230	0-4	112	0-6	0-315
25GX-AD-4 *	Helium, Hydrogen	230	0-4	112	0-6	0-315
25GX-D10-OX	Oxygen	230	0-10	170	0-16	0-315
25GX-D10*	Argon, CO <sub>2</sub> , Nitrogen, Air, Methane	230	0-10	170	0-16	0-315
25GX-AD-10 *	Helium, Hydrogen	230	0-10	170	0-16	0-315
25GX-D15-OX	Oxygen	230	0-15	275	0-25	0-315
25GX-D15*	Argon, CO <sub>2</sub> , Nitrogen, Air, Methane	230	0-15	275	0-25	0-315
25GX-AD-15 *	Helium, Hydrogen	230	0-15	275	0-25	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas

## Model 829

### Single stage gaugeless

#### Applications:

- ▶ Heavy duty cutting, designed for the really rough industrial applications in the toughest working conditions

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut up to 400 mm steel
- ▶ Large Ø 70 mm diaphragm stabilizes working pressure
- ▶ Durable chromed bonnet
- ▶ Cylinder pressure shown on indicator with polycarbonate cover
- ▶ Delivery pressure set by turning the knob on calibrated bonnet



Bonnet calibration



Indicator



829-1.5-AC

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)
829-1.5-AC	gaugeless	Acetylene	25	0-1.5	35
829-3.5-LP	gaugeless	Propane	25	0-3.5	25
829-8-OX	gaugeless	Oxygen	230	0-8	160





## Model 891

### Double stage with two gauges

#### Applications:

- ▶ Used where stable outlet pressure is required
- ▶ Ideal for quality cutting applications, laboratory systems or precision machine cutting.

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ First stage reduces full cylinder pressure by approximately 90%
- ▶ Enough flow to cut up to 300 mm steel
- ▶ Smooth adjustment, with high precision



891DB-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
891B-1.5-AC	Acetylene	25	0-1.5	12	0-2.5	0-40
891B-4-LP	Propane	25	0-4	9	0-6	0-40
891DB-4-OX	Oxygen	230	0-4	30	0-6	0-315
891DB-4 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-4	30	0-6	0-315
891DB-10-OX	Oxygen	230	0-10	42	0-16	0-315
891DB-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	42	0-16	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 896

### Double stage with two gauges

#### Applications:

- ▶ Used where stable outlet pressure is required
- ▶ Ideal for quality cutting applications, laboratory systems or precision machine cutting. Also ideal for heavy machine cutting, hand cutting and gouging

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 230 bar
- ▶ First stage reduces full cylinder pressure by approximately 90%
- ▶ Large Ø 70 mm second stage diaphragm accurately controls delivery pressure
- ▶ Durable chromed bonnet
- ▶ Side entry (vertical optional)
- ▶ B version fitted with black bonnet and black gauge case



896-1.5-AC

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
896-1.5-AC	Acetylene	25	0-1.5	25	0-2.5	0-40
896-4-LP	Propane	25	0-4	19	0-6	0-40
896D-4-OX	Oxygen	230	0-4	95	0-6	0-315
896D-4 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-4	95	0-6	0-315
896D-10-OX	Oxygen	230	0-10	100	0-16	0-315
896D-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	100	0-16	0-315
896D-15-OX	Oxygen	230	0-15	120	0-25	0-315
896D-15 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-15	120	0-25	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.



## Model 899

### Double stage gaugeless

#### Applications:

- ▶ Used where stable outlet pressure is required
- ▶ Ideal for quality cutting applications, laboratory systems or precision machine cutting. Also ideal for heavy machine cutting, hand cutting and gouging

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 230 bar
- ▶ First stage reduces full cylinder pressure by approximately 90%
- ▶ Large Ø 70 mm second stage diaphragm accurately controls delivery pressure
- ▶ Durable chromed bonnet
- ▶ Cylinder pressure shown on indicator with polycarbonate cover
- ▶ Delivery pressure set by turning the knob on calibrated bonnet



899-1.5-AC



Indicator



Bonnet calibration

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)
899-1.5-AC	gaugeless	Acetylene	25	0-1.5	35
899D-10-OX	gaugeless	Oxygen	230	0-8	90

## Model 94

### Single stage

#### Applications:

- ▶ Ideal for heavy duty in industrial and laboratory service

#### Features:

- ▶ Solid forged brass body and bonnet
- ▶ Maximum inlet pressure of 230 bar
- ▶ Large Ø 90 mm diaphragm accurately controls delivery pressure
- ▶ Sintered metal inlet filter
- ▶ Tough pressure gauge with easy to read calibration



94-1.5-AC

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
94-1.5-AC	Acetylene	25	0-1.4	35	0-2.5	0-40
94-10-OX	Oxygen	230	0-10	155	0-16	0-315





## SERIES 900 - 300 bar Regulators

### Model 901

#### Single stage cylinder regulator

**Applications:**

- ▶ Medium duty cutting, heating and welding

**Features:**

- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut up to 300 mm steel
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Smooth adjustment, with high precision
- ▶ B version fitted with black bonnet



901D-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
901D-4-OX	Oxygen	300	0-4	105	0-6	0-400
901D-4 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-4	105	0-6	0-400
901D-10-OX	Oxygen	300	0-10	175	0-16	0-400
901D-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-10	175	0-16	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.

### Model 941

#### Single stage cylinder regulator

**Applications:**

- ▶ Medium duty cutting, heating and welding.

**Features:**

- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut steel up to 300 mm thickness
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Smooth adjustment, with high precision



941D-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
941D-10-OX	Oxygen	230	0-10	155	0-16	0-400



## Model 942

### Single stage cylinder regulator

#### Applications:

- ▶ Medium duty cutting, heating and welding.

#### Features:

- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut steel up to 300 mm thickness
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Smooth adjustment, with high precision
- ▶ Without regulation outlet valve
- ▶ W version fitted with outlet valve



942DW-10

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
942D-10-OX	Oxygen	230	0-10	155	0-16	0-400
942D-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-16	0-400
942DW-10-OX	Oxygen	230	0-10	155	0-16	0-400
942DW-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	230	0-10	155	0-16	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 914

### Single stage with one gauge

#### Applications:

- ▶ Medium duty cutting, heating and welding.

#### Features:

- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut up to 300 mm steel
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Smooth adjustment, with high precision
- ▶ Side inlet connection (rear entry optional)
- ▶ Delivery pressure set by turning the knob on calibrated bonnet
- ▶ Cylinder pressure shown on HP pressure gauge
- ▶ B version fitted with black bonnet



Bonnet calibration



914D-10-OX

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	SUPPLY PRESSURE GAUGE (bar)
914D-4-OX	one gauge	Oxygen	300	0-4	105	0-400
914D-4 *	one gauge	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-4	105	0-400
914D-10-OX	one gauge	Oxygen	300	0-10	175	0-400
914D-10 *	one gauge	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-10	175	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.





## Model 918

### Single stage gaugeless

#### Applications:

- ▶ Medium duty cutting, heating and welding
- ▶ Designed for all industrial applications in the toughest working conditions

#### Features:

- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut up to 300 mm steel
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Smooth adjustment, with high precision
- ▶ Side inlet connection
- ▶ Cylinder pressure shown on indicator with polycarbonate cover
- ▶ Delivery pressure set by turning the knob on calibrated bonnet
- ▶ B version fitted with black bonnet



918D-10-OX



Bonnet calibration



Indicator

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)
918D-4-OX	gaugeless	Oxygen	300	0-4	105
918D-4 *	gaugeless	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-4	105
918D-10-OX	gaugeless	Oxygen	300	0-10	175
918D-10 *	gaugeless	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-10	175

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 925

### Single stage with two gauges

#### Applications:

- ▶ Heavy duty cutting, heating and welding
- ▶ Large, strong regulator for the professionals

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 300 bar
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Large Ø 70 mm diaphragm stabilizes working pressure
- ▶ Enough flow to cut up to 400 mm steel
- ▶ Side entry (vertical optional)



925D-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
925D-4-OX	Oxygen	300	0-4	115	0-6	0-400
925D-4 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Methane	300	0-4	115	0-6	0-400
925AD-4 *	Helium, Hydrogen	300	0-4	115	0-6	0-400
925D-10-OX	Oxygen	300	0-10	185	0-16	0-400
925D-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Methane	300	0-10	185	0-16	0-400
925AD-10 *	Helium, Hydrogen	300	0-10	185	0-16	0-400
925D-15-OX	Oxygen	300	0-15	325	0-25	0-400
925D-15 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Methane	300	0-15	325	0-25	0-400
925AD-15 *	Helium, Hydrogen	300	0-15	325	0-25	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.



## Model 996

### Double stage with two gauges

#### Applications:

- ▶ Used where stable outlet pressure is required
- ▶ Ideal for quality cutting applications, laboratory systems or precision machine cutting. Also ideal for heavy machine cutting, hand cutting and gouging

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 300 bar
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ First stage reduces full cylinder pressure by approximately 90%
- ▶ Large Ø 70 mm second stage diaphragm accurately controls delivery pressure
- ▶ Durable chromed bonnet
- ▶ Side entry (vertical optional)



996D-10-OX

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
996D-4-OX	Oxygen	300	0-4	85	0-6	0-400
996D-4 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-4	85	0-6	0-400
996D-10-OX	Oxygen	300	0-10	100	0-16	0-400
996D-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-10	100	0-16	0-400
996D-15-OX	Oxygen	300	0-15	120	0-25	0-400
996D-15 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	300	0-15	120	0-25	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Cylinder Flowmeter Regulators

#### General features:

- ▶ Conform to ISO 2503
- ▶ Accurate pressure compensated design flowmeter for precise flow
- ▶ Flowmeter with easy to read polycarbonate outer tube cover for strength and 360° visibility
- ▶ Factory preset outlet pressure at 3,5 bar

## Model 601D-F

### Compact flowmeter regulator

#### Applications:

- ▶ LIGHT DUTY MIG/TIG welding

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ Rear inlet connection (side inlet optional)

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
601D-15-F-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
601D-30-F-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30



601D-30-F





## Model 351

### Economical zero compensated flowmeter regulator

#### Applications:

- ▶ LIGHT DUTY MIG MG Welding

#### Features:

- ▶ Built smart and priced economically
- ▶ Compact design
- ▶ Design is more resistant to CO<sub>2</sub> freeze-up and gauge damage than typical flow control devices
- ▶ Saves gas - operates at pressures lower than typical

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
351-30L-AR	Argon	230	0-30	0-315	0-30
351-30L-CD	CO <sub>2</sub>	230	0-30	0-315	0-30



351-30L-CD

## Model 801D-F

### Flowmeter regulator

#### Applications:

- ▶ Ideal for all MIG/TIG welding applications

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ B version fitted with black bonnet and black gauge case



801DB-30-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
801D-15-F-AR/CD 801DB-15-F-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
801D-30-F-AR/CD 801DB-30-F-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30
801D-20-F-FG 801DB-20-F-FG	Formiergas	230	0-20	0-315	0-20
801D-50-F-FG 801DB-50-F-FG	Formiergas	230	0-50	0-315	0-50



## Model 821D-F

### Precision engineered double flowmeter regulator

#### Applications:

- ▶ Ideal for light and medium duty multiple MIG / TIG welding

#### Features:

- ▶ One regulator/cylinder for two gas supply sources with separate flow control
- ▶ Two flowmeters (with knob at 180° to inlet) with soft seat needle valve for smooth and precise control
- ▶ Rear entry
- ▶ B version fitted with black bonnet and black gauge case



821DB-30-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
821D-15-F-AR/CD 821DB-15-F-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
821D-30-F-AR/CD 821DB-30-F-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30
821D-20-F-FG 821DB-20-F-FG	Formiergas	230	0-20	0-315	0-20
821D-50-F-FG 821DB-50-F-FG	Formiergas	230	0-50	0-315	0-50

## Model 825D-F

### Flowmeter regulator

#### Applications:

- ▶ Large, strong regulator for the welding professionals, suitable for all welding and laboratory applications

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ Large Ø 70 mm diaphragm for accurate flow and pressure regulation



825D-30-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
825D-15-F-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
825D-30-F-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30





## Model 811DB-F

### Electrically heated flowmeter regulator

**Applications:**

- ▶ Ideal for all welding applications where high and continuous flow of CO<sub>2</sub> is required with accurate flow control

**Features:**

- ▶ Maximum inlet pressure 230 bar
- ▶ CE marked
- ▶ Two independent heating elements controlled by thermostat
- ▶ Stabilized temperature up to 30 Lpm continuous CO<sub>2</sub>
- ▶ Overheating protection with resetable thermal fuse
- ▶ Insulation IP 64 (EN 60529)
- ▶ Voltage: 110 and 240 volts versions
- ▶ 3 meters long power cable



811DB-30-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
811DB-15-F	CO <sub>2</sub>	230	0-15	0-315	0-15
811DB-30-F	CO <sub>2</sub>	230	0-30	0-315	0-30

## SERIES 900 - 300 bar Regulators

### Model 901D-F

#### Flowmeter regulator

**Applications:**

- ▶ Ideal for all MIG/TIG welding applications

**Features:**

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 300 bar
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface
- ▶ B version fitted with black bonnet



901D-30-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
901D-15-F-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-400	0-15
901D-30-F-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-400	0-30
901D-20-F-FG	Formiergas	300	0-20	0-400	0-20
901D-50-F-FG	Formiergas	300	0-50	0-400	0-50



## Model 925D-F

### Flowmeter regulator

**Applications:**

- ▶ Large, strong regulator for the welding professionals, suitable for all welding and laboratory applications

**Features:**

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 300 bar
- ▶ Large 70 mm Ø diaphragm for accurate flow and pressure regulation
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface



925D-15-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
925D-15-F-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-400	0-15
925D-30-F-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-400	0-30

## Model 911DB-F

### Electrically heated flowmeter regulator

**Applications:**

- ▶ Ideal for all welding applications where high and continuous flow of CO<sub>2</sub> are required with accurate flow control

**Features:**

- ▶ Maximum inlet pressure 300 bar
- ▶ CE marked
- ▶ Two independent heating elements controlled by thermostat
- ▶ Stabilized temperature up to 30 Lpm continuous CO<sub>2</sub>
- ▶ Overheating protection with resettable thermal fuse
- ▶ Insulation IP 64 (EN 60529)
- ▶ Voltage: 110 and 240 volts versions
- ▶ 3 meters long power cable



911DB-30-F

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
911DB-15-F	CO <sub>2</sub>	300	0-15	0-400	0-15
911DB-30-F	CO <sub>2</sub>	300	0-30	0-400	0-30





## MODEL 651

### Applications:

- ▶ Designed to reduce the consumption of shielding gas.

### Features:

- ▶ Model 651 produces an optimised shielding gas flow from the very first second. Any traditional regulator will not control the initial flow surge, which is unnecessarily high, and a very expensive waste. In worst cases this excessive surge represents up to 50% of total shielding gas consumption! The higher the frequency of starts, the more gas is wasted and more money could be earned.

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
651-30L-AR	Argon / CO <sub>2</sub>	300	0-30	0-400	0-34
651-20L-AR	Argon / CO <sub>2</sub>	300	0-20	0-400	0-20
651-20L-ARH	Argon / H <sub>2</sub>	300	0-20	0-400	0-20



651-30L-AR

## Flowgauge Regulators

### General features:

- ▶ Accurate flows through outlet calibrated orifice
- ▶ Flow set by adjusting knob

### Model 601-L

## Compact single stage flowgauge regulator

### Applications:

- ▶ Ideal for light duty MIG/TIG welding

### Features:

- ▶ Maximum inlet pressure 230 bar
- ▶ 50 mm safety gauge
- ▶ Complete with hose connection diameter hose 5 to 6 mm
- ▶ Rear inlet connection



601D-30-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
601D-15-L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
601D-30-L-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30



## Model 801D-L

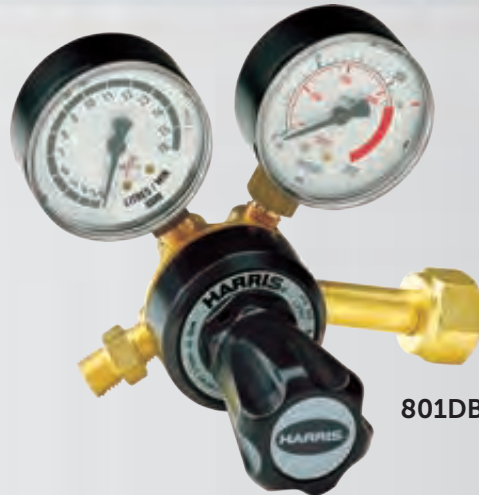
### Flowgauge regulator

#### Applications:

- ▶ Suitable for all light and medium duty MIG/TIG welding

#### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ B version fitted with black bonnet and black gauge case



801DB-15-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
801D-15-L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
801D-30-L-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30
801D-50-L-AR/CD	Argon / CO <sub>2</sub>	230	0-50	0-315	0-50
801D-30-L-FG	Formiergas	230	0-30	0-315	0-30
801D-50-L-FG	Formiergas	230	0-50	0-315	0-50
801DB-15-L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
801DB-30-L-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30
801DB-50-L-AR/CD	Argon / CO <sub>2</sub>	230	0-50	0-315	0-50
801DB-30-L-FG	Formiergas	230	0-30	0-315	0-30
801DB-50-L-FG	Formiergas	230	0-50	0-315	0-50

## Model 842-L

### Single stage flowgauge regulator

#### Applications:

- ▶ Suitable for all light and medium duty MIG/TIG welding

#### Features:

- ▶ Maximum inlet pressure of 230 bar
- ▶ Enough flow to cut steel up to 300 mm thickness
- ▶ Smooth adjustment, with high precision
- ▶ Black bonnet and black gauge case
- ▶ W version fitted with outlet valve



842-30L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	FLOWGAUGE (bar)
842-15L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-15
842-30L-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-30
842-30L-FG	Formiergas	230	0-30	0-30
842-50L-FG	Formiergas	230	0-50	0-50
842W-15L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-15
842W-30L-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-30
842W-30L-FG	Formiergas	230	0-30	0-30
842W-50L-FG	Formiergas	230	0-50	0-50





## Model 814D-L Flowgauge regulator with one gauge

### Applications:

- ▶ Suitable for all light and medium duty MIG/TIG welding

### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ Delivery flow set by turning the knob on calibrated bonnet
- ▶ B version fitted with black bonnet and black gauge case



814D-50-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
814D-15-L-AR/CD 814DB-15-L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
814D-50-L-AR/CD 814DB-50-L-AR/CD	Argon / CO <sub>2</sub>	230	0-50	0-315	0-50

## Model 818D-L Flowgauge regulator gaugeless

### Applications:

- ▶ Suitable for all light and medium duty MIG/TIG welding

### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ Delivery flow set by turning the knob on calibrated bonnet
- ▶ Cylinder pressure shown on indicator with polycarbonate cover
- ▶ B version fitted with black bonnet



818D-15-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	FLOWGAUGE (Lpm)
818D-15-L-AR/CD 818DB-15-L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-15
818D-50-L-AR/CD 818DB-50-L-AR/CD	Argon / CO <sub>2</sub>	230	0-50	0-50



## Model 25GX-L

### Flowgauge regulator

**Applications:**

- ▶ Large size flowgauge regulator for MIG/TIG welding

**Features:**

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 230 bar
- ▶ Large Ø 70 mm diaphragm stabilizes working pressure
- ▶ Durable chromed bonnet



25GX-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
25GX-15-L-AR/CD	Argon / CO <sub>2</sub>	230	0-15	0-315	0-15
25GX-30-L-AR/CD	Argon / CO <sub>2</sub>	230	0-30	0-315	0-30
25GX-50-L-AR/CD	Argon / CO <sub>2</sub>	230	0-50	0-315	0-50

## Model 811DB-L

### Electrically heated flowgauge regulator

**Applications:**

- ▶ Ideal for all welding applications where high and continuous flows of CO<sub>2</sub> are required with accurate flow control

**Features:**

- ▶ Maximum inlet pressure 230 bar
- ▶ The outlet gauge enables direct reading in Low Pressure
- ▶ CE marked
- ▶ Two independent heating elements controlled by thermostat
- ▶ Stabilized temperature up to 30 Lpm continuous CO<sub>2</sub>
- ▶ Overheating protection with resettable thermal fuse
- ▶ Insulation IP 64 (EN 60529)
- ▶ Voltage: 110 and 240 volts versions
- ▶ 3 meters long power cable



811DB-30-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
811DB-15-L-CD	CO <sub>2</sub>	230	0-15	0-315	0-15
811DB-30-L-CD	CO <sub>2</sub>	230	0-30	0-315	0-30





## SERIES 900 - 300 bar Regulators

### Model 901D-L Flowgauge regulator

**Applications:**

- ▶ Suitable for all light and medium duty MIG/TIG welding

**Features:**

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 300 bar
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface
- ▶ B version fitted with black bonnet



901D-30-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
901D-30-L-FG	Formiergas	300	0-30	0-400	0-30
901D-50-L-FG	Formiergas	300	0-50	0-400	0-50
901D-15-L-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-400	0-15
901D-30-L-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-400	0-30
901D-50-L-AR/CD	Argon / CO <sub>2</sub>	300	0-50	0-400	0-50

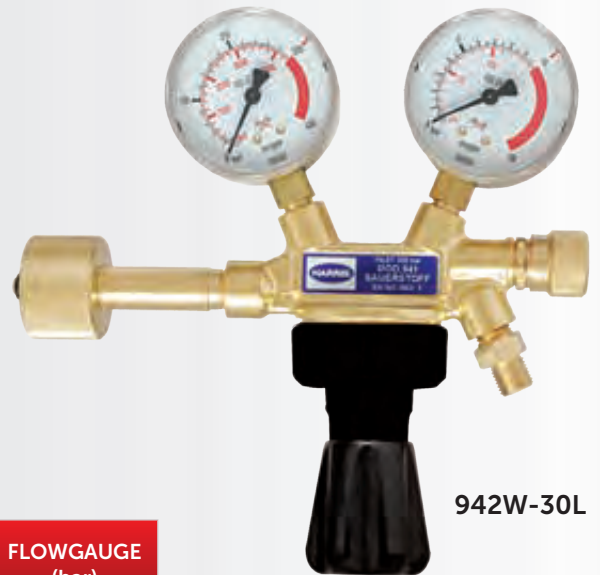
### Model 942-L Single stage flowgauge regulator

**Applications:**

- ▶ Suitable for all light and medium duty MIG/TIG welding

**Features:**

- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut steel up to 300 mm thickness
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface
- ▶ Smooth adjustment, with high precision
- ▶ Black bonnet
- ▶ W version fitted with outlet valve



942W-30L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	FLOWGAUGE (bar)
942-15L-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-15
942-30L-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-30
942-30L-FG	Formiergas	300	0-30	0-30
942-50L-FG	Formiergas	300	0-50	0-50
942W-15L-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-15
942W-30L-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-30
942W-30L-FG	Formiergas	300	0-30	0-30
942W-50L-FG	Formiergas	300	0-50	0-50



## Model 914D-L

### Flowgauge regulator with one gauge

**Applications:**

- ▶ Suitable for all light and medium duty MIG/TIG welding

**Features:**

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 300 bar
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface
- ▶ Delivery flow set by turning the knob on calibrated bonnet
- ▶ B version fitted with black bonnet



914D-50-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
914D-15-L-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-400	0-15
914D-50-L-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-400	0-30

## Model 918D-L

### Flowgauge regulator gaugeless

**Applications:**

- ▶ Suitable for all light and medium duty MIG/TIG welding

**Features:**

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 300 bar
- ▶ Delivery flow set by turning the knob on calibrated bonnet
- ▶ Cylinder pressure shown on indicator with polycarbonate cover
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface
- ▶ B version fitted with black bonnet



918D-50-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	FLOWGAUGE (Lpm)
918D-15-L-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-15
918D-50-L-AR/CD	Argon / CO <sub>2</sub>	300	0-50	0-50





## Model 925D-L Flowgauge regulator

### Applications:

- ▶ Large size flowgauge regulator for MIG/TIG welding

### Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 300 bar
- ▶ Large Ø 70 mm diaphragm for accurate flow and pressure regulator
- ▶ Durable chromed bonnet
- ▶ High pressure capsule seat with Kel-F (CFTE) sealing surface



925D-30-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
925D-15-L-AR/CD	Argon / CO <sub>2</sub>	300	0-15	0-400	0-15
925D-30-L-AR/CD	Argon / CO <sub>2</sub>	300	0-30	0-400	0-30
925D-50-L-AR/CD	Argon / CO <sub>2</sub>	300	0-50	0-400	0-50

## Model 911DB-L Electrically heated flowgauge regulator

### Applications:

- ▶ Ideal for all welding applications where high and continuous flows of CO<sub>2</sub> are required with accurate flow control

### Features:

- ▶ Maximum inlet pressure 300 bar
- ▶ The outlet gauge enables direct reading in Low Pressure
- ▶ CE marked
- ▶ Two independent heating elements controlled by thermostat
- ▶ Stabilized temperature up to 30 Lpm continuous CO<sub>2</sub>
- ▶ Overheating protection with resettable thermal fuse
- ▶ Insulation IP 64 (EN 60529)
- ▶ Voltage: 110 and 240 volts versions
- ▶ 3 meters long power cable



911DB-30-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
911DB-15-L-CD	CO <sub>2</sub>	300	0-15	0-400	0-15
911DB-30-L-CD	CO <sub>2</sub>	300	0-30	0-400	0-30



## Models 603 and 803P Inert gas guard

### Applications:

- ▶ Designed to eliminate the pressure surge at the beginning of each weld in MIG/TIG welding, maintains a constant flow and pressure with each weld, permits gas savings over 60%.

### Features:

- ▶ Harris Inert Gas Guards are designed to save shielding gases in two ways:
  - by reducing the gas surge when a MIG gun or TIG torch is activated. As they are designed to reduce the pressure held in supply hose, gas waste is reduced when the gun or torch is triggered
  - by delivering a controlled flow rate
- ▶ Operators will typically set shielding gas flow rates higher than necessary for a welding operation. Once set by a supervisor, the Inert Gas Guard delivers the precise amount of flow for the operation, eliminating the needless waste of gas.



603

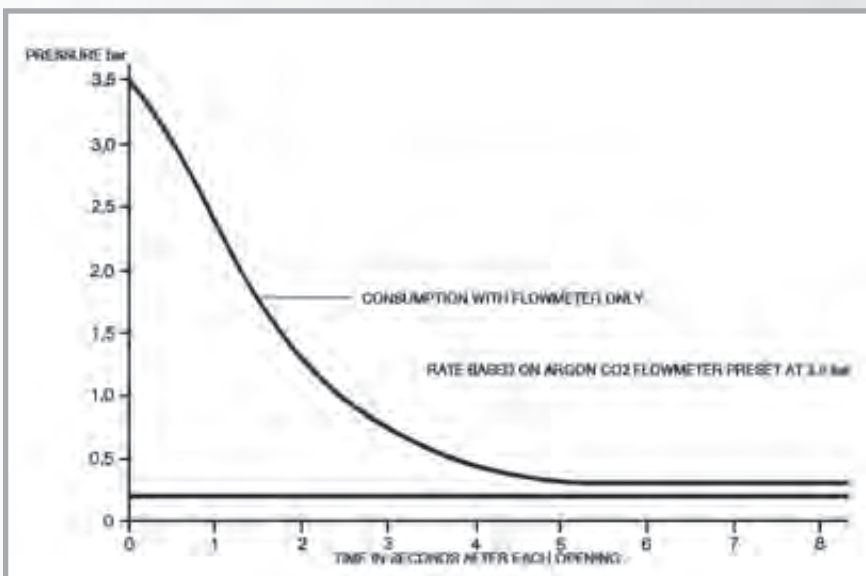


803P

### Where to use:

Connect Models 603 and 803-P between your existing flowmeter and hose to torch. Table below shows part numbers to fit each flowmeter outlet thread.

MODEL NO	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	INLET	OUTLET
603Z-001	Argon / CO <sub>2</sub>	15	0.6-0.9	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228
603Z-002				9/16"-18-UNF-2B-RH	9/16"-18-UNF-2A-RH
603Z-003				G 1/4"-RH-UNI ISO 228	G 1/4" A-RH-UNI ISO 228
803P-001	Argon / CO <sub>2</sub>	15	0.6-0.9	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228
803P-002				9/16"-18-UNF-2B-RH	9/16"-18-UNF-2A-RH
803P-003				G 1/4"-RH-UNI ISO 228	G 1/4" A-RH-UNI ISO 228



- ▶ The curve on this chart illustrates the extent of costly shielding gas waste that can occur each time a MIG gun or TIG torch is activated. Conversely, the line illustrates how Harris Inert Gas Guard can significantly reduce gas waste by delivering a set flow of shielding gas.
- ▶ Actual Argon, Carbon Dioxide and other shielding gas savings will vary depending upon the specific requirements of the MIG or TIG welding operation
- ▶ Factory pre-set output pressure of 0.8 bar with maximum flow rate of 15 Lpm





## High Performance Regulators

### General features:

- ▶ Stainless steel diaphragm - No internal contamination

### Model 825DS & 825ARS

### Single stage cylinder pressure regulator

### Applications:

- ▶ All applications where high outlet pressure is required
- ▶ Ideal for high pressure plasma cutting

### Features:

- ▶ Forged brass body
- ▶ Maximum inlet pressure 230 bar
- ▶ Stainless steel diaphragm - no internal contamination
- ▶ Enough oxygen flow to cut up to 400 mm steel
- ▶ Large  $\varnothing$  70 mm diaphragm stabilizes working pressure
- ▶ Side entry (vertical optional)



825ARS-40

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
825DS-20 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	230	0-20	300	0-40	0-315
825DS-25 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	230	0-25	350	0-40	0-315
825ARS-40 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	230	0-40	400	0-60	0-315
825ARS-50 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	230	0-50	450	0-100	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.

### Model 896DS

### Double stage with stainless steel diaphragm

### Applications:

- ▶ Used where outlet pressure must be held within strict limits
- ▶ Ideal for quality cutting applications, laboratory system or precision machine cutting
- ▶ Also ideal for heavy machine cutting, hand cutting, and gouging

### Features:

- ▶ Forged brass body
- ▶ Maximum inlet pressure 230 bar
- ▶ Stainless steel diaphragm on first stage - no internal contamination
- ▶ Enough oxygen flow to cut up to 400 mm steel
- ▶ Large  $\varnothing$  70 mm second stage diaphragm accurately controls delivery pressure
- ▶ Stainless steel T screw
- ▶ Side entry (vertical optional)



896DS-25

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
896DS-25 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	230	0-25	150	0-40	0-315

\*The regulator is available for all the listed gases. When ordering always specify gas.



## SERIES 900 - 300 bar Regulators

### Model 925DS & 925ARS

#### Single stage with stainless steel diaphragm

##### Applications:

- ▶ All applications where high outlet pressure is required
- ▶ Ideal for high pressure plasma cutting

##### Features:

- ▶ Forged brass body
- ▶ Maximum inlet pressure 300 bar
- ▶ Stainless steel diaphragm on first stage - no internal contamination
- ▶ Enough oxygen flow to cut up to 400 mm steel
- ▶ Large  $\varnothing$  70 mm diaphragm accurately controls delivery pressure
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Stainless steel T screw
- ▶ Side entry (vertical optional)



925ARS-40

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
925DS-20 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-20	380	0-40	0-400
925DS-25 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-25	400	0-40	0-400
925ARS-40 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-40	500	0-60	0-400
925ARS-50 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-50	600	0-100	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.

### Model H25

#### Single stage with stainless steel diaphragm

##### Applications:

- ▶ Specially designed for high flow requirements
- ▶ Ideal for feeding plasma and laser cutting systems

##### Features:

- ▶ Forged brass body
- ▶ Maximum inlet pressure 300 bar
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Stainless steel T screw
- ▶ Air flow up to 700 m<sup>3</sup>/h
- ▶ External safety relief valve



H25ARS-40

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H25DS-15 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-15	450	0-25	0-400
H25DS-25 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-25	500	0-40	0-400
H25ARS-40 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-40	720	0-60	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.





## Model 987

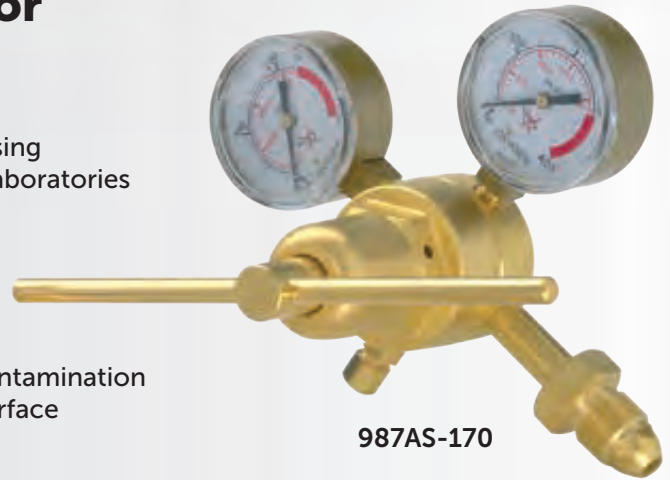
### High pressure cylinder regulator

#### Applications:

- ▶ Designed to operate with high pressure cylinder
- ▶ High pressure testing, charging accumulators, pressurising aircraft struts, oil refineries, chemical plants, research laboratories and general industry
- ▶ Ideal also for high pressure manifold distribution

#### Features:

- ▶ Maximum inlet pressure 300 bar
- ▶ Stainless steel diaphragm on first stage - no internal contamination
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Corrosion resistant, forged brass, body and bonnet
- ▶ Bronze bonnet bushing and stainless steel T screw
- ▶ Inlet is heavy duty - 15 mm thread with metal to metal seal
- ▶ Outlet is a 1/4" external diameter copper tube compression fitting
- ▶ Models available for all non-corrosive compressed gases
- ▶ Same regulator used for lightweight gases, without vibration



987AS-170

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
987S-100 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-100	400	0-315	0-400
987AS-170 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-170	500	0-315	0-400
CLIMATESTER	Nitrogen	300	0-55	120	0-70	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 8700

### High pressure cylinder regulator

#### Applications:

- ▶ Designed to operate in high pressure cylinder
- ▶ Typical applications include high pressure testing, charging accumulators and pressurizing aircraft struts

#### Features:

- ▶ Maximum inlet pressure 380 bar
- ▶ One piece encapsulated valve with CTFE seats and internal filter
- ▶ Elastomeric diaphragm for longer life
- ▶ Ergonomic knob for improved grip



8700

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
8700 3000psi *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	380	0-205	330	0-280	0-400
8700 4500psi *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	380	0-300	330	0-400	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.





## Model HP750

### Servo dome loaded regulator

#### Applications:

- ▶ Laser assist gases, pressure transfer, blanketing & high flow manifolds

#### Features:

- ▶ High pressure, high flow regulator
- ▶ Maximum inlet pressure 380 bar
- ▶ One piece encapsulated seat design with 10 micron filtration
- ▶ Servo dome load technology, the regulator has an internal pressure feedback sensing line which monitors the outlet pressure and constantly opens or closes the regulator valve to maintain the internal pressure balance. The result is a constant delivery pressure regardless of the flow rate or inlet pressure conditions



HP-750

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
HP750-17 (3000867) *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	380	0-17	>1000	0-28	0-400
HP750-35 (3000868) *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	380	0-35	>1000	0-42	0-400
HP750-70 (3000869) *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	380	0-70	>1000	0-138	0-400

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Pipeline Regulators

### Model H47

#### High flow pipeline regulator

#### Applications:

- ▶ Designed for high flow requirement for feeding industrial gas pipelines for plasma and laser cutting

#### Features:

- ▶ Maximum inlet pressure 60 bar
- ▶ Rear inlet connection
- ▶ Air flow over 370 m<sup>3</sup>/h
- ▶ Stainless steel diaphragm
- ▶ T screw provides smooth action and long service life



H47AS-40

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)
H47DS-15 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	60	0-15	330	0-25
H47DS-25 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	60	0-25	350	0-40
H47AS-40 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	60	0-40	390	0-60

\*The regulator is available for all the listed gases. When ordering always specify gas.



## Model 847 Pipeline regulator

### Applications:

- ▶ Specially designed to allow high flow rate from industrial and laboratory pipeline points
- ▶ Particularly suited to machine cutting where more than one torch is used. Also for heavy cutting and heating

### Features:

- ▶ High flow and outlet pressure (up to 15 bar) line regulator
- ▶ Forged brass body for maximum strength
- ▶ Sintered alloy inlet filter to trap impurities
- ▶ Maximum inlet pressure 25 bar
- ▶ 15 Lpm, 30 Lpm and 50 Lpm versions available for argon and CO<sub>2</sub>



847-30-L

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
847-1.5-AC	Acetylene	25	0-1.5	13	0-2.5	-
847-4-LP	Propane	25	0-4	76	0-6	-
847-10-OX	Oxygen	25	0-10	95	0-16	-
847-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	25	0-10	95	0-16	-
847-15-OX	Oxygen	25	0-15	135	0-25	-
847-15 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	25	0-15	135	0-25	-
847-15-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-15
847-30-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-30
847-50-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-50

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Model 845 Pipeline regulator

### Applications:

- ▶ Specially designed to allow high flow rate from industrial and laboratory pipeline points

### Features:

- ▶ High flow
- ▶ Outlet pressure up to 10 Bar
- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure 25 Bar



845

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)	MAX LINE PRESSURE (bar)
845-1.5-AC	Acetylene	25	0-1.5	13	0-2.5	-	25
845-4-LP	Propane	25	0-4	76	0-6	-	25
845-10-OX	Oxygen	25	0-10	95	0-16	-	25
845-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Oxygen, Methane	25	0-10	95	0-16	-	25
845-15-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-15	25
845-30-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-30	25
845-50-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-50	25

\*The Regulator is available for all the listed gases. When ordering always specify gas.



## Model 846

### Pipeline regulator

**Applications:**

- ▶ Specially designed to allow high flow rate from industrial and laboratory pipeline points.

**Features:**

- ▶ High flow and outlet pressure (up to 10 bar) line regulator
- ▶ Forged brass body for maximum strength
- ▶ Sintered alloy inlet filter to trap impurities
- ▶ Maximum inlet pressure 25 bar



846

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)	MAX LINE PRESSURE (bar)
846-1.5-AC	Acetylene	25	0-1.5	13	0-2.5	-	25
846-4-LP	Propane	25	0-4	76	0-6	-	25
846-10-OX	Oxygen	25	0-10	95	0-16	-	25
846-10 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Methane	25	0-10	95	0-16	-	25
846-15-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-15	25
846-30-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-30	25
846-50-L-AR/CD	Argon / CO <sub>2</sub>	25	-	-	-	0-50	25

\*The regulator is available for all the listed gases. When ordering always specify gas.

## Balloon Filling Regulator

### Model HELIFILLER

### Compact single stage balloon filler regulator

**Application:**

- ▶ Balloon filler designed for helium and helium mixtures

**Features:**

- ▶ Forged brass body and bonnet
- ▶ High pressure capsule seat with PTFE (Teflon) sealing surface
- ▶ Fixed pressure preset at 2 bar (30 psi/ 200 kPa)
- ▶ Complete with rubber coated " Tilt Valve ". When vertical the valve is closed, when pulled to the side it opens
- ▶ Side inlet connection



HELIFILLER

MODEL NO.	VERSION	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)
HELIFILLER	gaugeless, tilt valve	Helium and Helium mixtures	230	2 (pre-set)





## Beverage Regulators Models 802/822D

### Beverage regulator for cylinder

#### Applications:

- ▶ Ideal for breweries, beverage manufacturers, wholesale distribution for use in bars, pubs and wine bars

#### Features:

- ▶ High flow beverage regulator for CO<sub>2</sub>, nitrogen or mixtures
- ▶ Model 802 side entry model 822 rear entry
- ▶ Compression fitting outlet (7/16"-20-UNF) for 1/4" plastic hose (special reverse flow valve to avoid internal liquid contamination on request)
- ▶ Safety pressure gauge with dual scale bar/kPa



802D

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
802D-4-CD side inlet	CO <sub>2</sub>	100	0-4	0-6	0-100
802D-4-N side inlet	Nitrogen	230	0-4	0-6	0-315
802D-8-CD side inlet	CO <sub>2</sub>	100	0-8	0-10	0-100
802D-8-N side inlet	Nitrogen	230	0-8	0-10	0-315
802R-4-CD side inlet	CO <sub>2</sub>	100	0-4	0-6	0-100
802R-4-N side inlet	Nitrogen	230	0-4	0-6	0-315
802R-8-CD side inlet	CO <sub>2</sub>	100	0-8	0-10	0-100
802R-8-N side inlet	Nitrogen	230	0-8	0-10	0-315
822D-4-CD rear inlet	CO <sub>2</sub>	100	0-4	0-6	0-100
822D-4-N rear inlet	Nitrogen	230	0-4	0-6	0-315
822D-8-CD side inlet	CO <sub>2</sub>	100	0-8	0-10	0-100
822D-8-N rear inlet	Nitrogen	230	0-8	0-10	0-315
822R-4-CD rear inlet	CO <sub>2</sub>	100	0-4	0-6	0-100
822R-4-N rear inlet	Nitrogen	230	0-4	0-6	0-315
822R-8-CD rear inlet	CO <sub>2</sub>	100	0-8	0-10	0-100
822R-8-N rear inlet	Nitrogen	230	0-8	0-10	0-315

## High Purity Gas Regulators Model 904

### Two gauge cylinder regulator

#### Application:

- ▶ Ideal for quality application where high purity gas is required

#### Features:

- ▶ External safety relief valve with 1/4" NPT female thread for external release hose connection
- ▶ Forged brass body fully chromed
- ▶ Maximum inlet pressure 300 bar
- ▶ Stainless steel diaphragm - no internal contamination
- ▶ Capsule seat with Kel-F (CTFE) sealing surface



904D-10

MODEL NO.	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX (AIR) FLOW (m <sup>3</sup> /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
904D-1.5 *	Argon, CO <sub>2</sub> , Nitrogen, Air, Helium, Hydrogen, Oxygen, Methane	300	0-1.5	24	0-2.5	0-400
904D-4 *			0-4	48	0-6	
904D-10 *			0-10	100	0-16	
904R-1.5 *			0-1.5	24	0-2.5	
904R-4 *			0-4	48	0-6	
904R-10 *			0-10	100	0-16	

\*The regulator is available for all the listed gases. When ordering always specify gas.



# REGULATORS



## Specialty Gas single stage, double stage and line regulators for Corrosive and Non-Corrosive Gases



### Series 720C

High Purity Chrome-Plated Brass Barstock



### Series 740

High Purity Stainless Barstock



### Series 700

High Purity Chrome-Plated Forged Brass

**A COMPLETE LINE OF ACCESSORIES IS AVAILABLE**





## Regulator ordering information

### CODE FOR REGULATOR MODEL PART

801 / 901
904
802
814 / 914
818 / 918
821
822
25 GX / 825 / 925 / H25
829
841
842
845 / 846
847 / H47
848
987
891 / 896 / 996

**Where more than  
one option,  
maintain  
order indicated**

### TYPE CODE (Only if non-standard)

-	Horizontal entry (standard)
V	Placed in Kit
E	Vertical entry
A	Anti vibrator (lightweight gases)
D	IRV Diaphragm safety relief valve
R	External safety relief valve
S	Stainless steel diaphragm
B	Black painted gauges
P	Without HP gauge
N	1/4" NPT gauge (std is 1/4" G)
G	Inlet connection 3/8"
W	Outlet valve (when not standard)
T	With lock "T" screw
X	With inlet stem valve "SNAP SAFE"

### NOMINAL PRESSURE OR FLOW

1,5	
4	
8	
10	
15	Only for 825,847,896
25	Only for 896
40	Only for 825
150	
400	
800	
1000	
1500	Only for 825,847,896
2500	Only for 896
4000	Only for 825
15	
30	
50	

### CALIBRATION

-	Pressure gauges calibrated bar or kPa
L	Flow gauge or indicator calibrated, (Lpm)
F	Flowmeter, (Lpm)
LK	Flow gauge or indicator in (Lpm), Pressure gauge in kPa
FK	Flowmeter in (Lpm), Pressure gauge in kPa

### GAS

OX	Oxygen
AC	Acetylene
AIR	Air
AR	Argon
CD	Carbon Dioxide
N	Nitrogen
N2O	Nitrous oxide
H	Hydrogen
LP	Propane
PG	Practical Gas
ARC	ARCD
HE	Helium
FG	Formiergas

### PROGRESSIVE NUMBER PERSONALIZES

1

801 | E | 10 | OX | 1

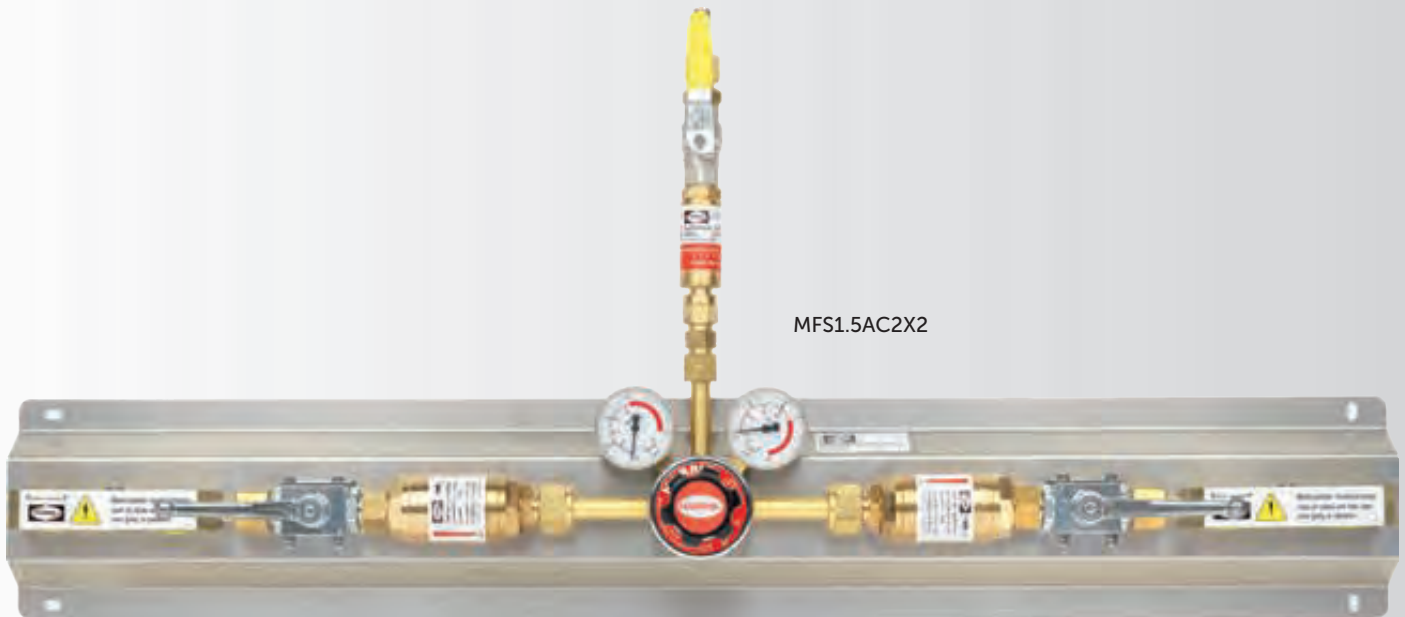




## MANIFOLD SYSTEMS

### Highlights

- ▶ Compact design
- ▶ All modular components are fully tested for stability, functionality and gas tightness for 12 hours before delivery.
- ▶ Plug and go!
- ▶ Low mounting costs
- ▶ Easy to extend
- ▶ Equipped with all necessary and approved safety devices



### Technical data for gas manifolds

- ▶ **Gas type:** acetylene. Oxygen and technical gases
- ▶ **Inlet pressure:** acetylene 25 bar, all other gases up to 300 bar
- ▶ **Working pressure:** acetylene 1.5 bar, all other gases up to 40 bar
- ▶ **Number of cylinders:** up to 2x6 cylinders as standard
- ▶ **Number of MCP:** up to 2x3 MCP as standard
- ▶ **Nominal capacity of gas flow:** acetylene 5 Nm<sup>3</sup>/h up to 150 Nm<sup>3</sup>/h, oxygen and technical gases 30 Nm<sup>3</sup>/h up to 320 Nm<sup>3</sup>/h.
- ▶ **Components:** mounting plate made off stainless steel, approved non return valves on all cylinder connections.  
All acetylene gas manifolds are equipped with an automatic quick action shut off valve in the high pressure zone.

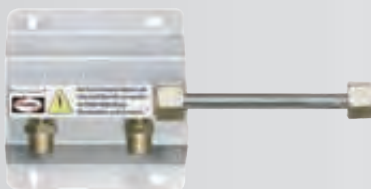
## Technical data gas tapping points

- ▶ **Inlet pressure:** acetylene 1.5 bar, all other gases up to 40 bar
- ▶ **Nominal capacity of gas flow:** inert gas 0-30 l/min gauge, 0-15 l/min or 0-50 l/min flow-metre. Acetylene up to 15 Nm<sup>3</sup>/h, propane up to 10 Nm<sup>3</sup>/h, oxygen up to 200 Nm<sup>3</sup>/h
- ▶ **Components:** connection body, shut off valve; pipeline connections that can be welded or brazed.



## Accessories

High pressure distribution block with connecting pipe



High pressure flexible hose with non return valve



High pressure flexible hose with on/off valve



Cylinder bracket

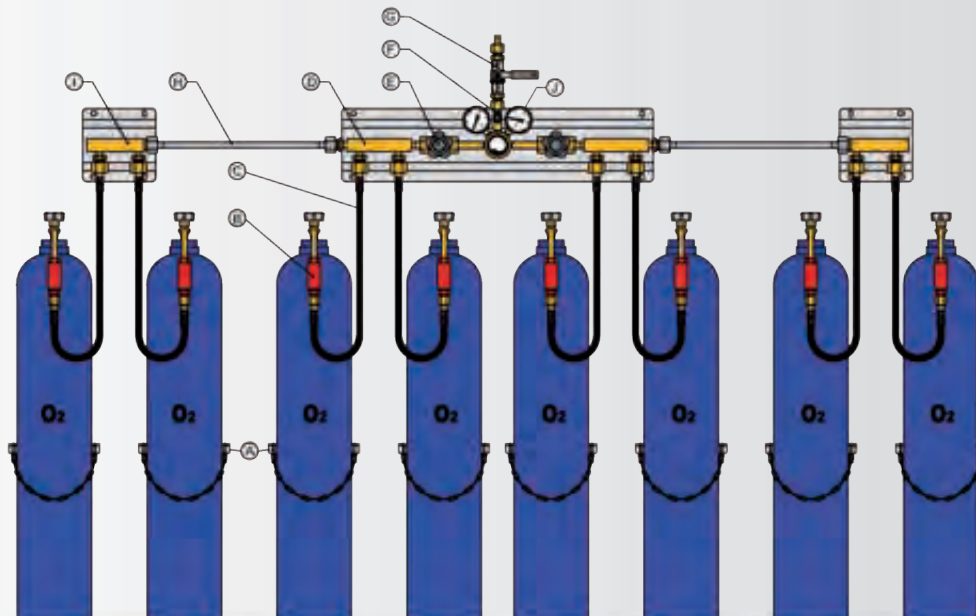




MODEL NO.	ITEM	CYLINDERS	GAS	INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	FLOW (Nm <sup>3</sup> /h)
MFS25OX1X1	4704550	1X1	OXYGEN	300	0-25	60
MFS25OX1X2	4704551	1X2				
MFS25OX2X1	4704552	2X1				
MFS25OX2X2	4704553	2X2				
MFS25IG1X1	4704600	1X1	INERT GAS	300	0-25	60
MFS25IG1X2	4704601	1X2				
MFS25IG2X1	4704602	2X1				
MFS25IG2X2	4704603	2X2				
MFS1,5AC1X1	4704650	1X1	ACETYLENE	25	0-1.5	5
MFS1,5AC1X2	4704651	1X2				
MFS1,5AC2X1	4704652	2X1				
MFS1,5AC2X2	4704653	2X2				
MFS4LP1X1	4704700	1X1	PROPANE	25	0-4	15
MFS4LP1X2	4704701	1X2				
MFS4LP2X1	4704702	2X1				
MFS4LP2X2	4704703	2X2				

Controls and instruments are mounted on a stainless steel plate in modular system. Depending on the type, the manifold consists of completely assembled components free from oil and grease:

- A - Cylinder mounts Typ: FH
- B - High pressure non-return valve Typ: RSV ( EN15615) [BAM Approval No. BAM ZBA/009/004]
- C - High pressure pig tails: (EN 14113)
- D - High pressure collection block: HD-VB 1/4NPT
- E - High pressure isolation valve: DV [Approval No. EN 961]
- F - Regulator: e.g. H25
- G - Isolation Valve Typ: LAV - KH 15-63
- H - High pressure connection tube Typ: HDVR-415
- I - High pressure collection block: HD-VB 1/4NPT
- J - Gauge





Designed and manufactured according to ISO 5172.

Harris offers torches specifically designed for the best performance possible with each fuel gas:

## Equal pressure system with acetylene and alternative fuel:

- ▶ Head mixing
- ▶ Equal pressure mixing of oxygen and fuel gas is extremely resistant to backfire
- ▶ Torch can be used with all fuel gases - just change the tips
- ▶ All torches are supplied as standard with threads 9/16"-18-UNF-3A-RH

## Low pressure system with propane, LPG and MAPP®:

- ▶ Injector style
- ▶ Low pressure head mixing - fuel gas can be used at pressures as low as 0.015 bar
- ▶ Steady preheat flame during cutting
- ▶ Less fuel gas intake during cutting
- ▶ Pays for itself by drawing all fuel gas out of cylinder

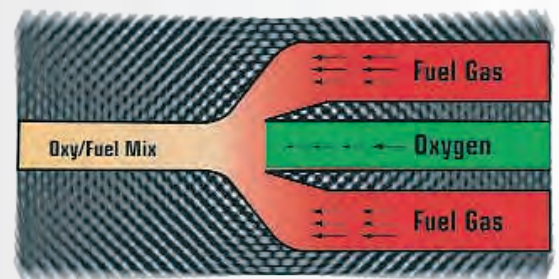
Standard torches are not supplied with inlet hose connections or cutting tips

## Fuel Mixer

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.

## Typical "E" Mixer Design

To thoroughly mix the oxygen and fuel gas, "E" mixer designs rely on equal 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 alternative fuels when positive pressure control of the fuel gas is available

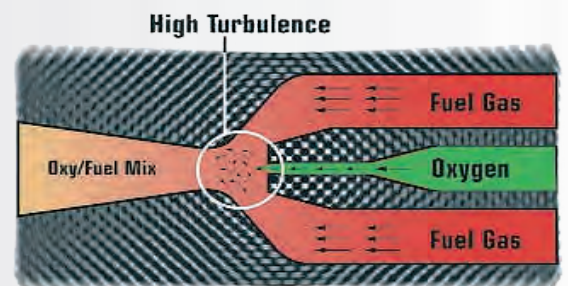


## Typical "F" Mixer Design

"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 0.015 bar. "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 alternative fuels. "F" mixers tend to have a narrower operating range than "E" mixers but because of their superior mixing capabilities they tend to maximize calories output within that range.

"F" mixers are used primarily with low pressure natural gas.

However, they are also recommended for use with alternative fuels when maximum calories output is needed and / or positive pressure control of the fuel gas is not available.





# HAND CUTTING TORCHES



## Model 62



90° Head

## ...for Acetylene and low-cost fuel gases such as Propane, Natural Gas, MAPP® Gas, and Propylene

The industry standard by which all other designs are compared. The 62-5 is less expensive to own, operate and safer to use.

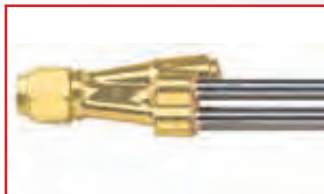
Our special 62 "F" injector mixer can produce the hottest flame possible at the lowest gas pressure making it the safest, most efficient design in the industry.

- ▶ Cuts up to 300 mm steel
- ▶ Solid forged head and lever
- ▶ Triangular tube design
- ▶ Brazed connections
- ▶ Head mixing
- ▶ Use with 6290 tips

62-5E EQUAL PRESSURE "E" TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)				
90°Head		70°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
62-5E	1.27	62-5AE	1.25	460
62-5EL	1.32	62-5AEL	1.31	530
62-5EL-1000	1.73	62-5AEL-1000	1.58	900



70° Head



180° Head

62-5F LOW PRESSURE "F" INJECTOR TORCHES (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUELS)						
90°Head		70°Head		180°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
62-5F	1.27	62-5AF	1.25	62-5BF	1.14	460
62-5FL	1.32	62-5AFL	1.31	62-5BFL	1.18	530
62-5FL-835	1.59	62-5AFL-835	1.58	62-5BFL-835	1.42	835
62-5FL-1000	1.70	62-5AFL-1000	1.69	62-5BFL-1000	1.52	900
62-5FL-1250	1.82	62-5AFL-1250	1.80	62-5BFL-1250	1.63	1210
62-5FL-1500	2.00	62-5AFL-1500	1.98	62-5BFL-1500	1.79	1500
62-5FL-2000	2.50	62-5AFL-2000	2.50	62-5BFL-2000	2.30	2000

62-5 LOW PRESSURE TORCHES (FOR ACETYLENE)						
90°Head		70°Head		180°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
62-5	1.27	62-5A	1.25	62-5B	1.14	460
62-5L	1.32	62-5AL	1.31	62-5BL	1.18	530
62-5L-835	1.59	62-5AL-835	1.58	62-5BL-835	1.42	835
62-5L-1000	1.70	62-5AL-1000	1.69	62-5BL-1000	1.52	900
62-5L-1250	1.82	62-5AL-1250	1.80	62-5BL-1250	1.63	1210
62-5L-1500	2.00	62-5AL-1500	1.98	62-5BL-1500	1.79	1500

Available with G 3/8" A-UNI ISO 228 inlet threads, add "GB" to product code when ordering

## Model 242

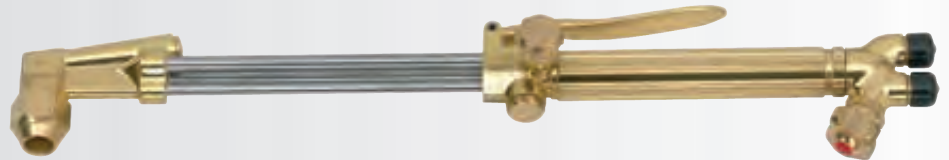


- ▶ Cutting capacity 200 mm
- ▶ One torch suitable for use with all fuel gases: simply change tip for cutting, heating, gouging.
- ▶ Toughest design-triangular stainless steel tubes, solid forged brass head
- ▶ Available to suit all tip styles in the world
- ▶ Ease-on cutting oxygen control smoother starts
- ▶ Head mixing and equal pressure design for maximum operator safety
- ▶ Harris design quality control and reputation makes this the "safest" long life torch
- ▶ Fast heating and cutting
- ▶ Spare parts and accessories readily available
- ▶ Total versatility
- ▶ Extended lengths available on request
- ▶ Use with 6290 tips

### 242 EQUAL PRESSURE TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)

90°Head		70°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
242-2	1.15	242-A	1.30	460
242-2L	1.20	242-AL	1.35	530
242-2L36	1.40	242-AL36	1.55	915

## Model 42



- ▶ Cuts up to 200 mm
- ▶ Lightweight
- ▶ Solid forged head
- ▶ Triangular tube design
- ▶ Brazed tube connections
- ▶ Use with 6290 tips



### Handwheel valve

Model 42-3 available with handwheel valve. Add "V" to product code when ordering.

### 42-4F LOW PRESSURE "F" INJECTOR TORCHES (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUELS)

90°Head		70°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
42-4F	1.02	42-4AF	1.02	420
42-4FL	1.06	42-4AFL	1.06	500
42-3FL-835	1.21	42-3AFL-835	1.21	835
42-3FL-1000	1.35	42-3AFL-1000	1.35	1000

### 42-4E EQUAL PRESSURE "E" TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)

90°Head		Length (mm)
PART NO.	Weight (Kg)	
42-4E	0.99	420
42-4EL	1.04	500

### 42-4 LOW PRESSURE TORCHES (FOR ACETYLENE)

90°Head		70°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
42-4	1.03	42-4A	1.04	420
42-4L	1.07	42-4AL	1.07	500
42-3L-835	1.28	42-3AL-835	1.25	835
42-3L-1000	1.35	42-3AL-1000	1.35	1000

Available with G 3/8" A-UNI ISO 228 inlet threads, add "GB" to product code when ordering





# HAND CUTTING TORCHES



## MODEL 980



- ▶ Cuts up to 200 mm
- ▶ Stainless steel cutting oxygen lever with locking clip
- ▶ Protected internal tip nut threads
- ▶ Solid forged head
- ▶ In-line tube design
- ▶ Use with 6290 tips

980 EQUAL PRESSURE "E" TORCH (FOR ACETYLENE)		
90°Head		Length (mm)
PART NO.	Weight (Kg)	
980	1.11	480

980-F EQUAL PRESSURE "F" INJECTOR TORCH (FOR MAXIMUM PERFORMANCE ALTERNATIVE FUELS)		
90°Head		Length (mm)
PART NO.	Weight (Kg)	
980-F	1.09	480

## MODEL 980-NM



- ▶ Cuts up to 200 mm
- ▶ Operates with acetylene or alternative fuel
- ▶ Tip mix principle
- ▶ Use with 8290 tips

980-NM EQUAL PRESSURE TIP MIX TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)		
90°Head		Length (mm)
PART NO.	Weight (Kg)	
980-NM	1.12	480

## Model 242-NM



- ▶ Cutting capacity 200 mm
- ▶ One torch suitable for use with all fuel gases
- ▶ Toughest design – triangular stainless steel tubes, solid forged brass head
- ▶ Stainless steel cutting oxygen lever
- ▶ Use with 8290 tips

242-NM EQUAL PRESSURE TIP MIX TORCHES (FOR ACETYLENE OR ALTERNATIVE FUELS)				
90°Head		70°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
242-2NM	1.10	242-NM-A	1.25	460
242-2NML	1.16	242-NM-AL	1.31	530
242-2NML36	1.35	242-NM-AL36	1.50	915

Available with G 3/8" A-UNI ISO 228 inlet threads, add "GB" to product code when ordering

## Model H28

### Heavy Duty Hand Cutting Torch



- ▶ Cutting capacity 350 mm
- ▶ Toughest design – triangular stainless steel tubes, solid forged brass head
- ▶ Harris design quality control and reputation makes this the "safest" long life torch
- ▶ Fast heating and cutting
- ▶ Operates with acetylene or alternative fuel
- ▶ Tip mix principle
- ▶ Use with 2890 tip mix tips

H28 EQUAL PRESSURE TIP MIX TORCHES (FOR ACETYLENE OR ALTERNATIVE FUELS)		
90°Head		Length (mm)
PART NO.	Weight (Kg)	
H28	1.25	500
H28-L	1.55	820

## Model 28



- ▶ Cuts up to 400 mm with acetylene
- ▶ Cuts up to 500 mm with propane
- ▶ Operates with acetylene or alternative fuel
- ▶ Stainless steel gas tube
- ▶ Tip mix principle
- ▶ Use with 2890 tip mix tips

28 EQUAL PRESSURE TIP MIX TORCHES (FOR ACETYLENE OR ALTERNATIVE FUELS)		
90°Head		Length (mm)
PART NO.	Weight (Kg)	
28-2	1.42	500
28-2L	1.60	660



# HAND CUTTING TORCHES



## Model 6000

### Heavy Duty Foundry Hand Cutting Torches



#### Features:

- ▶ Cuts up to 1300 mm
- ▶ Heavy duty scarfing and emergency cut-off for continuous cast
- ▶ Tip mix torch for propane or natural gas
- ▶ Well balanced for operator comfort
- ▶ Extra high flow capacity
- ▶ Ridged triangular tube arrangement
- ▶ Stainless steel head & tubes
- ▶ Built to specified lengths up to 1800 mm
- ▶ Available with 70°, 90° and 180° heads



\* Torch stand for 90° model (available only for request)

PART NO.	HEAD ANGLE	WEIGHT (Kg)	LENGTH (mm)
6000-FL1200*	90°	3,6	1.200
6000-FL1500*	90°	3,8	1.500
6000-FL1800*	90°	4,1	1.800
6000-AFL1200	70°	3,2	1.200
6000-AFL1500	70°	3,4	1.500
6000-AFL1800	70°	3,7	1.800
6000-BFL1200	180°	3,2	1.200
6000-BFL1500	180°	3,4	1.500
6000-BFL1800	180°	3,7	1.800
6075R-AFL 1200	75°	3,2	1.200
6075R-AFL 1500	75°	3,4	1.500
6075R-AFL 1800	75°	3,7	1.800



Model 6075R  
Scarfing torch with Rod Feed

## Model 136-2

### Heavy Duty Foundry Hand Cutting Torches

#### Features:

- ▶ Cuts up to 900 mm
- ▶ Stainless steel head and tubes
- ▶ Triangular tube design
- ▶ Tip mix torch for propane or natural gas
- ▶ Requires 3/8" hose
- ▶ Internal tip nut



136-2FL

PART NO.	HEAD ANGLE	WEIGHT (Kg)	LENGTH (mm)
136-2FL1200	90°	2,2	1.200
136-2AFL1200	70°	2,2	1.200
136-2BFL1200	180°	2,2	1.200



## Accessories Model 6000 & Model 136-2

### HIGH CAPACITY TIPS

#### 213 Cutting tips for Oxy-Propane, Natural Gas\*

For Model 6000 Torch

\* Not for use with Acetylene

PART NO.	PLATE THICKNESS (mm)	OPERATING PRESSURE (bar)		GAS FLOW (l/h)	
		OXYGEN	GAS	OXYGEN	GAS
213-10	500	5.5 - 8.2	1.0 - 1.4	113000-156000	3600-10000
213-15	1000	5.5 - 9.0	1.0 - 1.4	142000-184000	4200-11300
213-20	1250	5.5 - 8.2	1.0 - 1.4	170000-226000	5100-13000



213

#### 250 Scarfing tip for propane, natural gas\*

For Model 6075 scarfing torch

Oxygen supply and oxygen regulator must be capable of flows shown on cutting tip chart

\* Not for use with Acetylene

PART NO.	SCARF WIDTH (mm)	OPERATING PRESSURE (bar)		GAS FLOW (l/h)	
		OXYGEN	GAS	OXYGEN	GAS
250-18	up to 60	5.5 - 8.3	1.0 - 1.4	113000-156000	3600-10000



250

#### 136 One - Piece tips for Oxy-Propane, Natural Gas\*

For model 136 Torch

\* Not for use with Acetylene

PART NO.	PLATE THICKNESS (mm)	OPERATING PRESSURE (bar)		GAS FLOW (l/h)	
		OXYGEN	GAS	OXYGEN	GAS
136-11	500	4.0-5.5	0.5-1.0	27000-82000	1700-3400
136-13	700	4.0-5.5	0.7-1.0	59000-113000	1700-3400
136-15	900	5.5-7.0	1.0-1.4	71000-136000	2200-4200



136

### NUT & TWIN HOSES

PART NO.	DESCRIPTION
6000-DM	Nut for Model 6000
136-DM	Nut for Model 136



6000-DM



136-DM

PART NO.	DESCRIPTION	LENGTH (m)	HOSE DIAM. (mm)		THREADING	
			OXYGEN	GAS	OXYGEN	GAS
214460/10	Twin hoses	10	12	10	G 1/2	G 3/8
214460/20	Twin hoses	20	12	10	G 1/2	G 3/8



214460



## Cutting Attachments

- ▶ Solid forged head resists abuse and distortion
- ▶ Triangular tube design is compact and lightweight with exceptional strength and rigidity
- ▶ Brazed connections prevent 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

### Handwheel valve



73-3 Cuts up to 150 mm

**Heavy duty equipment**

### 73 Equal Pressure "E" Cutting Attachments (for Acetylene and Alternative Fuels)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
73-3	90°	6290	43-2	0.638	227
73-3B	180°	6290	263	0.630	253
73-3V*	90°	6290	543	0.650	227

\* "V" handwheel valve instead of lever.



49-3 Cuts up to 150 mm

**Heavy duty equipment**

### 49 Low Pressure Cutting Attachments (for Acetylene)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
49-3	90°	6290	43-2 263 543	0.678	248
49-3A	70°	6290		0.686	258
49-3L360	90°	6290		0.728	348
49-3L500	90°	6290		0.750	490
49-3V*	90°	6290		0.692	248

\* "V" handwheel valve instead of lever.

### 49-F Low Pressure "F" Cutting Attachments (for Alternative Fuels)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
49-3AF	70°	6290	43-2 263 543	0.674	258
49-3AFV*	70°	6290		0.700	258
49-3F	90°	6290		0.678	248
49-3FL360	90°	6290		0.736	348
49-3FL500	90°	6290		0.804	490
49-3FV*	90°	6290		0.688	248

\* "V" handwheel valve instead of lever.



273 Cuts up to 150 mm

**Medium- Heavy duty equipment  
Brazed in mixer**

## 273 Equal Pressure Cutting Attachments (for Acetylene and Alternative Fuels)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
273-2	90°	6290	43-2, 263, 543	0.840	230
273-2A	70°	6290	43-2, 263, 543	0.845	230

## 273-NM Equal Pressure Cutting Attachments (for Acetylene and Alternative Fuels)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
273-2-NM	90°	8290	43-2, 263, 543	0.800	230



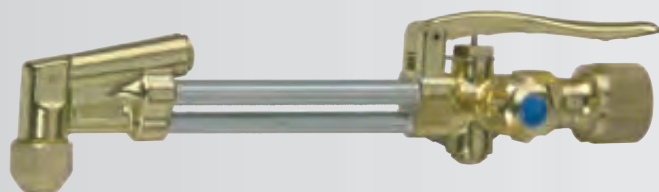
72-3 Cuts up to 100 mm

**Medium duty equipment**

## 72 Equal Pressure "E" Cutting Attachments (for Acetylene and Alternative Fuels)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
72-3	90°	6290	85	0.636	227
72-3V*	90°	6290	85	0.642	227

\* "V" handwheel valve instead of lever.



36-2 Cuts up to 75 mm

**Light duty equipment**

## 36 Equal Pressure "E" Cutting Attachments (for Acetylene and Alternative Fuels)

PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
36-2	90°	3690	19-6	0.326	189



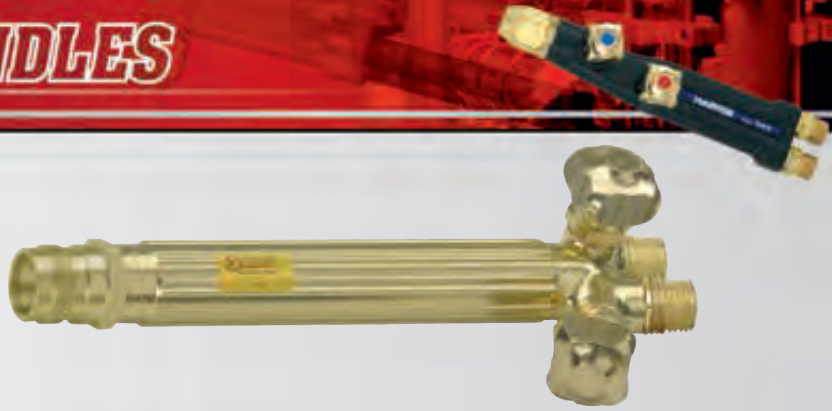


# TORCH HANDLES

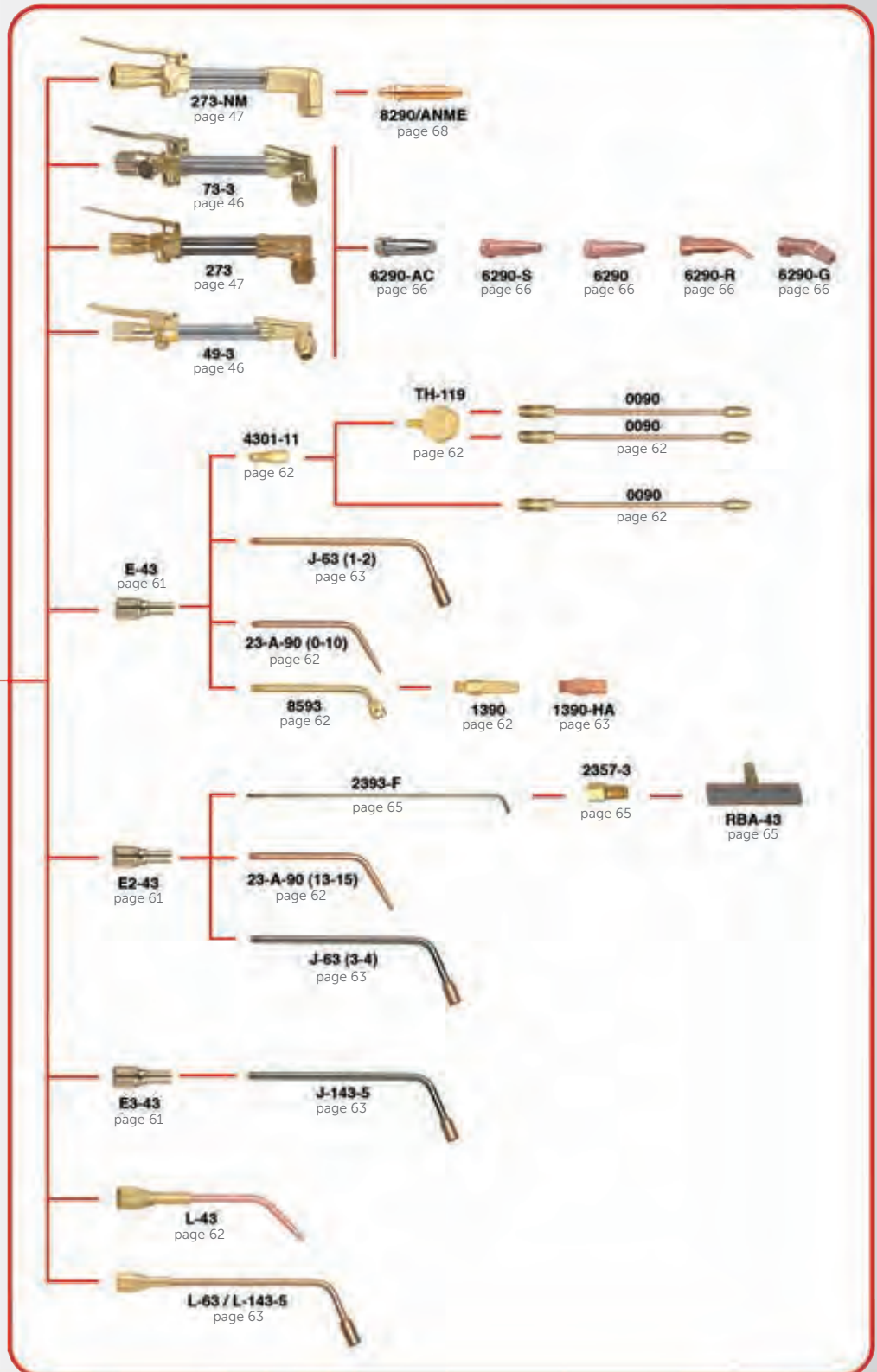
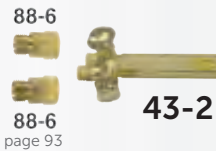
## Model 43

Welds up to 50 mm  
Cuts up to 150 mm

This model is a high capacity combination handle. With proper accessories, it can be used for either acetylene or other fuel gases.



## ACETYLENE



# TORCH HANDLES



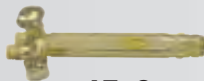
## Features:

- ▶ Stainless steel head
- ▶ Tough extruded brass handle
- ▶ Stainless steel ball valves
- ▶ No screws or soldered parts for easier maintenance

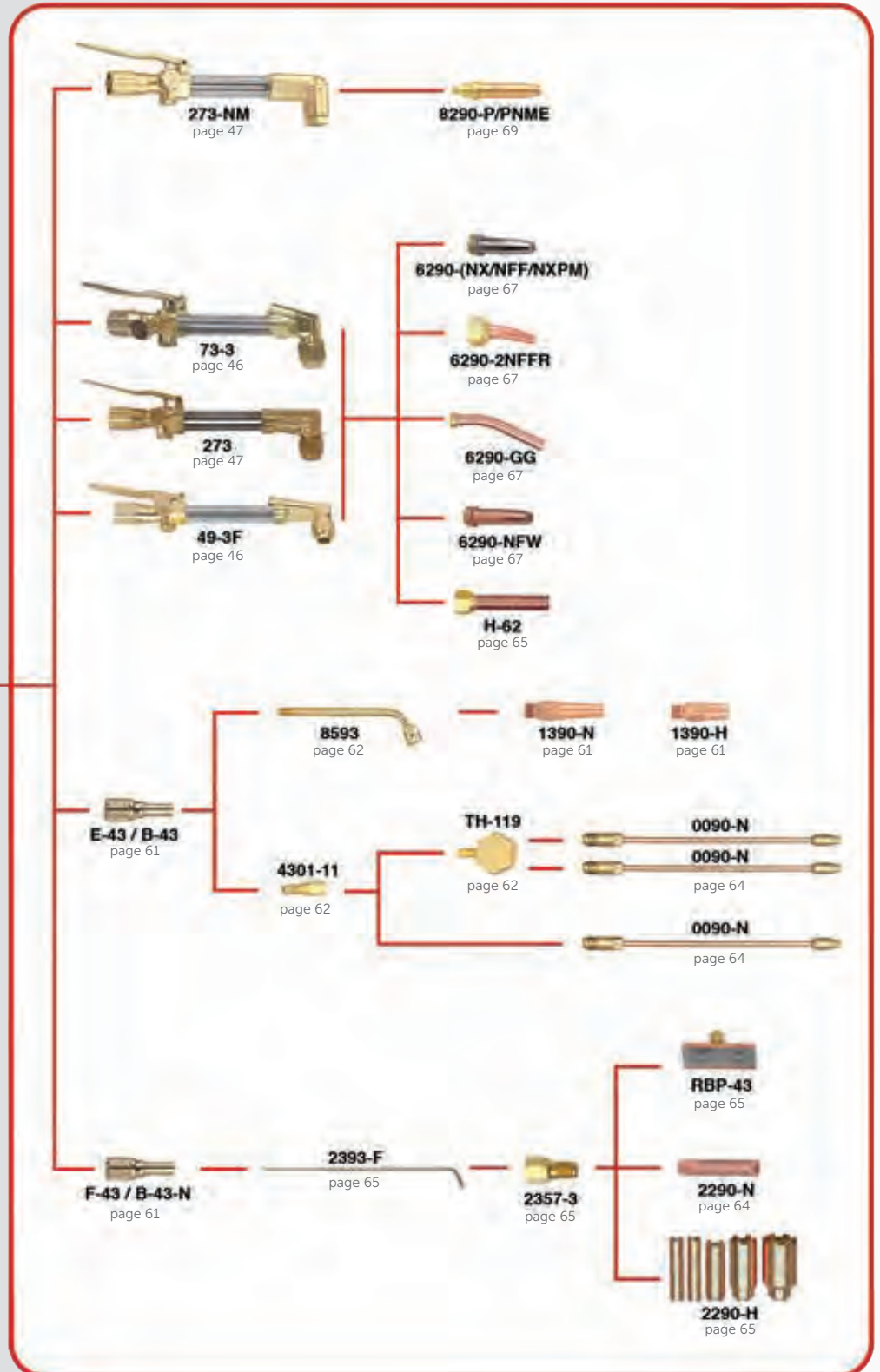
PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
43-2	49-3, 59-3,	9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.550	208
43-2GB	73-3, 273	G 3/8" A-RH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228	0.558	208

## ALTERNATIVE FUEL GASES

88-6  
88-6  
page 93



43-2





# TORCH HANDLES

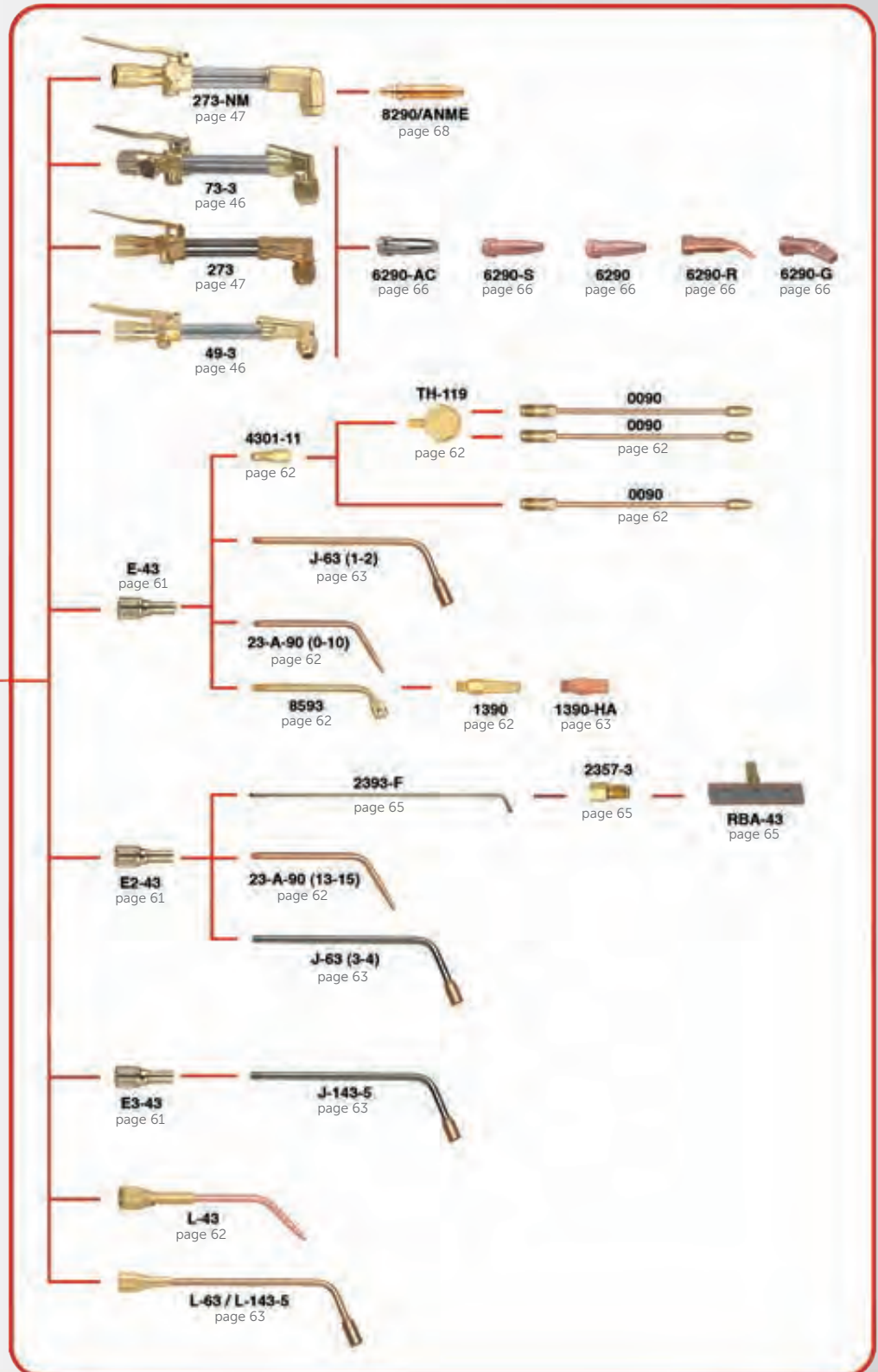
## Model 263

Welds up to 50 mm  
Cuts up to 150 mm

This model is a high capacity combination handle. With proper accessories, it can be used for either acetylene or other fuel gases.



## ACETYLENE





# TORCH HANDLES

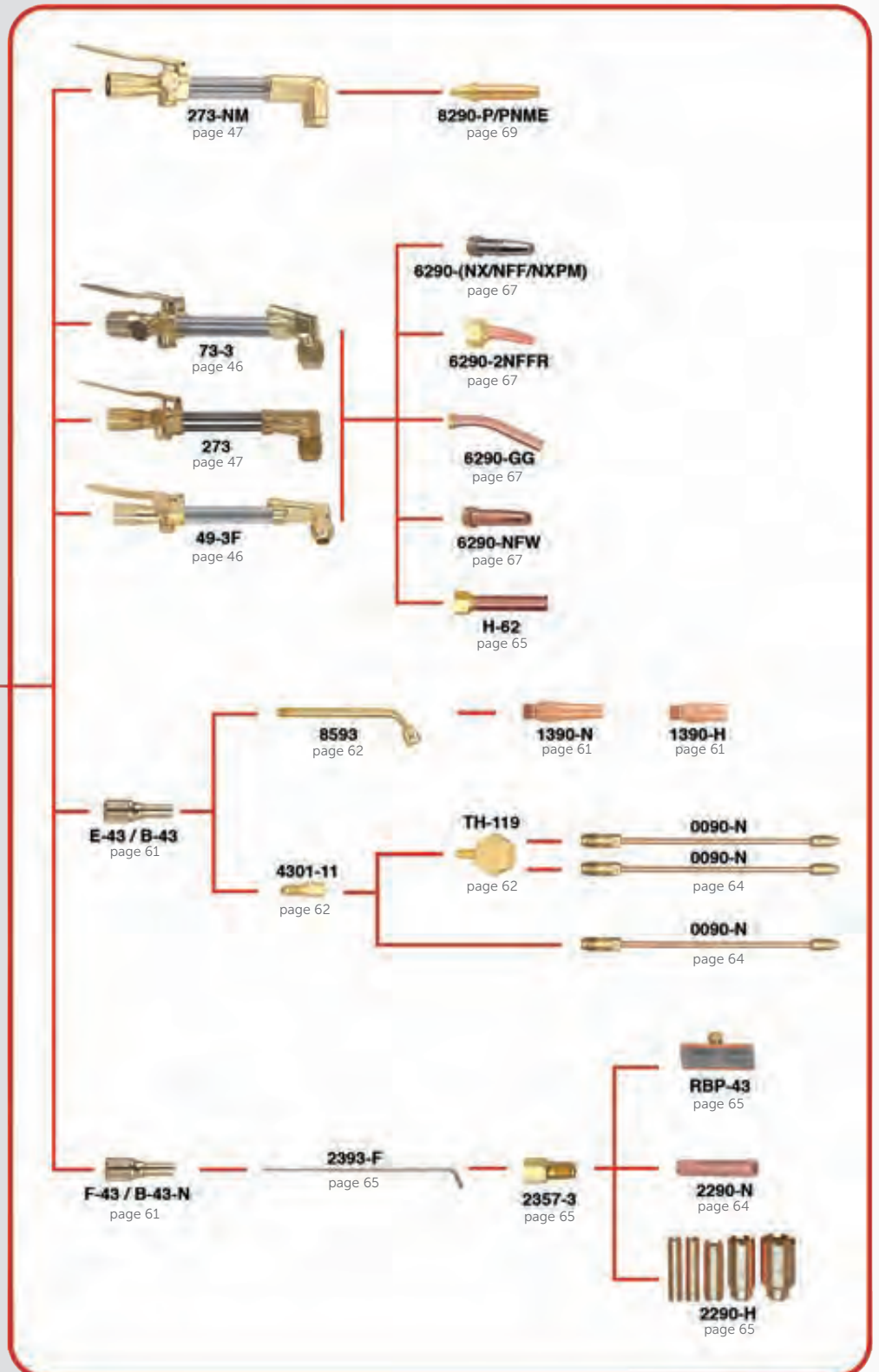


## Features:

- ▶ High precision ball valves
- ▶ Two separate gas tubes
- ▶ Brass handle

PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
263	49-3, 59-3,	9/16" -18-UNF-3A-RH	9/16" -18-UNF-3A-LH	0.550	208
263-GB	73-3, 273	G 3/8" A-RH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228	0.558	208

## ALTERNATIVE FUEL GASES





# TORCH HANDLES

## Model 543

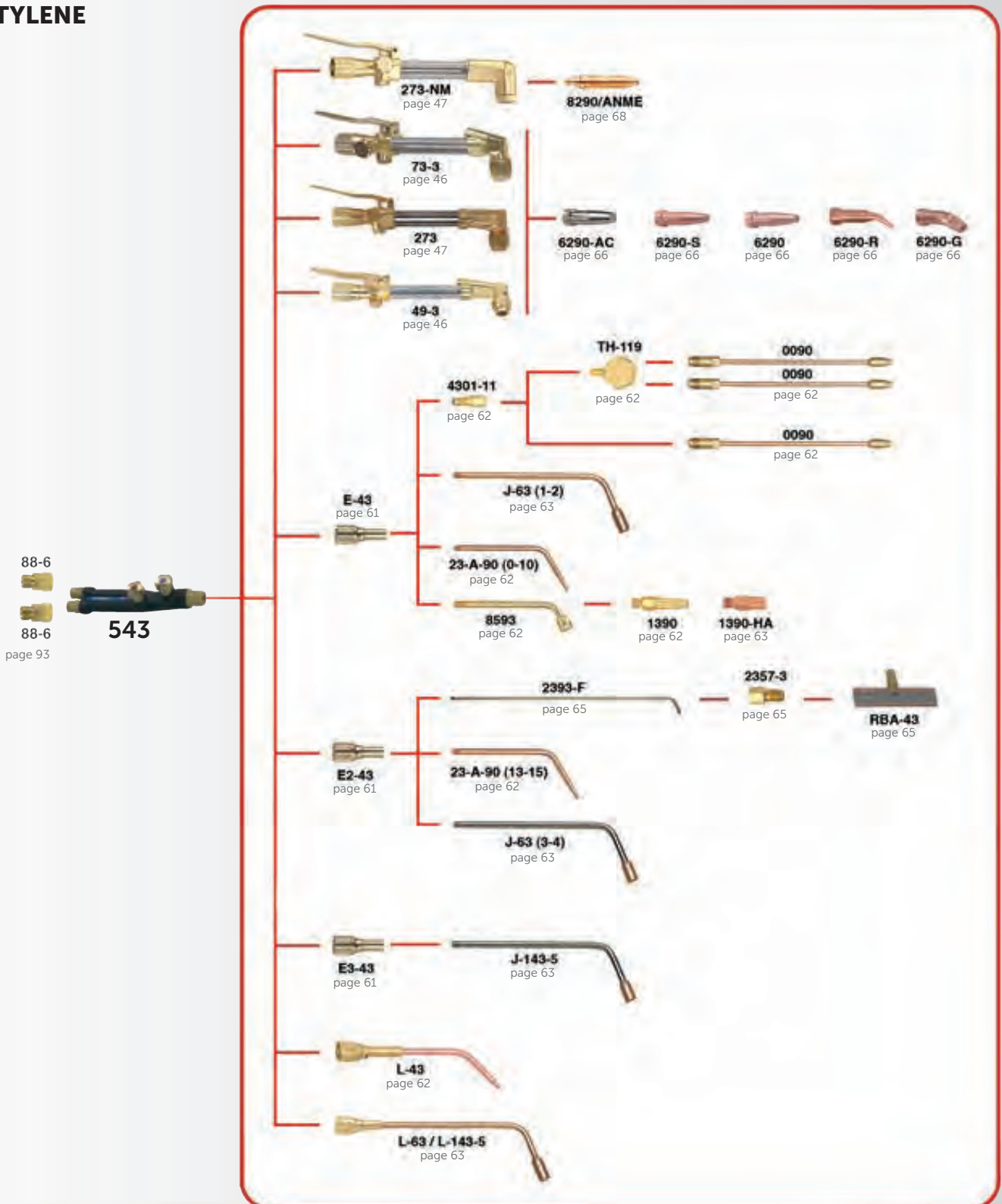
Welds up to 50 mm  
Cuts up to 150 mm



### Features:

- ▶ Conforms to ISO 5172
- ▶ Ergonomic design with front valves
- ▶ Forged aluminium alloy body

## ACETYLENE



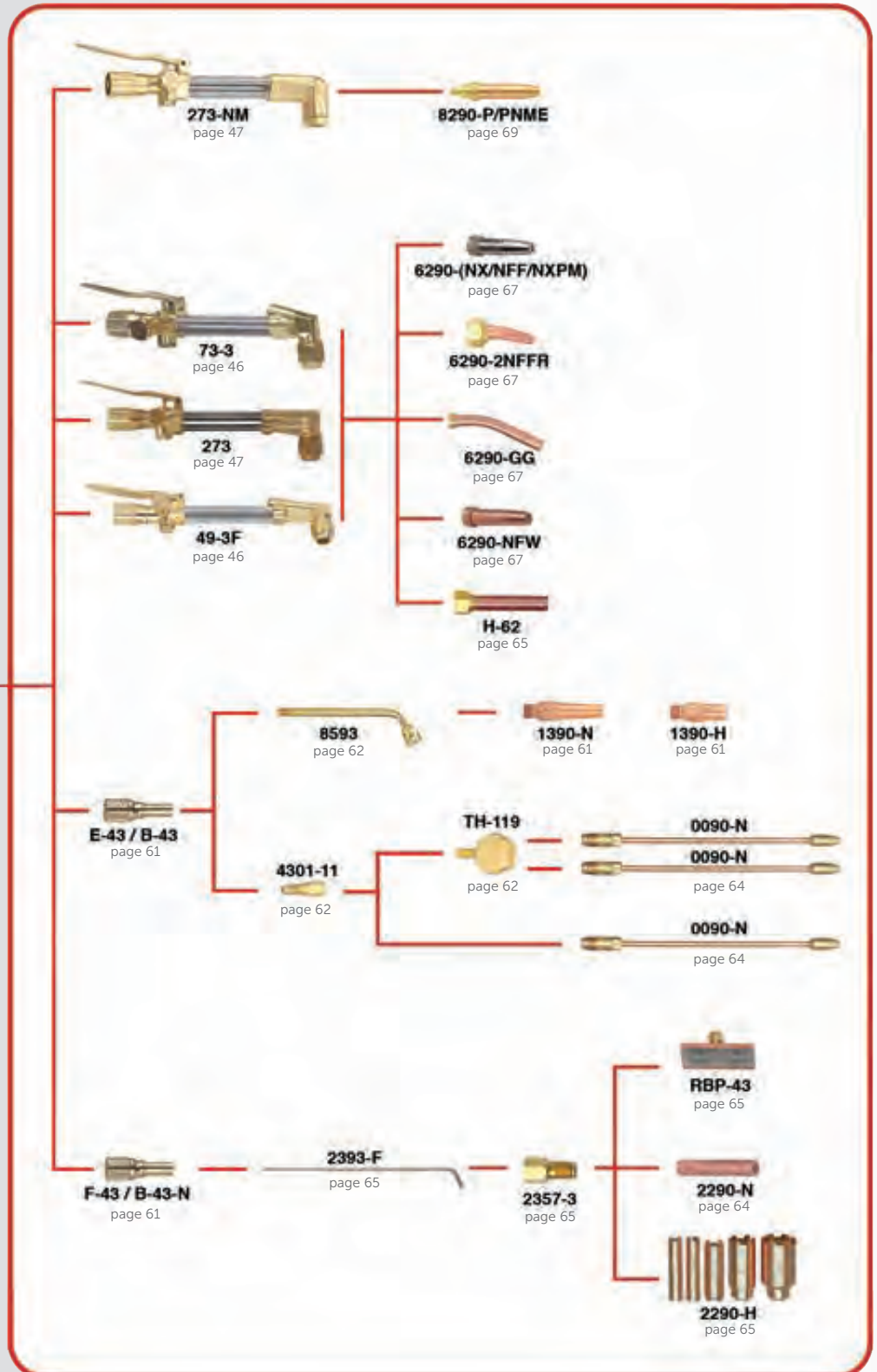
# TORCH HANDLES



- ▶ High precision ball valves
- ▶ Coated with tough black polyurethane for longer life

PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
543	49-3, 59-3, 73-3, 273	9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.502	211
543D		G 1/4" A-RH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228	0.503	211
543GB		G 3/8" A-RH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228	0.507	211

## ALTERNATIVE FUEL GASES







# TORCH HANDLES

## Model 85

Welds up to 20 mm  
Cuts up to 100 mm

This model 85 is designed for welding, heating and cutting with oxy-acetylene.



## ACETYLENE

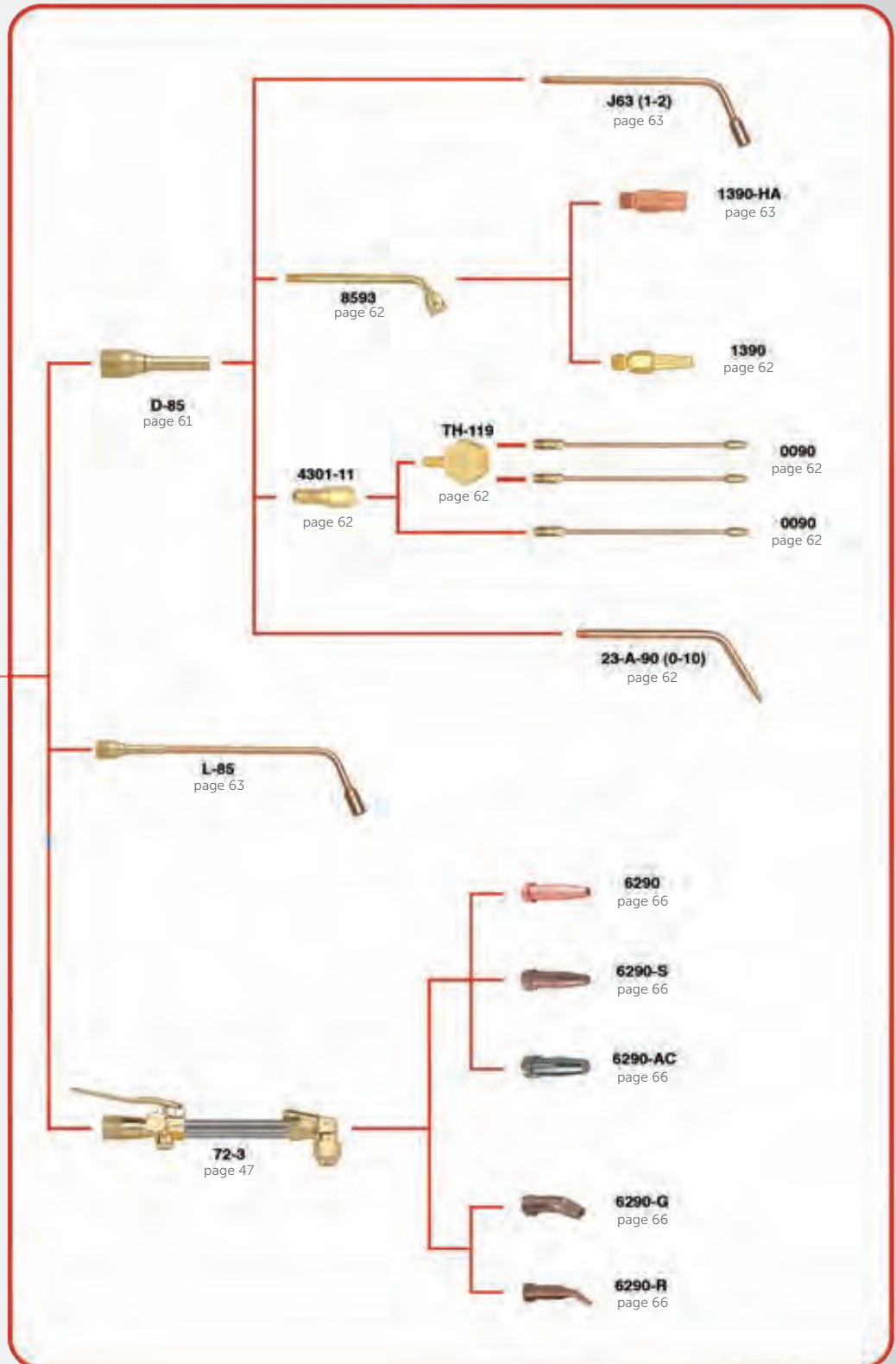


88-6CVTL

88-6CVTR

page 93

**85**



# TORCH HANDLES

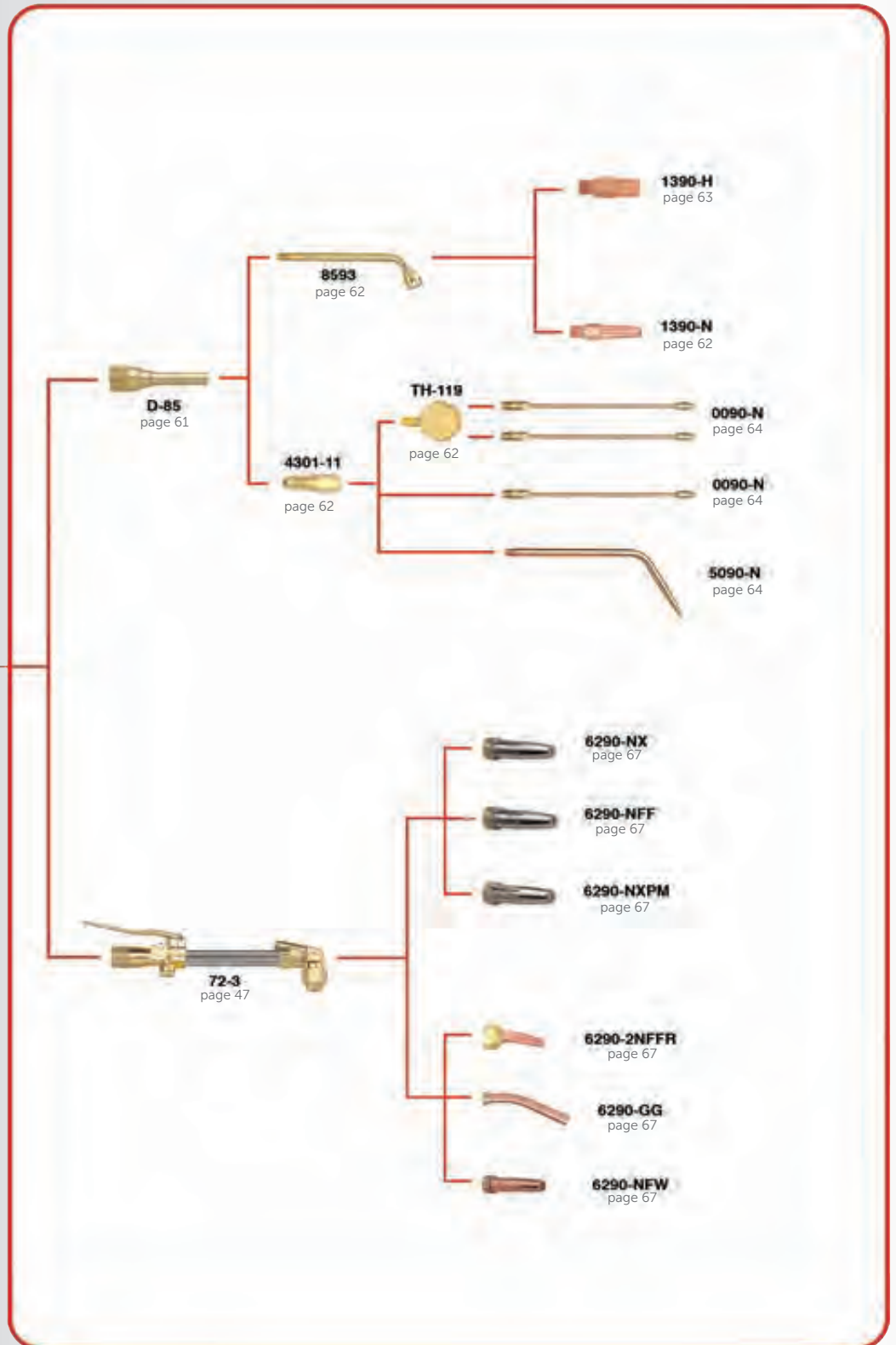


## Features:

- ▶ Brass torch handle
- ▶ Silver brazed twin tube construction for safety and durability
- ▶ Ball valve for fast and accurate flame adjustment

PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
85	72-3	9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.362	183

## ALTERNATIVE FUEL GASES





# TORCH HANDLES

## Model 50

Welds up to 14 mm



Automatic Torch Handle. The Harris 50-9 and 50-10 automatic torch handles feature a unique gas control system to reduce operating 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, and welding with all oxy fuel gases.

The pilot flame light feature is not recommended when using cutting attachments or heating tips.

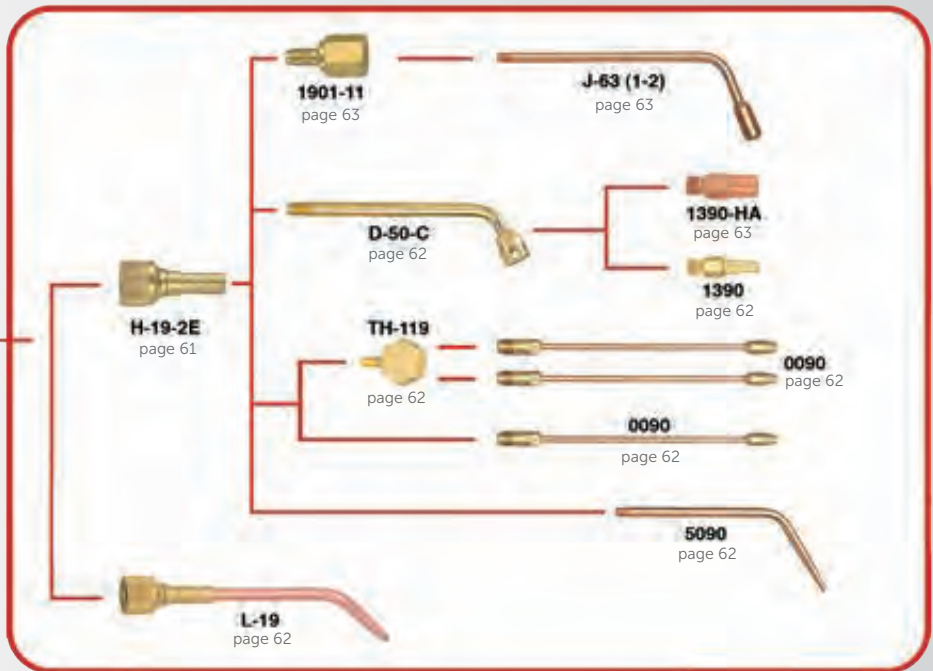
Select model 50-9 for acetylene and 50-10 for other fuel gases.

### Features:

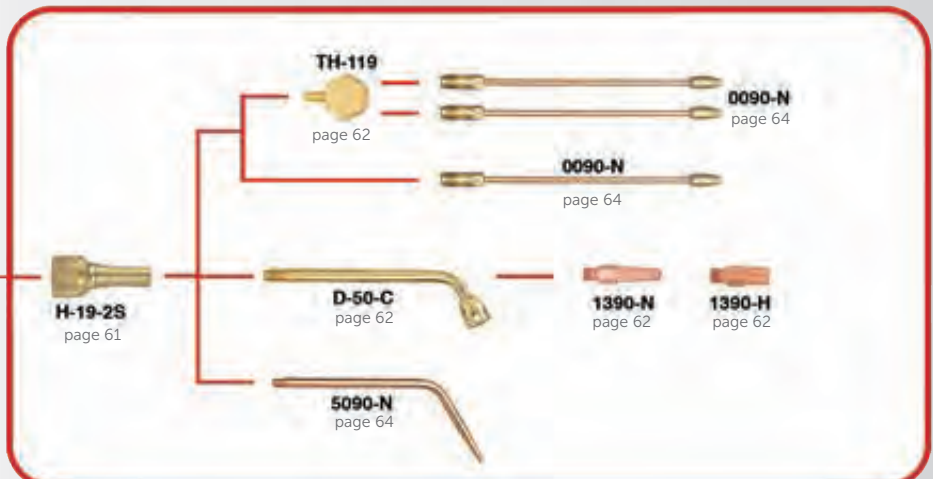
- ▶ Automatic on/off gas control
- ▶ Adjustable pilot light

PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
50-9	36-2	9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.310	169
50-9-GB		G 1/4" A-RH-UNI ISO 228	G 1/4" A-LH-UNI ISO 228	0.308	169
50-10		9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.310	169
50-10-GB		G 1/4" A-RH-UNI ISO 228	G 1/4" A-LH-UNI ISO 228	0.308	169

## ACETYLENE



## ALTERNATIVE FUEL GASES





# TORCH HANDLES



## Model 19

Welds up to 14 mm  
Cuts up to 75 mm

The model 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.

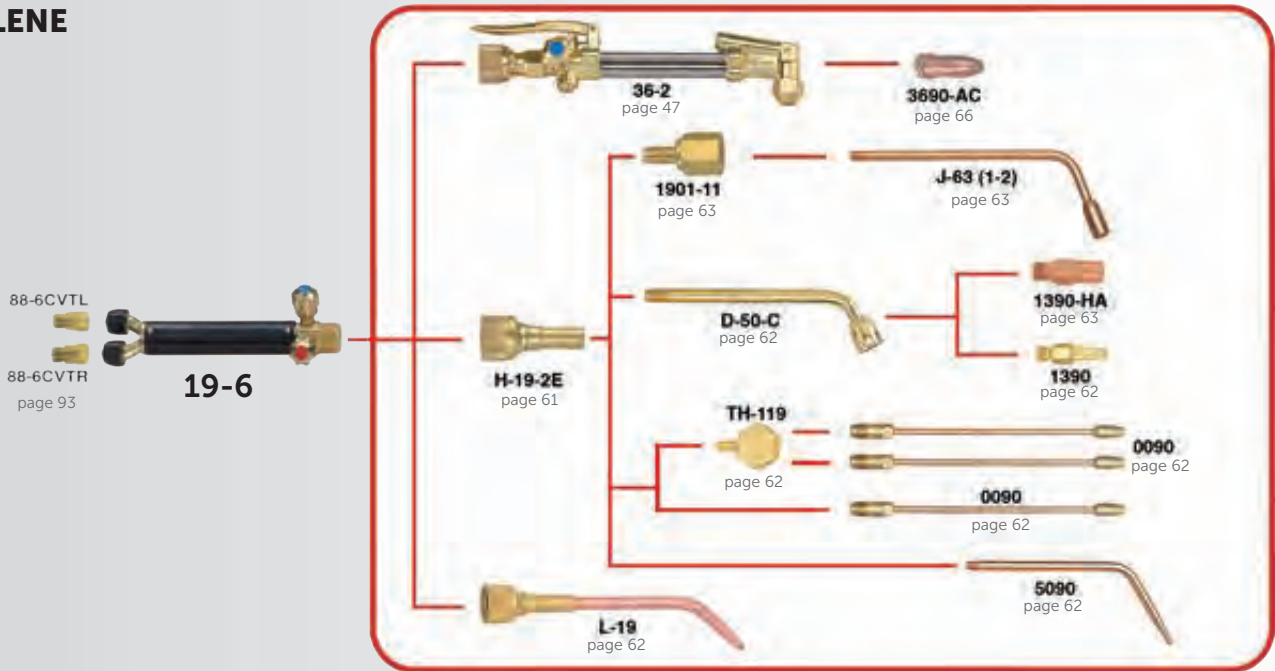


### Features:

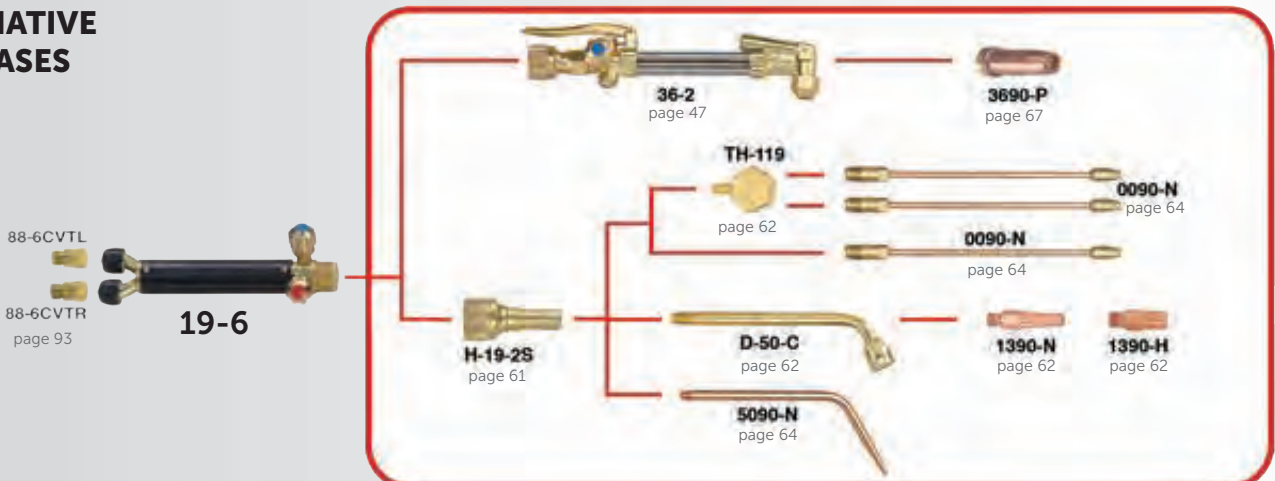
- ▶ Light weight handle
- ▶ Silver brazed twin tube construction for safety and durability
- ▶ Ball valve for fast and accurate flame adjustment

PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
19-6	36-2	9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.240	154
19-6-GB		G 1/4" A-RH-UNI ISO 228	G 1/4" A-LH-UNI ISO 228	0.238	154

## ACETYLENE



## ALTERNATIVE FUEL GASES

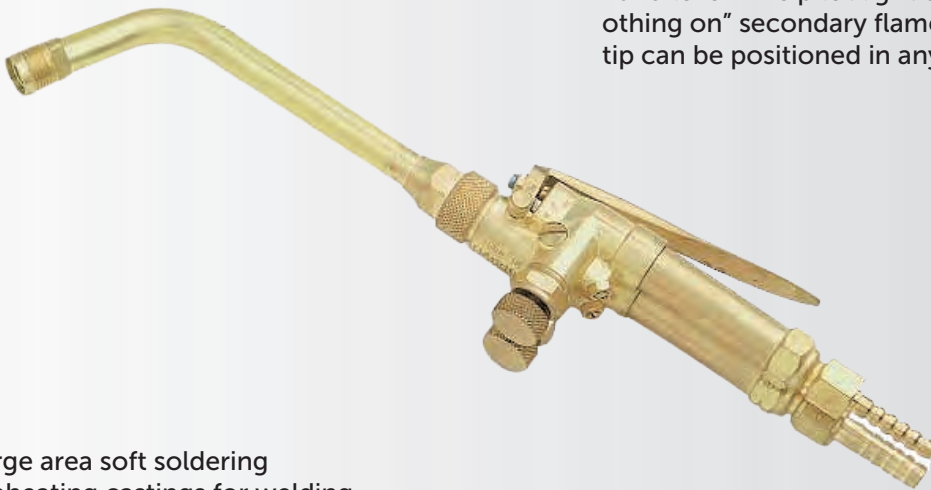




## Model 189-2

### Automatic Soldering And Heating Assembly Propane, Natural Gas

The Harris 189-2 heating and soldering torch is designed to operate with natural gas (0,015 bar or more) or propane in combination with 3 to 7 bar of compressed air only. The 189-2 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.



- ▶ Large area soft soldering
- ▶ Preheating castings for welding
- ▶ Heating pipes in chemical plants
- ▶ Mould drying
- ▶ Metal cleaning (Brewery, Vats, Rubber Mould, etc.)
- ▶ Burning paint
- ▶ Heating forming dies prior to hard facing
- ▶ Stress relieving die shoes
- ▶ For use with compressed air only



81-12 TIP

#### 81-12 Heating Tip

PART NO.	HEAT OUTPUT (Kcal/h)	COMPRESSED AIR		PROPANE	
		PRESSURE (bar)	FLOW (l/h)	PRESSURE (bar)	FLOW (l/h)
PROPANE					
81-12	66000	7	45000	0,3	3000
NATURAL GAS					
81-12	83000	7	40000	0,015	9000

## Model Light Pro

### Air-Fuel torch for heating, brazing, soldering

#### Features:

- ▶ To be used with Butane and Propane-Butane mixtures
- ▶ Solid forged brass body for maximum strength
- ▶ Long life adjusting valve



PART NO.	SIZE (mm)	WEIGHT (Kg)	FUEL FLOW (Kg/h)	CALORIES (Kcal/m)
1400087 *	150x95x40	0,14	0-30	1270
1400088 **	150x95x40	0,14	0-30	1270

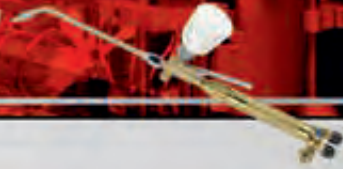
\* Professional EN417 connection

\*\* Bayonet connection



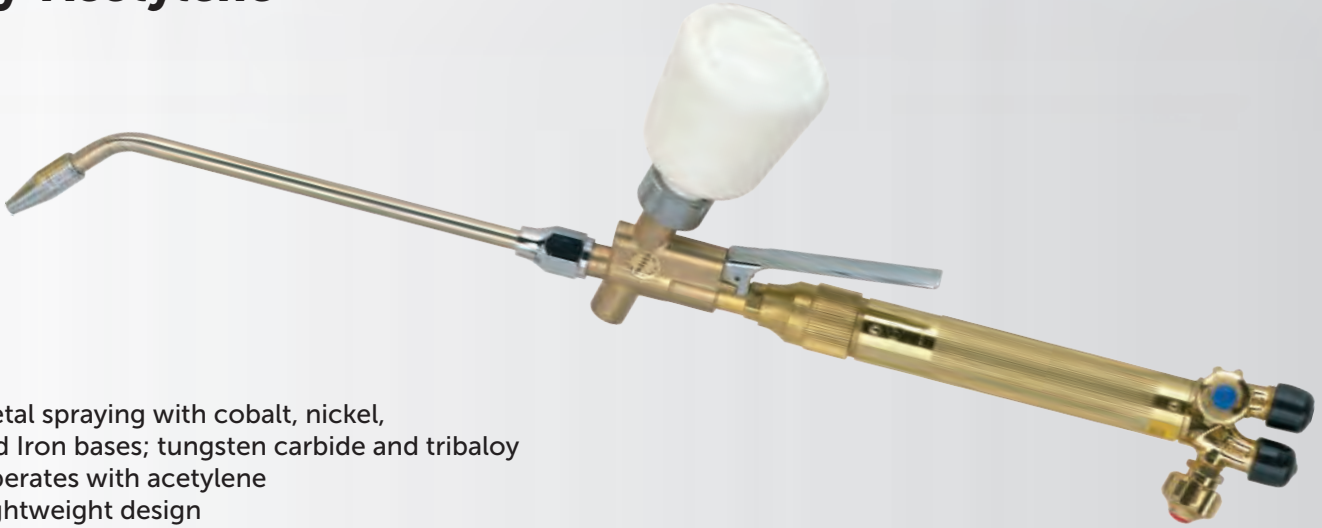


# POWDER SPRAYING TORCH



## Model 187

### Metal Powder Spraying Assembly Oxy-Acetylene



- ▶ Metal spraying with cobalt, nickel, and Iron bases; tungsten carbide and triballoy
- ▶ Operates with acetylene
- ▶ Lightweight design
- ▶ Safety system to avoid power blowback and mixed gases into the powder container
- ▶ Uses standard 85 handle

## 18790 Tips

- ▶ Tips assembly can rotate 360° to allow for spray operations in any desired direction



PART NO.	OXYGEN PRESSURE (bar)		ACETYLENE PRESSURE (bar)		OXYGEN FLOW (l/h)		ACETYLENE FLOW (l/h)		HEATING POWER (Kcal/h)	
	3.0	5.0	0.5	0.8	1125	1875	600	1000	13550	183600
18790-45H	3.0	5.0	0.5	0.8	1125	1875	600	1000	13550	183600
18790-48H	2.0	3.5	0.3	0.5	750	1300	400	600	8130	110160
18790-53H	1.5	2.5	0.2	0.4	600	1000	300	500	6780	91870

## 18781LT

### Powder Container

- ▶ Powder container capacity of 0.45 kg ideal for small jobs
- ▶ Powder recoveries of up to 95%



## Equal Pressure "E" Type Mixer



E-43



E-243



E3-43/F-43



D-85



H-19-2E

PART NO.	FITS HANDLE	GAS	WELDING TIPS	HEATING TIPS	BRAZING TIPS	FLAME CLEANING TIPS
E-43	43-2, 263, 543	Oxy-Acetylene	23A90 tips 0,1,3,5,6,8,9,10 0090 tips 1,3,5,6,8 (+adapter 4301-11+TH-119) 1390 tips 00,0,1,3,5,6,8,9,10 (+tube 8593)	J-63 tips 1,2 1390-HA (+tube 8593)	-	-
		Oxy-Propane	-	-	1390-N tips 2,3,4,5,6,7,8,9,10 (+ tube 8593) 0090-N tips 2,4,6,8 (+adapter 4301-11 +TH-119)	-
E2-43	43-2, 263, 543	Oxy-Acetylene	23A90 tips 13,15	J-63 tips 3,4	-	RBA-43 tips 2,4,6 (+tube 2393+2357-3)
E3-43	43-2, 263, 543	Oxy-Acetylene	-	J-143-5	-	-
D-85	85	Oxy-Acetylene	23A90 tips 0,1,3,5,6,8,9,10 0090 tips 1,3,5,6,8, (+adapter 4301-11+TH-119) 1390 tips 00,0,1,3,5,6,8,9,10 (+tube 8593)	J-63-tips 1,2 1390-HA (+tube 8593)	-	-
		Oxy-Acetylene	5090 tips 0,1,3,5,6,8,9,10 0090 tips 1,3,5,6,8 (+tip holder TH-119) 1390 tips 00,0,1,3,5,6,8,9,10 (+tube D-50-C) 0090 tips 1,3,5,6,8	J-63-tips 1,2 (+adapter 1901-11) 1390-HA (+tube 8593)	-	-
F-43	43-2, 263, 543	Oxy-Propane	-	2290-H tips 1,2,3,4,5 (+ tube 2393+2357-3)	2290-N tips 13,15,20,30,80 (+tube 2393+2357-3)	RBP-43 tips 2,4,5 (+tube 2393+2357-3)

## Low Pressure "F" Type Mixer



B-43-N



H-19-2S



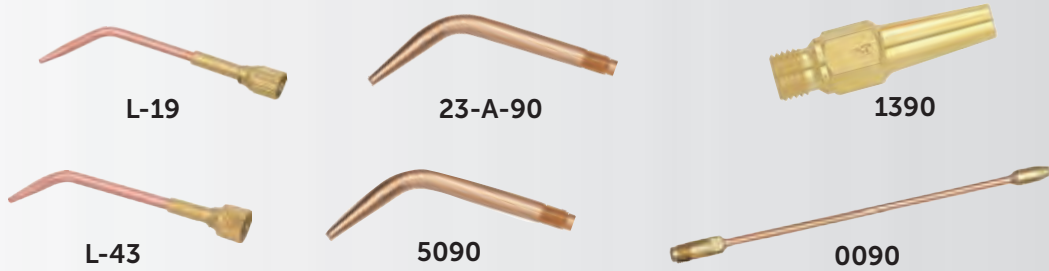
B-43-1/2/3/5/6/8/9/10

PART NO.	FITS HANDLE	GAS	HEATING TIPS	BRAZING TIPS	FLAME CLEANING TIPS
B-43-N		Oxy-Propane	2290-H tips 1,2,3,4,5 (+ tube 2393)	2290-N tips 13,15,20,30,80 (+tube 2393+2357-3)	RBP-43 tips 2,4,6 (+tube 2393+2357-3)
B-43-1		Oxy-Propane	-	1390-2N (+tube 8593) 0090-2N (+adapter 4301-11+tip holder TH-119)	-
B-43-3		Oxy-Propane	-	1390-3N/4N (+tube 8593) 0090-4N (+adapter 4301-11+tip holder TH-119)	-
B-43-5	43-2 263 543	Oxy-Propane	-	1390-5N (+tube 8593)	-
B-43-6		Oxy-Propane	-	1390-6N/7N (+tube 8593) 0090-6N (+adapter 4301-11+tip holder TH-119)	-
B-43-8		Oxy-Propane	-	1390-8N/H (+tube 8593) 0090-8N (+adapter 4301-11+tip holder TH-119)	-
B-43-9		Oxy-Propane	-	1390-9N (+tube 8593)	-
B-43-10		Oxy-Propane	-	1390-10N (+tube 8593)	-
H-19-2S	19-6 50-10	Oxy-Propane	1390-H (+tube D-50-C)	1390-N tips 2,3,4,5,6,7,8,9,10 (+tube D-50-C)	-
		Oxy-Propane	-	0090-N tips 2,4,6,8	-



## Acetylene Welding and Brazing Tips/Assemblies

WELDING / BRAZING								EQUAL PRESSURE		LOW PRESSURE	
ASSEMBLY L-19	ASSEMBLY L-43	TIPS 23-A-90	TIPS 5090	TIPS 1390	FLEXIBLE TIPS 0090	FLOW (l/h)	THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)	OXYGEN (bar)	ACETYLENE (bar)
-	-	-	-	1390-00	-	25	-	0.3 - 0.8	0.3 - 0.8	2.5	0.015 - 0.2
L-19-0	L-43-0	23-A-90-0	5090-0	1390-0	-	45	0.2 - 0.5				
L-19-1	L-43-1	23-A-90-1	5090-1	1390-1	0090-1	65	0.5 - 1.0				
-	-	-	5090-2	1390-2	-	100	-				
L-19-3	L-43-3	23-A-90-3	5090-3	1390-3	0090-3	160	1.0 - 2.0				
-	-	-	5090-4	1390-4	-	250	-				
L-19-5	L-43-5	23-A-90-5	5090-5	1390-5	0090-5	350	2.0 - 4.0				
L-19-6	L-43-6	23-A-90-6	5090-6	1390-6	0090-6	500	4.0 - 6.0				
-	-	-	5090-7	1390-7	-	700	-				
L-19-8	L-43-8	23-A-90-8	5090-8	1390-8	0090-8	1000	6.0 - 9.0				
L-19-9	L-43-9	23-A-90-9	5090-9	1390-9	-	1500	9.0 - 14.0				
L-19-10	L-43-10	23-A-90-10	5090-10	1390-10	-	2000	14.0 - 20.0				
-	L-43-13	23-A-90-13	-	-	-	3000	20.0 - 30.0				
-	L-43-15	23-A-90-15	-	-	-	4000	30.0 - 50.0				



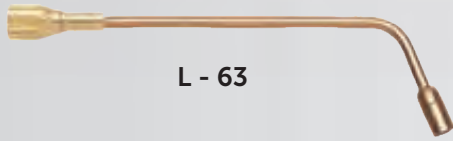
## Tip Tubes for Welding and Brazing Tips

HANDLE	MIXER	TIP TUBE/ADAPTER	TIP	WELDING ASSEMBLY
43-2 263 543	E-43	-	23-A-90 (13-15)	L-43
	E-43	8593	1390	
	E-43	4301-11+TH-119	0090	
	E-43	-	23-A-90 (0-10)	
85	D-85	8593	1390	-
		4301-11+TH-119	0090	
		-	23A-90 (0-10)	
19-6 50-9	H-19-2E	D-50-C	1390	L-19
		TH-119	0090	
		-	5090	

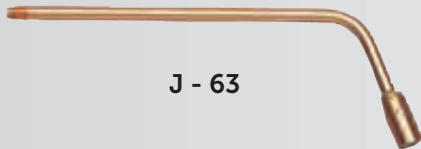




## Acetylene Heating Tips and Assemblies



L - 63



J - 63



1901-11  
ADAPTER

HANDLE	MIXER	ADAPTER	HEATING TIPS PART NO.	HEATING ASSEMBLY PART NO.
43-2 263 543	E-43	-	J-63-1	L-63-1
	E-43		J-63-2	L-63-2
	E2-43		J-63-3	L-63-3
	E2-43		J-63-4	L-63-4
E3-43/F-43	J-143-5		L-143-5	
85	D-85	J-63-1	L-85-1	
19-6 50-9	H-19-2E	1901-11	J-63-2	L-85-2
			J-63-1	-
J-63-2	-			

HANDLE	MIXER	TIP TUBE	TIP
43-2 263 543	E-43	8593	1390-HA
85	D-85	8593	1390-HA
19-6/50-9	H-19-2E	D-50-C	1390-HA

### Heating Tips and Assemblies Data Chart



1390-HA

PART NO.			PRESSURE		FLOW		HEATING OUTPUT
			OXYGEN (bar)	ACETYLENE (bar)	OXYGEN (l/h)	ACETYLENE (l/h)	(Kcal/h)
L-63-1	L-85-1	J-63-1	0.15 - 0.4	0.15 - 0.4	600 - 1100	600 - 1000	7450 - 13000
L-63-2	L-85-2	J-63-2	0.2 - 0.5	0.2 - 0.5	900 - 1550	850 - 1400	11100 - 18700
L-63-3	-	J-63-3	0.3 - 0.6	0.3 - 0.6	1550 - 2500	1400 - 2250	18500 - 29800
L-63-4	-	J-63-4	0.6 - 1.0	0.6 - 1.05	2500 - 4300	2250 - 3950	29800 - 52000
L-143-5	-	J-143-5	0.8 - 1.4	0.6 - 1.05	5000 - 9350	4500 - 8500	59500 - 111500
-	-	1390-HA	0.35	0.35	1100	1000	-

## Acetylene Flame Cleaning Tips

HANDLE	MIXER	TIP TUBE/ADAPTER	TIP
43-2 263 543	E2-43	2393+2357-3	RBA-43

Select Model 2393 tip tube and adapter from page 65.

### Oxy-Acetylene RBA Flame Cleaning Heads Data Chart

PART NO.	LENGTH (mm)	PRESSURE		FLOW		HEATING OUTPUT (Kcal/h)
		OXYGEN (bar)	ACETYLENE (bar)	OXYGEN (l/h)	ACETYLENE (l/h)	
RBA-43-2	50	0.4 - 0.7	0.4 - 0.7	800 - 1130	700 - 900	9300 - 11900
RBA-43-4	100	0.7 - 0.9	0.7 - 0.9	1550 - 1650	1400 - 1500	18500 - 19900
RBA-43-6	150	0.8 - 1.0	0.8 - 1.0	1780 - 1820	1400 - 1650	18500 - 21900



RBA-43



## Alternative Fuel Tips

### 1390-N, 5090-N & 0090-N Brazing Tips

### 2290-N & 1390-H Heating Tips



1390-H



2290-N

HANDLE	MIXER	TIP TUBE	1390-N TIPS
43-2 263 543	E-43	B-43-1	1390-2N
		B-43-3	1390-3N
		B-43-3	1390-4N
		B-43-5	1390-5N
		B-43-6	1390-6N
		B-43-6	1390-7N
		B-43-8	1390-8N/1390-H
		B-43-9	1390-9N
		B-43-10	1390-10N
19-6/50-10	-	H-19-2S	1390-N/1390-H/ 5090-N

HEAVY DUTY HANDLE	MIXER	TIP TUBE/ ADAPTER	2290-N TIPS
43-2 263 543	F-43 B-43-N	2393+2357-3	2290-13N
			2290-15N
			2290-20N
			2290-30N
			2290-80N

Select Model 2393 and adapter tip tube from page 65

HANDLE	MIXER	ADAPTER	TIP
43-2 263 543	B-43-1	4301-11	0090-2N
	B-43-3		0090-4N
	B-43-6		0090-6N
	B-43-8		0090-8N
19-6 50-10	H-19-2S	-	0090-2N-4N-6N-8N



0090-N

### 1390-N/2290-N/0090-N/5090-N/1390-H Tip Performance Data Chart

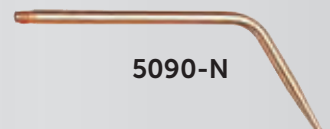
PART NO.		LOW PRESSURE		EQUAL PRESSURE		FLOW (l/h)		
		OXYGEN (bar)	FUEL GAS (bar)	OXYGEN (bar)	FUEL GAS (bar)	OXYGEN	FUEL GAS	
1390-2N	0090-2N	-	1,0	0.015-0.2	0.3-1	0.3-1	300	75
1390-3N	-	5090-3N	1,0				550	140
1390-4N	0090-4N	-	1,4				700	175
1390-5N	-	5090-5N	1,8				900	225
1390-6N	0090-6N	-	1,8				1100	275
1390-7N	-	-	2,1				1350	345
1390-8N	0090-8N	5090-8N	2,1				1500	375
1390-9N	-	-	2,5				1650	415
1390-10N	-	-	2,8				2000	500
2290-13N			1,2				3400	850
2290-15N			1,2	4200	1050			
2290-20N			1,2	6000	1500			
2290-30N			2,3	8000	2000			
2290-80N			2,3	9600	2400			
1390-H			3,5	0.5	3.5	1.0-0.5	4200	1050



1390-N2 to 4



1390-N5 to 10



5090-N

## Cleaning Heads - Alternative Fuels Tips

### 2290-H Heating Tips, 2393 Tip Tubes, RBP-43 Flame



2290-H



H-62-P

#### 2290-H/H-62-P Performance Data Chart

PART NO.	PRESSURE (bar)		FLOW (l/h)		APPROX. HEATING OUTPUT (Kcal/h)
	OXYGEN	FUEL GAS	OXYGEN	PROPANE	
2290-1H	1-2	0.5	4000-7000	1000-2000	22300 - 44600
2290-2H	2-3	0.5	5900-12800	1500-3200	33500 - 71400
2290-3H	2-5	1.0	8500-22900	2200-5700	49000 - 127100
2290-4H	3-6	1.0	14000-28400	3600-7100	80300 - 158000
2290-5H	4-8	1.0-2.0	17000-39700	4300-10000	96000 - 223000
H-62-1P	3.0	0.5	4000-7000	1000-2000	22300 - 44600
H-62-2P	3.5	0.5	5900-12800	1500-2200	38500 - 71400
H-62-3P	4.0	1.0	8500-22900	2200-5700	49000 - 127100

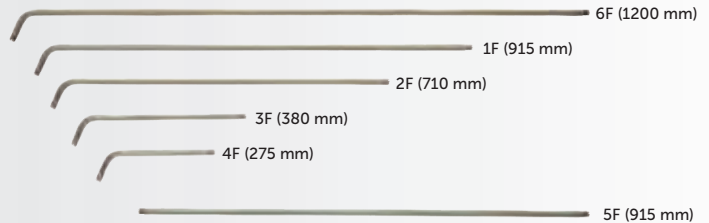
H-62-P to be used with cutting attachment and cutting torches.

#### 2393-F Tip Tube Chart

PART NO.	LENGTH (mm)	DESIGN
2393-1F	915	curved
2393-2F	710	curved
2393-3F	380	curved
2393-4F	275	curved
2393-5F	915	straight
2393-6F	1200	curved

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

#### 2393-F Tip Tube



2357-3  
TIP ADAPTER

HANDLE	MIXER	TIP TUBE/ADAPTER	TIP
43-2 263 543	B-43-N F-43	2393+2357-3	2290-H RBP-43



RBP-43 Tips

#### RBP-43 Oxy-Propane, Propylene Based & Natural Gas Flame Cleaning Heads Data Chart

PART NO.	LENGTH (mm)	OXYGEN PRESSURE (bar)	PROPANE PRESSURE (bar)	OXYGEN FLOW (l/h)	PROPANE FLOW (l/h)	HEATING OUTPUT (Kcal/h)
RBP-43-2	50	0.5 - 1.0	0.5	2550 - 3400	700 - 1050	15600 - 23400
RBP-43-4	100	1.0 - 1.5	0.5 - 1.5	6350 - 8500	1850 - 2500	41200 - 55600
RBP-43-6	150	2 - 3	1.0 - 1.5	13900 - 18100	3000 - 4150	66800 - 92300





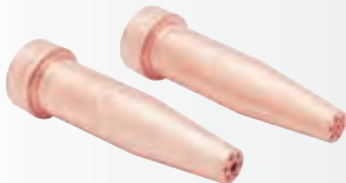
## Acetylene Cutting Tips

### General Preheat 6290 One Piece Oxy-Acetylene Tip Chart



PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	ACETYLENE Low Pressure (bar)
6290-000	0 - 5	1.0 - 2.0	0.3 - 0.8	0.015 - 0.2
6290-00	5 - 10	1.0 - 2.0		
6290-0	10 - 15	1.5 - 2.5		
6290-1	15 - 25	2.0 - 3.5		
6290-2	25 - 50	3.0 - 4.5		
6290-3	50 - 100	3.0 - 4.5		
6290-4	100 - 175	3.5 - 5.5		

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



PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	ACETYLENE Low Pressure (bar)
6290-1S	15 - 25	2.0 - 3.5	0.3 - 0.8	0.015 - 0.2
6290-2S	25 - 50	3.0 - 4.5		
6290-3S	50 - 100	3.0 - 4.5		
6290-4S	100 - 175	3.5 - 5.5		
6290-5S	175 - 250	4.5 - 5.5		
6290-6S	250 - 300	5.0 - 6.5		

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



Plated Shell

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	ACETYLENE Low Pressure (bar)
6290-00AC	5 - 10	1.0 - 2.0	0.3 - 0.8	0.015 - 0.2
6290-0AC	10 - 15	1.5 - 2.5		
6290-1AC	15 - 25	2.0 - 3.5		
6290-2AC	25 - 50	3.0 - 4.5		
6290-3AC	50 - 100	3.0 - 4.5		
6290-4AC	100 - 175	3.5 - 5.5		
6290-5AC	175 - 250	4.5 - 5.5		
6290-6AC	250 - 300	5.0 - 6.5		



Unplated Shell

### 3690-AC Oxy-Acetylene Tip Chart

PART NO.	METAL THICKNESS (mm)	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	WHERE USED
3690-00AC	0 - 6	1.0 - 2.0	0.3 - 0.8	36-2 Cutting Attachment
3690-0AC	6 - 13	1.5 - 2.5		
3690-1AC	13 - 25	2.0 - 3.5		
3690-2AC	25 - 75	3.0 - 4.5		

### 6290 Oxy-Acetylene Specialty Tip Chart



6290-G 6290-R

PART NO.	APPLICATION	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	ACETYLENE Low Pressure (bar)	WHERE USED
6290-1G	Gouging Wide 3x6 mm	2.5	0.3 - 0.8	0.015 - 0.2	Recommended for Straight Cutting Torches
6290-2G	Gouging Wide 5x10 mm	3.5			
6290-3G	Gouging Wide 6x13 mm	3.5			
6290-R	Rivet Cutting	3.0			

Cleaning Instructions: Use Tip Cleaner C-9

## Alternative Fuel Cutting Tips

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



Plated Shell

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS Equal Pressure (bar)	FUEL GAS Low Pressure (bar)
6290-00NX	0 - 5	1.0 - 2.0	0.3 - 0.8	0.015 - 0.2
6290-00NX	5 - 10	1.5 - 2.0		
6290-0NX	10 - 15	2.0 - 3.0		
6290-1NX	15 - 25	2.5 - 3.5		
6290-2NX	25 - 50	3.0 - 4.0		
6290-3NX	50 - 75	3.0 - 4.5		
6290-4NX	75 - 150	3.5 - 5.5		
6290-5NX	150 - 200	4.5 - 5.5		
6290-6NX	200 - 300	5.0 - 6.5		

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



Plated Shell

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS Equal Pressure (bar)	FUEL GAS Low Pressure (bar)
6290-1NFF	6 - 25	2.5 - 3.5	0.3 - 0.8	0.015 - 0.2
6290-2NFF	25 - 50	3.0 - 4.0		
6290-3NFF	50 - 75	3.0 - 4.5		
6290-4NFF	75 - 150	3.5 - 5.5		
6290-5NFF	150 - 200	4.5 - 5.5		
6290-6NFF	200 - 300	5.0 - 6.5		

### 6290-NXPM Oxy-MAPP® and Oxy-Propylene Tip Chart



Plated Shell

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS Equal Pressure (bar)	FUEL GAS Low Pressure (bar)
6290-00NXPM	0 - 5	1.0 - 2.0	0.3 - 0.8	0.015 - 0.2
6290-00NXPM	5 - 10	1.5 - 2.0		
6290-0NXPM	10 - 15	2.0 - 3.0		
6290-1NXPM	15 - 25	2.5 - 3.5		
6290-2NXPM	25 - 50	3.0 - 4.0		
6290-3NXPM	50 - 75	3.0 - 4.5		
6290-4NXPM	75 - 150	3.5 - 5.5		
6290-5NXPM	150 - 200	4.5 - 5.5		
6290-6NXPM	200 - 300	5.0 - 6.5		

### 3690-P Oxy-Propane, Natural Gas Tip Chart



Unplated Shell

PART NO.	METAL THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)	WHERE USED
3690-00P	0-6	1.0 - 2.0	0.3 - 0.8	36-2 Cutting Attachment
3690-0P	6-13	1.5 - 2.5		
3690-1P	13-25	2.0 - 3.5		
3690-2P	25-75	3.0 - 4.5		

### 6290 Oxy-Propane, Propylene, Natural Gas & MAPP® Gas Specialty Tip Chart



6290-NFW

PART NO.	APPLICATION	OXYGEN (bar)	FUEL GAS Equal Pressure (bar)	FUEL GAS Low Pressure (bar)	WHERE USED
6290-1GG	Gouging 3x6 mm wide	2.5	0.3 - 0.8	0.015 - 0.2	Recommended for Straight Cutting Torches
6290-2GG	Gouging 5x10 mm wide	3.5			
6290-3GG	Gouging 6x13 mm wide	3.5			
6290-4GG	Gouging 10x19 mm wide	4.0			
6290-2NFFR	Rivet cutting	3.0			
6290-NFW	Rivet washing	3.5			

Cleaning Instructions: Use Tip Cleaner C-9



## Acetylene Cutting Tips Tip Mix Tips

### Tip Mix Tips 8290 & 8290-ANME Oxy-Acetylene

PART NO. 8290	PART NO. 8290-ANME	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)	WHERE USED
8290-1	8290-ANME1	0 - 6	1.5	0.5	242NM
8290-2	8290-ANME2	6 - 12	2.0	0.5	NM-250
8290-3	8290-ANME3	12 - 75	3.0	0.5	980-NM
8290-4	8290-ANME4	75 - 150	3.0	1.0	Cutting Torches
8290-5	8290-ANME5	150 - 200	4.0	1.0	
8290-6	8290-ANME6	200 - 250	4.5	1.0	273 NM
8290-7	8290-ANME7	250 - 300	5.5	1.0	Cutting Attachment



### Tip Mix Tips 2890-F Oxy-Acetylene

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)	WHERE USED
2890-1F	0 - 10	1.0-1.5	0.2	
2890-2F	10 - 50	1.5-2.5	0.3	
2890-3F	50 - 100	3.0-4.5	0.5	28-2
2890-4F	100 - 125	5.0-5.5	0.7	H28
2890-5F	125 - 150	5.5-6.0	0.7	28-2L
2890-6F	150 - 200	6.0-6.5	0.7	Cutting Torches
2890-7F	200 - 300	7.0-9.0	1.0	





## Alternative Fuels Cutting Tips

### Tip Mix Tips

#### Two Piece Tip Mix Tips 8290-P & 8290-PNME Oxy-Propane, LPG & MAPP®

PART NO. 8290-P	PART NO. 8290-PNME	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)	WHERE USED
8290-P1	8290 - PNME1	0 - 6	1.5	0.5	242-NM NM-250 980-NM Cutting Torches
8290-P2	8290 - PNME2	6 - 12	2.0	0.5	
8290-P3	8290 - PNME3	12 - 75	3.0	0.5	
8290-P4	8290 - PNME4	75 - 150	3.0	1.0	
8290-P5	8290 - PNME5	150 - 200	4.0	1.0	273-NM Cutting Attachment
8290-P6	8290 - PNME6	200 - 250	4.5	1.0	
8290-P7	8290 - PNME7	250 - 300	5.5	1.0	



#### Two Piece Tip Mix Tips 2890-P Oxy-Propane, LPG & MAPP®

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)	WHERE USED
2890-0P	0 - 10	1.5-2.0	0.2	28-2 H28 28-2L Cutting Torches
2890-1P	10 - 25	2.0-2.5	0.4	
2890-2P	25 - 50	2.0-3.0	0.4	
2890-3P	50 - 75	2.5-3.0	0.4	
2890-4P	75 - 100	3.0-4.0	0.5	
2890-5P	100 - 200	3.0-5.0	0.5	
2890-6P	200 - 300	5.0-7.0	0.6	
2890-7P	300 - 400	6.0-7.0	0.7	
2890-8P	400 - 500	7.0-8.0	0.8	





## VICTOR® Style

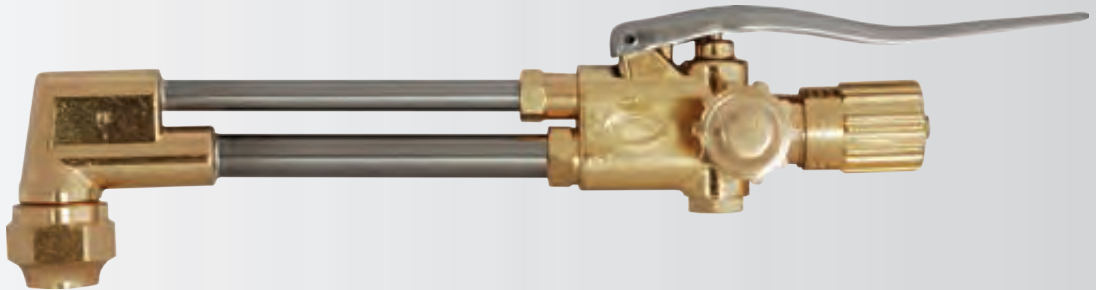


### Model VH31



- ▶ Welds up to 50 mm
- ▶ Cuts up to 200 mm
- ▶ Tough extruded brass handle
- ▶ Stainless steel ball valves

### Model VH24



- ▶ Cuts up to 200 mm
- ▶ Spiral mix system
- ▶ Design for maximum operator safety
- ▶ Stainless steel Tubes
- ▶ Use with 1-101-HV and GPN



## Hand Cutting Torch

### Model V242



- ▶ Cuts up to 200 mm
- ▶ Head mixing and equal pressure design for maximum operator safety
- ▶ Triangular tube design
- ▶ Brazed tube connections
- ▶ Use with 1-101-HV and GPN tips (see page 73)

V242 EQUAL PRESSURE TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)				
90°Head		70°Head		Length (mm)
PART NO.	Weight (Kg)	PART NO.	Weight (Kg)	
V242-2	1.30	V242A	1.30	470
V242-2L	1.35	V242A-L	1.35	530
V242-2L-36	1.70	V242A-L-36	1.70	900

## Cutting Attachments



PART NO.	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
<b>Equal Pressure "E" Cutting Attachment (for Acetylene and Alternative Fuels)</b>					
V273-2	90°	GPN, 1101- HV	V-315-CH, V263	0.500	220
V2460	90°	GPN, 1101- HV	V-315-CH, V263	0.658	225
<b>Low Pressure "F" Cutting Attachment (for Alternative Fuels)</b>					
V49-3F	90°	6290	V-315-CH, V263	0.678	248
V2460F	90°	GPN	V-315-CH, V263	0.638	227
V2460AF	70°	GPN	V-315-CH, V263	0.638	227





# COMPATIBLE STYLES



## Handles



### Model V-315-CH

Welds up to 50 mm  
Cuts up to 150 mm

**Features:**

- ▶ Tough extruded brass handle
- ▶ Stainless steel ball valves



**Model V-315-CH**

### Model V263

Welds up to 50 mm  
Cuts up to 150 mm

**Features:**

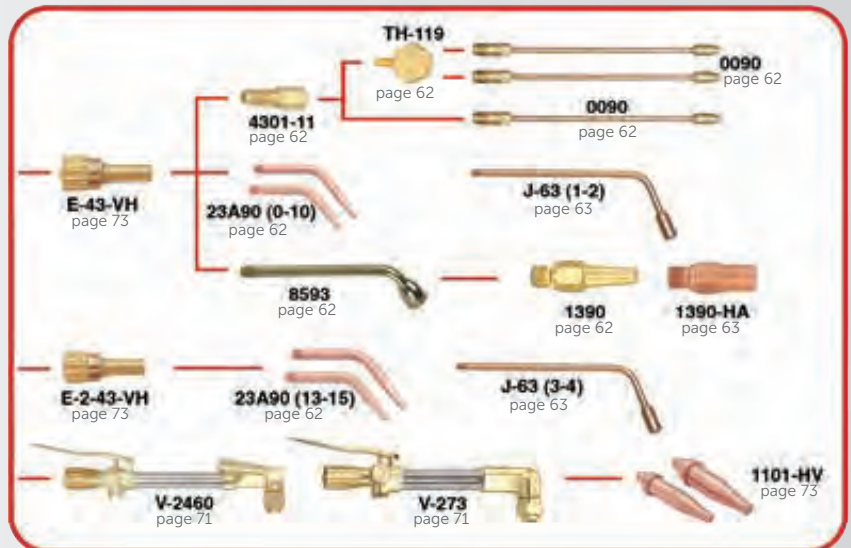
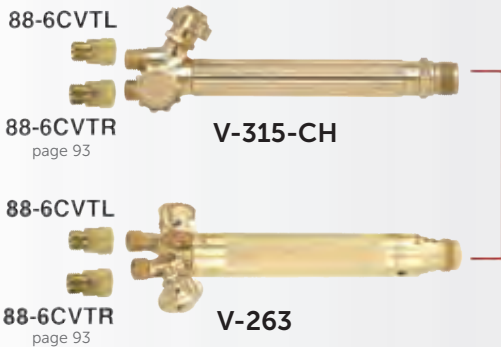
- ▶ High precision ball valves
- ▶ Brass handle



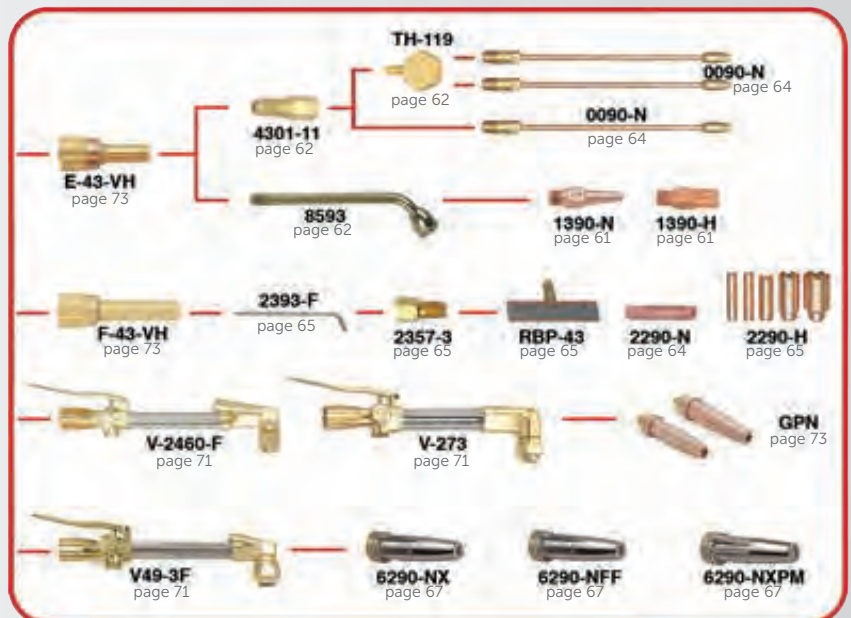
**Model V263**

PART NO.	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
V-315-CH	V273, V-2460, V2460 F, V2460 AF, V493 F	9/16"-18-UNF-3A-RH	9/16"-18-UNF-3A-LH	0.552	205
V263				0.506	219

### ACETYLENE



### ALTERNATIVE FUEL GASES



## Equal Pressure "E" Type Mixer



E2-43-VH



F3-43-VH

PART NO.	FITS HANDLE	GAS	WELDING TIPS	HEATING TIPS	BRAZING TIPS	FLAME CLEANING TIPS
E-43-VH	V-315-CH, V-263	Oxy-Acetylene	23A90 tips 0,1,3,5,6,8,9,10 0090 tips 1,3,5,6,8 (+adapter 4301-11+TH-119) 1390 tips 00,0,1,3,5,6,8,9,10 (+tube 8593)	J-63 tips 1,2 1390-HA (+tube 8593)	-	-
		Oxy-Propane	-	-	1390-N tips 2,3,4,5,6,7,8,9,10 (+ tube 8593) 0090-N tips 2,4,6,8 (+adapter 4301-11 +TH-119)	-
E2-43-VH	V-315-CH, V-263	Oxy-Acetylene	23A90 tips 13,15	J-63 tips 3,4	-	RBA-43 tips 2,4,6 (+tube 2393+2357-3)
F-43-VH	V-315-CH, V-263	Oxy-Propane	-	2290-H tips 1,2,3,4,5 (+ tube 2393+2357-3)	2290-N tips 13,15,20,30,80 (+tube 2393+2357-3)	RBP-43 tips 2,4,6 (+tube 2393+2357-3)



### GPN Oxy-Propane/Natural Gas Tip Chart - Two Piece



### 1-101-HV Oxy-Acetylene Tip Chart - One Piece

PART NO.	PLATE THICKNESS (mm)	TIP SIZE	OXYGEN (bar)	FUEL GAS (bar)
GPN-000	0 - 3	000	1.4 - 1.7	0.15 - 0.35
GPN-00	3 - 8	00	1.4 - 1.7	0.15 - 0.35
GPN-0	8 - 15	0	1.7 - 2.4	0.20 - 0.35
GPN-1	15 - 25	1	2.1 - 2.4	0.20 - 0.40
GPN-2	25 - 50	2	2.4 - 3.1	0.20 - 0.55
GPN-3	50 - 75	3	2.8 - 3.4	0.30 - 0.60
GPN-4	75 - 100	4	2.8 - 3.4	0.40 - 0.60
GPN-5	100 - 150	5	3.1 - 3.8	0.40 - 0.70
GPN-6	150 - 200	6	3.1 - 3.8	0.40 - 0.80

PART NO.	PLATE THICKNESS (mm)	TIP SIZE	OXYGEN (bar)	ACETYLENE (bar)
1-101-000HV	0 - 3	000	1.4 - 1.7	0.20 - 0.35
1-101-00HV	3 - 8	00	1.4 - 1.7	0.20 - 0.35
1-101-0HV	8 - 15	0	1.7 - 2.4	0.20 - 0.35
1-101-1HV	15 - 25	1	2.1 - 2.4	0.20 - 0.35
1-101-2HV	25 - 50	2	2.4 - 3.1	0.20 - 0.50
1-101-3HV	50 - 75	3	2.8 - 3.4	0.30 - 0.70
1-101-4HV	75 - 100	4	2.8 - 3.4	0.35 - 0.70
1-101-5HV	100 - 150	5	3.1 - 3.8	0.50 - 0.90
1-101-6HV	150 - 200	6	3.1 - 3.8	0.50 - 1.00



Model 1-101-1-HV



Model VCA-1060-H



Model V-315-CH



# COMPATIBLE STYLES

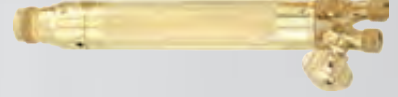


## AIRCO® Style

242-2NM



263



273NM



MODEL NO.	DESCRIPTION	WEIGHT (kg)	LENGTH (mm)
242-2NM*	Cutting torch, head angle 90°	1,250	460
242-2NMA*	Cutting torch, head angle 70°	1,250	470
263	Handle	0,500	220
273-2NM	Cutting Attachment	0,800	230

\* 530 mm length available (add "L" to model number)

8290ANME



MODEL N.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)
8290-1	0 - 6	1.5	0.5
8290-2	6 - 12	2.0	0.5
8290-3	12 - 75	3.0	0.5
8290-4	75 - 150	3.0	1.0
8290-5	150 - 200	4.0	1.0

8290PNME



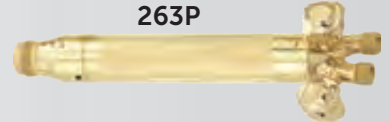
MODEL N.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)
8290-P1	0 - 6	1.5	0.5
8290-P2	6 - 12	2.0	0.5
8290-P3	12 - 75	3.0	0.5
8290-P4	75 - 150	3.0	1.0
8290-P5	150 - 200	4.0	1.0

## OXWELD® Style

242-2P



263P



273P



MODEL NO.	DESCRIPTION	WEIGHT (kg)	LENGTH (mm)
242-2P*	Cutting torch, head angle 90°	1,250	460
242-2PA*	Cutting torch, head angle 70°	1,250	470
263P	Handle	0,500	220
273-2P	Cutting Attachment	0,800	230

\* 530 mm length available (add "L" to model number)



CT1502

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)
CT1502-2	0-5	2.5	0.4
CT1502-3	5-10	2.5	0.4
CT1502-4	10-20	3	0.4
CT1502-6	20-50	3	0.4
CT1502-8	50-130	4	0.6
CT1502-10	130-200	5	0.7



CT1503

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)
CT1503-4	10-20	2.5	0.45
CT1503-6	20-50	3	0.45
CT1503-8	50-130	3.5	0.45
CT1503-10	130-200	4.5	0.8



## SMITH® Style

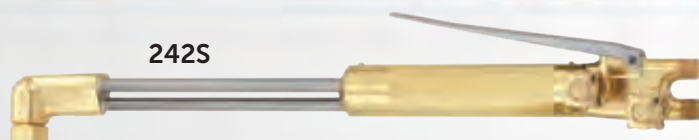
MODEL NO.	DESCRIPTION	WEIGHT (kg)	LENGTH (mm)
242S *	Cutting torch, head angle 90°	1,200	460
242SA *	Cutting torch, head angle 70°	1,200	470
263S	Handle	0,600	220
273S	Cutting Attachment	0,800	250

\* 530 mm length available (add "L" to model number)

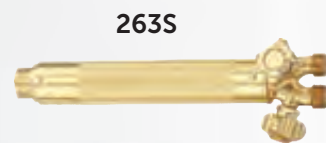


CTSC12

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)
CTSC12-0	0-10	2.5	0.3
CTSC12-1	10-20	3	0.3
CTSC12-2	20-35	3.5	0.3
CTSC12-3	35-60	3.5	0.35
CTSC12-4	60-120	4	0.35
CTSC12-5	120-200	5	0.4



242S



263S



273S



CTSC50A

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)
CTSC50A-0	0-10	2.5	0.35
CTSC50A-1	10-20	3	0.4
CTSC50A-2	20-35	3.5	0.4
CTSC50A-3	35-60	3.5	0.45
CTSC50A-4	60-120	4	0.45
CTSC50A-5	120-200	5	0.5

## CIGWELD® Style

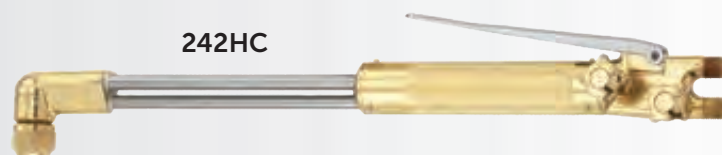
MODEL NO.	DESCRIPTION	WEIGHT (kg)	LENGTH (mm)
242HC *	Cutting torch, head angle 90°	1,350	470
242HCA *	Cutting torch, head angle 70°	1,350	480
263HC	Handle	0,500	230
273HC	Cutting Attachment	0,850	250

\* 530 mm length available (add "L" to model number)



CT41

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)
CT41-6	0-6	2	1
CT41-8	6-12	2	1
CT41-12	12-20	2.5	1
CT41-15	25-75	3.5	1
CT41-20	100-125	4.5	1
CT41-24	150-200	5	1



242HC



263HC



273HC



CT44

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)
CT44-6	0-6	2	1
CT44-8	6-12	2	1
CT44-12	12-20	2.5	1
CT44-15	25-75	3.5	1
CT44-20	100-125	4.5	1
CT44-24	150-200	5	1



# COMPATIBLE STYLES



## MESSER® Style



242D



543HCD17



273D

MODEL NO.	DESCRIPTION	WEIGHT (kg)	LENGTH (mm)
242D *	Cutting torch, head angle 90°	1,300	460
242DA *	Cutting torch, head angle 70°	1,300	470
543HCD17	Handle	0,500	220
273D	Cutting Attachment	0,800	250

\* 530 mm length available (add "L" to model number)



AB

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)
AB1	3-10	3	0.5
AB2	10-25	3.5	0.5
AB3	25-40	4	0.5
AB4	40-60	4.5	0.5
AB5	60-100	5	0.5
AB6	100-200	6	0.5

## SAF® Style



242G1



543G1



273G1

MODEL NO.	DESCRIPTION	WEIGHT (kg)	LENGTH (mm)
242G1 *	Cutting torch, head angle 90°	1,300	470
242G1A *	Cutting torch, head angle 70°	1,300	480
543 G1	Handle	0,500	220
273G1	Cutting Attachment	0,800	230

\* 530 mm length available (add "L" to model number)



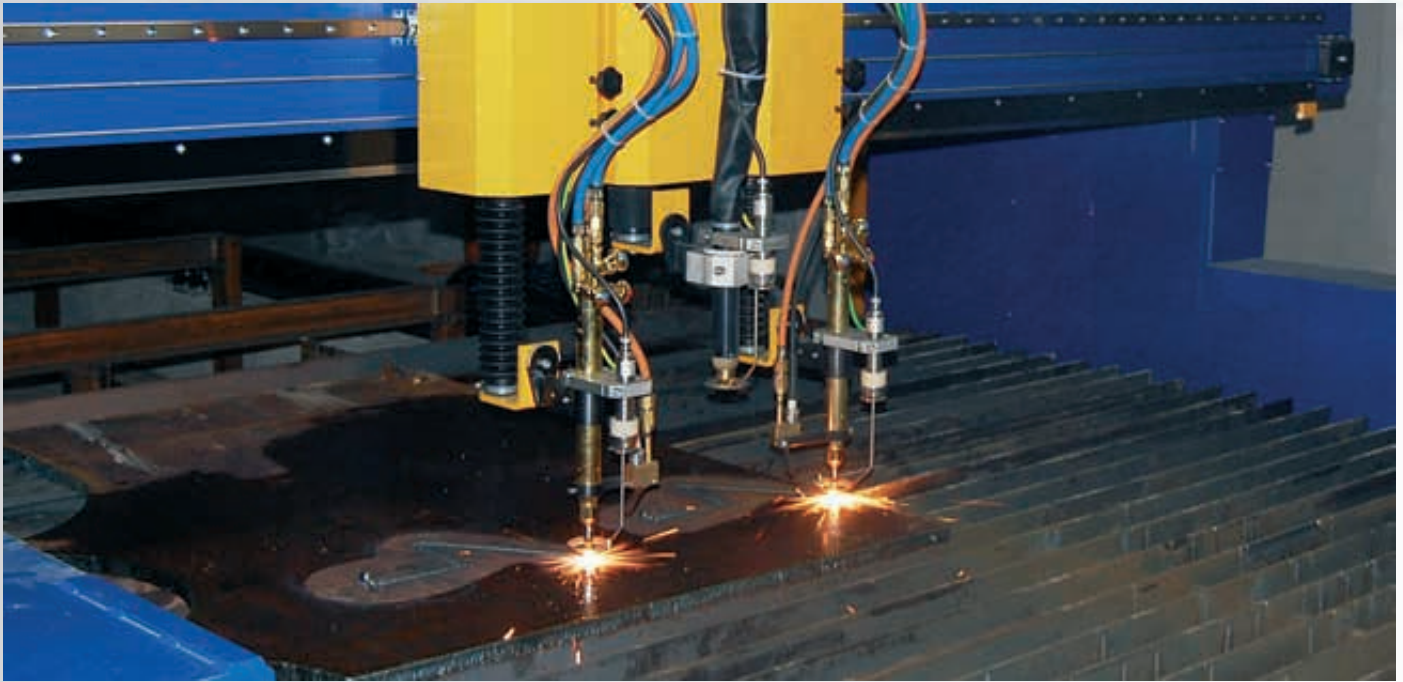
G1A

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE (bar)
G1A-7	3-10	2-3	0.5
G1A-10	10-25	2-3	0.5
G1A-12	25-50	2-3	0.5
G1A-16	50-80	3-5	0.5
G1A-20	80-120	3-5	0.5
G1A-25	120-200	5-8	0.5



G1P

PART NO.	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)
G1P-7	3-10	3-10	2-3
G1P-10	10-25	10-25	2-3
G1P-12	25-50	25-50	2-3
G1P-16	50-80	50-80	3-5
G1P-20	80-120	80-120	3-5
G1P-25	120-200	120-200	5-8



## Model 133/198/98 Machine Torches

Harris machine cutting torches are designed to handle all types of machine cutting applications. Rugged and dependable, these torches provide up to 380 mm cutting capacity. Harris machine cutting torches are available in two tube and three tube design for all fuel gases at pressures as low as 0.015 bar.

### General Features:

- ▶ Solid head for maximum strength
- ▶ Standard 32 mm or 35 mm diameter barrel
- ▶ All torches have inlet threads 9/16x18 UNF
- ▶ Use with 6290 machine cutting tips (see page 79-80)

### Model 133-2/133-2F

#### Features:

- ▶ Three tube valveless design for pipe bevelling, multiple bevelling and similar applications
- ▶ Cutting capacity up to 200 mm

133-2  
133-2F

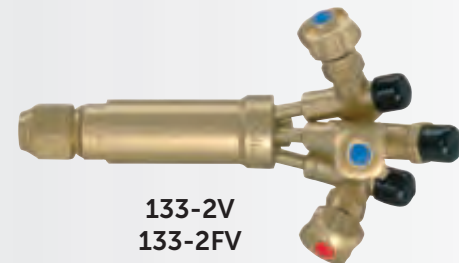


### Model 133-2V/133-2FV

#### Features:

- ▶ Three tube with 3 valves.
- ▶ Cutting capacity up to 200 mm

133-2V  
133-2FV



LOW PRESSURE "F" INJECTOR TYPE TORCHES (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUEL)				
PART NO.	Style	Weight (Kg)	Length (mm)	Barrel Ø (mm)
133-2F	3 tube	0.68	65	30
133-2F-28	3 tube	0.63	65	28
133-2FV	3 tube	1.07	65	30
133-2FV-28	3 tube	1.02	65	28

LOW PRESSURE TORCHES (FOR ACETYLENE)				
PART NO.	Style	Weight (Kg)	Length (mm)	Barrel Ø (mm)
133-2	3 tube	0.68	65	30
133-2-28	3 tube	0.62	65	28
133-2V	3 tube	1.05	65	30
133-2V-28	3 tube	1.02	65	28





## Model 198-2T/198-2TF

### Features:

- ▶ Quick opening cutting oxygen valve for immediate full flow
- ▶ Separate preheat and cutting oxygen valves for high and low preheat control
- ▶ Cutting capacity up to 380 mm
- ▶ Use with 6290 cutting tips (see page 79)

## Model 198-2/198-2F

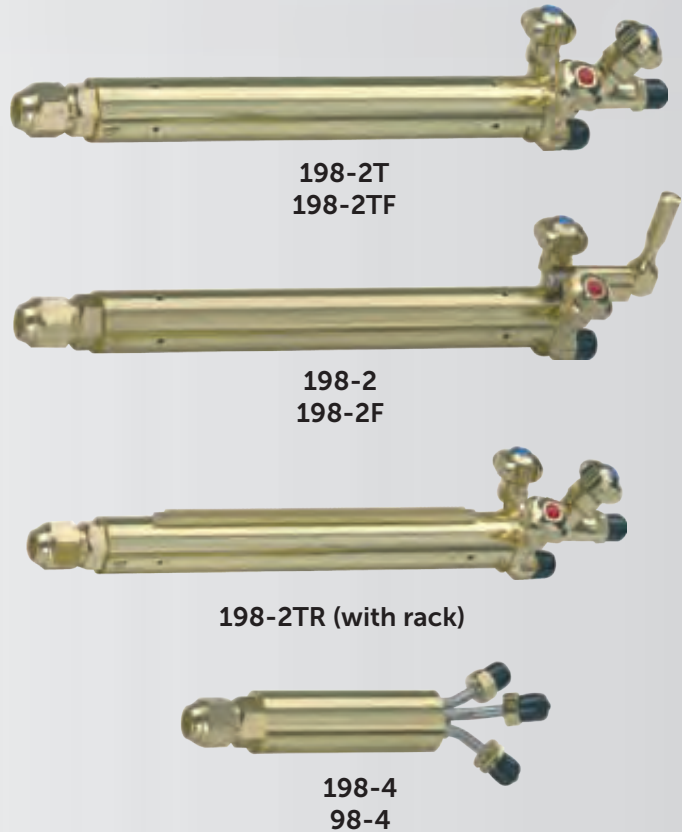
### Features:

- ▶ Cutting capacity up to 200 mm
- ▶ One inlet connection for oxygen and cutting oxygen

## Model 198-4/98-4

### Features:

- ▶ Same characteristics as 198-2T but valveless



EQUAL PRESSURE "E" INJECTOR TYPE TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)				
PART NO.	Style	Weight (Kg)	Length (mm)	Barrel Ø (mm)
198-2E	2 tube	1.30	250	32
198-2E-35	2 tube	1.41	250	35
198-2E-35R	2 tube & rack	1.47	250	35
198-2ER	2 tube	1.34	250	32
198-2TAE	3 tube	1.67	450	32
198-2TAE-30	3 tube	1.55	450	30
198-2TAE-35	3 tube	1.68	450	35
198-2TE	3 tube	1.33	250	32
198-2TE-30	3 tube	1.20	250	30
198-2TE-30R	2 tube & rack	1.26	250	30
198-2TE-35	3 tube	1.43	250	35
98-4BE	3 tube	0.73	200	35

LOW PRESSURE TORCHES (FOR ACETYLENE)				
PART NO.	Style	Weight (Kg)	Length (mm)	Barrel Ø (mm)
198-2	2 tube	1.30	250	32
198-2-30	2 tube	1.18	250	30
198-2-35	2 tube	1.39	250	35
198-2-35R	2 tube & rack	1.44	250	35
198-2A	2 tube	1.62	460	32
198-2T	3 tube	1.32	250	32
198-2T-30	3 tube	1.20	250	30
198-2T-30R	3 tube & rack	1.29	250	30
198-2TA	3 tube	1.67	460	32
198-2TA-30	3 tube	1.55	460	30
198-2TA-35	3 tube	1.78	460	35
198-2TA-35R	3 tube & rack	1.90	460	35
198-2TAR	3 tube & rack	1.75	460	32
198-2TR	3 tube & rack	1.38	250	32
198-4	3 tube	0.65	110	32
198-4B	3 tube G 1/4"	0.65	110	32
98-4	3 tube	0.73	110	35
98-4B	3 tube G 1/4"	0.73	110	35

LOW PRESSURE "F" INJECTOR TYPE TORCHES (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUELS)				
PART NO.	Style	Weight (Kg)	Length (mm)	Barrel Ø (mm)
198-2F	2 tube	1.28	250	32
198-2F-35	2 tube	1.38	250	35
198-2F-35R	2 tube & rack	1.44	250	35
198-2FR	2 tube & rack	1.34	250	32
198-2TAF	3 tube	1.64	460	32
198-2TAF-30	3 tube	1.55	460	30
198-2TAF-35	3 tube	1.78	460	35
198-2TAF-35R	3 tube & rack	1.90	460	35
198-2TAFR	3 tube & rack	1.76	460	32
198-2TF	3 tube	1.33	250	32
198-2TF-30	3 tube	1.20	250	30
198-2TF-30R	3 tube & rack	1.25	250	30
198-2TF-35	3 tube	1.43	250	35
198-2TF-35R	3 tube & rack	1.49	250	35
198-2TFR	3 tube & rack	1.39	250	32
198-4BF	3 tube	0.65	110	32
198-4F	3 tube	0.65	110	32
98-4BF	3 tube G 1/4"	0.73	110	35
98-4F	3 tube	0.73	110	35

## Machine Cutting Tips

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

6290-VVC  
Plated Shell



6290-NH



### 6290-VVC High Speed Oxy-Propane Cutting Tip Chart - Plated Shell

PART NO.	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE (bar)	PREHEAT OX PRESSURE (High <sup>1</sup> - Low) (bar)	CUTTING OX FLOW (l/h)	PREHEAT OX FLOW (High - Low) (l/h)	PREHEAT FUEL FLOW (High - Low) (l/h)	HEATING POWER (High - Low) (Kcal/h)	KERF WIDTH (mm)
6290-5/0VVC	1 - 4	750 - 550	4.0	0.7 - 0.4	650	1410 - 900	350 - 230	7800 - 5100	1.3
6290-4/0VVC	4 - 6	700 - 520	2.5	1.0 - 0.5	1130	1410 - 900	350 - 230	7800 - 5100	1.5
6290-3/0VVC	6 - 9	650 - 480	5.0	2.5 - 0.7	2260	2800 - 1200	700 - 300	15600 - 6700	1.8
6290-00VVC	9 - 12,5	630 - 450	5.0	2.5 - 0.7	2540	2800 - 1200	700 - 300	15600 - 6700	1.8
6290-0VVC	12,5 - 20	600 - 400	6.0	2.5 - 0.7	3530	2800 - 1200	700 - 300	15600 - 6700	2.0
6290-0½VVC	20 - 35	550 - 360	7.0	2.5 - 0.7	4000	2800 - 1200	700 - 300	15600 - 6700	2.0
6290-1VVC	35 - 60	480 - 220	7.0	2.5 - 0.7	5560	2800 - 1200	700 - 300	15600 - 6700	2.3
6290-1½VVC	60 - 75	310 - 200	6.5	2.5 - 0.7	7070	2800 - 1200	700 - 300	15600 - 6700	2.8
6290-2VVC	75 - 100	280 - 190	6.5	2.5 - 0.7	8000	2800 - 1300	700 - 330	15600 - 7400	3.0
6290-2VVC	100 - 125	240 - 180	7.0	2.5 - 0.7	9000	2800 - 1300	700 - 330	15600 - 7400	3.0
6290-2½VVC	125 - 150	200 - 160	6.5	2.5 - 0.7	11170	2800 - 1300	700 - 330	15600 - 7400	3.3
6290-3VVC	150 - 175	180 - 150	7.0	2.5 - 0.7	12000	2800 - 1300	700 - 330	15600 - 7400	3.5
6290-4VVC	175 - 200	180 - 150	6.5	2.5 - 0.7	14850	3000 - 1300	750 - 330	16700 - 7400	4.0
6290-5VVC	200 - 225	150 - 130	6.0	2.8 - 0.7	16410	3000 - 1510	750 - 380	16700 - 8500	5.0
6290-5½VVC	225 - 250	130 - 110	6.0	2.8 - 0.7	16980	3000 - 1630	750 - 410	16700 - 9100	6.4
6290-5NH	225 - 250	130 - 110	4.0	2.8 - 0.7	16980	3000 - 1880	750 - 470	16700 - 10500	6.4
6290-6NH	250 - 275	130 - 110	4.0	2.8 - 0.7	19520	3000 - 1880	750 - 470	16700 - 10500	6.4
6290-7NH	275 - 300	120 - 100	4.5	3.5 - 0.7	23340	3580 - 2510	900 - 630	20100 - 14000	6.4
6290-8NH	300 - 380	110 - 90	4.5	3.5 - 0.7	26170	3580 - 2510	900 - 630	20100 - 14000	7.6

(1) For a fast start, necessary when performing piercing and/or cutting thickness over 200 mm, use "high preheat".

For thickness up to 200 mm, switch from high to low preheat - just cut, it has started.

- All pressures are measured at torch inlet. - Use minimum 0.3 (bar) fuel gas pressure for equal pressure torches. - Use maximum 0.2 (bar) fuel gas pressure for injector equipment.

### 6290-VVC High Speed Oxy-Methane and Natural Gas Cutting Tip Chart - Plated Shell

PART NO.	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE (bar)	PREHEAT OX PRESSURE (High <sup>1</sup> - Low) (bar)	CUTTING OX FLOW (l/h)	PREHEAT OX FLOW (High - Low) (l/h)	PREHEAT FUEL FLOW (High - Low) (l/h)	HEATING POWER (High - Low) (Kcal/h)	KERF WIDTH (mm)
6290-5/0VVC	1 - 4	610 - 510	3.0	1.0 - 0.6	420	1410 - 850	710 - 430	6200 - 3700	1.3
6290-4/0VVC	4 - 6	560 - 510	3.5	1.0 - 0.7	1130	1410 - 1000	710 - 500	6200 - 4400	1.5
6290-3/0VVC	6 - 9	560 - 450	5.0	2.5 - 0.7	2260	2540 - 1000	1270 - 500	11000 - 4400	1.8
6290-00VVC	9 - 12,5	510 - 460	5.0	2.5 - 0.7	2540	2540 - 1000	1270 - 500	11000 - 4400	1.8
6290-0VVC	12,5 - 20	460 - 330	6.5	2.5 - 0.7	3530	2540 - 1000	1270 - 500	11000 - 4400	2.0
6290-0½VVC	20 - 35	410 - 350	7.0	2.5 - 0.9	4000	2540 - 1130	1270 - 570	11000 - 5000	2.0
6290-1VVC	35 - 60	380 - 330	7.0	2.5 - 0.9	5560	2540 - 1130	1270 - 570	11000 - 5000	2.3
6290-1½VVC	60 - 75	300 - 230	7.0	2.5 - 0.9	7070	2540 - 1130	1270 - 570	11000 - 5000	2.8
6290-2VVC	75 - 100	300 - 180	7.0	2.5 - 0.9	9000	2540 - 1130	1270 - 570	11000 - 5000	3.0
6290-2½VVC	125 - 150	200 - 150	7.0	2.5 - 0.9	11170	2540 - 1130	1270 - 570	11000 - 5000	3.3
6290-3VVC	150 - 175	180 - 125	7.0	2.5 - 0.9	12000	2830 - 1130	1420 - 570	12400 - 5000	3.5
6290-4VVC	175 - 200	180 - 125	7.0	2.5 - 0.9	14850	2830 - 1130	1420 - 570	12400 - 5000	4.0
6290-5VVC	200 - 225	150 - 100	6.5	2.8 - 1.2	16410	2830 - 1510	1420 - 760	12400 - 6600	5.0
6290-5½VVC	225 - 250	125 - 100	6.5	2.8 - 1.3	16980	2830 - 1630	1420 - 820	12400 - 7100	6.4
6290-5NH	225 - 250	125 - 100	4.0	2.8 - 1.5	16980	2830 - 1880	1420 - 940	12400 - 8200	6.4
6290-6NH	250 - 275	120 - 100	4.0	2.8 - 1.5	19520	2830 - 1880	1420 - 940	12400 - 8200	6.4
6290-7NH	275 - 300	110 - 100	4.5	3.5 - 2.0	23340	2830 - 2510	1420 - 1260	12400 - 11000	6.4
6290-8NH	300 - 380	100 - 75	4.5	3.5 - 2.0	26170	2830 - 2510	1420 - 1260	12400 - 11000	7.6

(1) For a fast start, necessary when performing piercing and/or cutting thickness over 200 mm, use "high preheat".

For thickness up to 200 mm, switch from high to low preheat - just cut, it has started.

- All pressures are measured at torch inlet. - Use minimum 0.3 (bar) fuel gas pressure for equal pressure torches. - Use maximum 0.2 (bar) fuel gas pressure for injector equipment.



## Machine Cutting Tips

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



### 6290-VAX High Speed Oxy-Acetylene Cutting Tip Chart - Plated Shell

PART NO.	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE (bar)	CUTTING OX FLOW (l/h)	PREHEAT OX FLOW (l/h)	ACETYLENE FLOW (l/h)	HEATING POWER (Kcal/h)
6290-1VAX	0 - 8	650	2.5 - 4.0	850 -1250	400	350	4740
6290-2VAX	8 - 15	600	5.0	2400	450	420	5690
6290-3VAX	15 - 35	550	7.0	4000	500	440	5960
6290-4VAX	35 - 75	450	7.0	5000	580	500	6780
6290-5VAX	75 - 150	300	5.0	9000	660	600	8130
6290-6VAX	150 - 200	150	6.5	13500	600	800	10840

Use maximum 0.2 (bar) fuel gas pressure for injector equipment  
 Use minimum 0.3 (bar) fuel gas pressure for equilibrated pressure torches

### 6290-VPM High Speed Oxy-MAPP®, Tetrene and Propylene Cutting Tip Chart - Plated Shell

PART NO.	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE <sup>1</sup> (bar)	PREHEAT OX PRESSURE (High - Low) (bar)	PREHEAT OX FLOW (Low Pressure) (l/h)	CUTTING OX FLOW (l/h)	PREHEAT FUEL FLOW <sup>2</sup> (l/h)	HEATING POWER (Low) (Kcal/h)	KERF WIDTH (mm)
6290-0VPM	1 - 4	750	3.0	0.8 - 0.5	600	810	300	6300	1.3
6290-1VPM	4 - 8	700	3.5	0.8 - 0.5	1200	810	300	6300	1.5
6290-2VPM	8 - 15	620	5.0	1.7 - 0.5	2400	840	330	6930	1.8
6290-3VPM	15 - 35	550	7.0	1.7 - 0.5	4200	900	360	7560	2.0
6290-4VPM	35 - 75	450	7.0	1.7 - 0.7	5100	1020	400	8390	2.5
6290-5VPM	75 - 150	300	7.0	1.7 - 0.7	8400	1080	420	8820	3.0
6290-6VPM	150 - 200	150	7.0	2.0 - 0.7	14400	1140	450	9450	4.0
6290-7NHM	200 - 300	125	4.0	0.7 - 2.5	22300	1140	450	9450	6.9

(1) Cutting oxygen pressure are measured at torch inlet  
 (2) Preheat flows are calculated for propylene/oxygen at 2.6/1 ratio  
 Use minimum 0.3 (bar) fuel gas pressure for equal pressure torches  
 Use maximum 0.2 (bar) fuel gas pressure for injector equipment

**CLEANING INSTRUCTIONS:** The wire brush included with tip cleaner E-9 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



## Machine Cutting Accessories



### TH-98 Twin Tip Adapter

Adjustable twin adapter for 2 cuts simultaneously using one torch. Adjust from 30 mm to 305 mm wide (special widths available on request) "O" ring sealed. Large capacity (up to 200 mm to each tip).



### BV-98-2 Beveling Head

Use with natural gas or propane only. Increase speed and quality of bevel cuts. 6290 cutting tips can be used. Use specially designed 1390-3H replacement heating tip for optimum results.



### 96-DC Oxygen Saver

Dual control oxygen saver for 3 hose torches. Fits to oxygen line. Moving the lever adjusts the flame from an extreme flame for piercing and quick starts to a soft small flame for economy and quality. Advantages are reduced oxygen and gas consumption, very high cut quality, square edges, slag-free cuts with fast starts. Not recommended for acetylene.



### C-98-V2 Flash Check Valve for Cutting Oxygen Inlet On Three Hose Torches

Stops reverse flow of gases. Recommended when cutting oxygen valve is remote from torches. Cutting capacity up to 200 mm



### S-98-C Adjustable Tip Adapter

Allows adjustment of tip to any angle without moving the torch "O" ring sealed. Large capacity, (up to 200 mm) calibrated 90°.



### 88-6 Check Valves

Reverse flow check valves for preheat only. Help prevent dangerous reverse flow mixing of gas in hose and regulators (see page 93 for complete check valve information).



## M4000 ISC5

### Fully integrated clearance control for oxy-fuel cutting machines

It allows oxy fuel cutting with higher quality and improved productivity.

#### Features:

- ▶ No Ring Electrode and additional cabling
- ▶ Detect slag, no collision
- ▶ Better work piece utilization thru cutting close to edges and kerfs.
- ▶ Quick disconnect facility to allow quick change of nozzle
- ▶ Works together with well-established M 4000 series with "control unit ISC" with integrated sensor electronics.





## Machine Cutting Guide

**CORRECT CUTTING**



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



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

**DIRTY TIP**



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

**CUTTING SPEED**



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



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



**SLIGHTLY TOO FAST** - Drag lines incline backwards, but a "drop cut" is still attained. Top edge is good, cut face is smooth and slag free. Quality is satisfactory for much production work.



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

**TIP DISTANCE**



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



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

**GAS ADJUSTMENT**



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

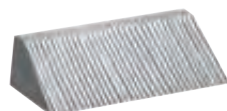


**TOO HOT PREHEAT** - Rounded top edge caused by too much preheat. Excess preheat does not increase cutting speed. It only wastes gases.

**WHAT TO LOOK FOR IN BEVEL CUTTING**



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



**POOR QUALITY** - Gouging is the most common fault and is caused by either speed too fast or preheat flame too mild. Another fault is a rounded top edge, caused by too much preheat indicating excessive gas consumption.





## HARRIS PORTABLE CUTTING SYSTEMS

### HARRIS SUPER

Harris Super is an innovative machine with a body structure systematized for different types of oxy-fuel cutting and automatic welding work

#### Features

- ▶ Straight line and circle cutting or welding
- ▶ Double Cone Stepless Drive System, maintaining constant travel speed even with high temperatures and allowing greater speed control
- ▶ Plate Rider Torch Option, automatically maintains torch distance during cutting
- ▶ Modular straight 1800 mm rail sections (to be ordered separately)
- ▶ Circle rail Ø 40-360 mm and Ø 1150-2400 mm (to be ordered separately).
- ▶ Speed meter dial indication with conversion scale.
- ▶ Cutting torch unit for square or V-bevel cutting, equipped with the Harris cutting torch model 198-4.
- ▶ Double or triple cutting torch unit available on request.



#### The Package includes:

- ▶ Cutting machine with connecting lead and rubber connection hose from machine to cutting torch
- ▶ Harris cutting torch model 198 with 3 tips
- ▶ Tool set
- ▶ Operation manual

MODEL NO.	DESCRIPTION	NOTE
PCS-SUPER-110F	HARRIS Super 110 V	Propane
PCS-SUPER-220F	HARRIS Super 220 V	
PCS-SUPER-110	HARRIS Super 110 V	Acetylene
PCS-SUPER-220	HARRIS Super 220 V	
PCS RAIL	Straight rail 1800 mm	To be ordered separately
PCS CIRRAIL	Circle rail	

#### Specifications

Cutting Thickness	Up to 300 mm
Cutting Speed	80–800 mm/min
Speed Control	Single cone speed system, mechanical regulation
Power Source	110V, 220V AC
Weight	11 kg
Overall Measurement	430 mm (L) x 170 mm (W) x 215 mm (H)
Cutting Torch	Propane: 198-4F Acetylene: 198-4
Cutting Tips (*)	Propane: 6290-VVC (size 5/0 to 5½) - 6290-NH (size 6-7) Acetylene: 6290-VAX (size 1 to 6)

(\*) See page 79-80

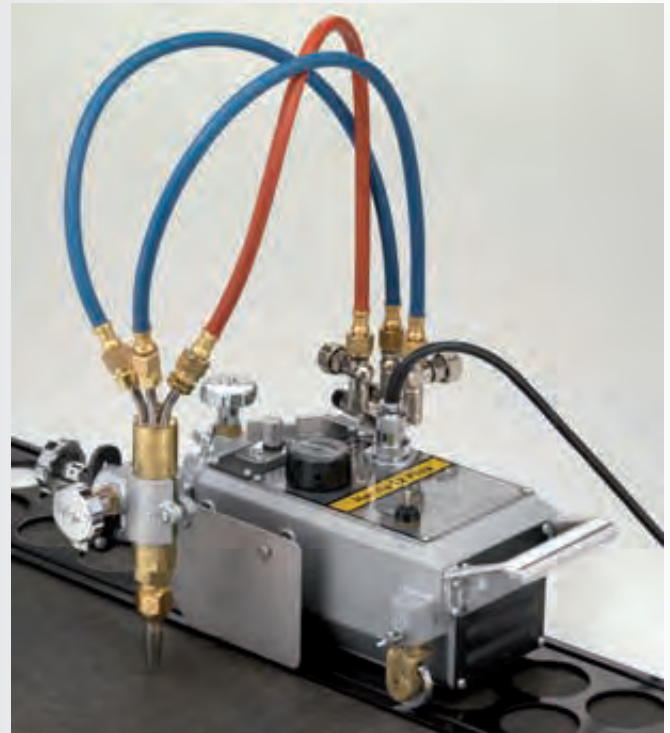
## HARRIS PLUS

The Harris Plus is a more portable version of the Harris Super, designed with the same precision and capabilities.

### Features

- ▶ Straight line and circle oxy fuel cutting
- ▶ Stepless Drive System, maintaining constant travel speed even with high temperatures and ensuring stable, trouble-free cutting
- ▶ Light Weight -9.5 kg- easy to carry and use
- ▶ Modular straight 1800 mm rail sections (to be ordered separately)

MODEL NO.	DESCRIPTION	NOTE
PCS-PLUS-110F	HARRIS Plus 110 V	Propane
PCS-PLUS-220F	HARRIS Plus 220 V	
PCS-PLUS-110	HARRIS Plus 110 V	Acetylene
PCS-PLUS-220	HARRIS Plus 220 V	
PCS RAIL	Straight rail 1800 mm	To be ordered separately



### Specifications

Cutting Thickness	3~150 mm
Cutting Speed	150~800 mm/min
Speed control	Single cone speed system, mechanical regulation
Power Source	110V, 220V AC
Weight	9.5 kg
Overall Measurement	360 mm (L) x 140 mm (W) x 175 mm (H)
Cutting Torch	Propane: 198-4F Acetylene: 198-4
Cutting Tips (*)	Propane: 6290-VVC (size 5/0 to 2½) Acetylene: 6290-VAX (size 1 to 5)

(\*) See page 79-80

The Package includes:

- ▶ Cutting machine with connecting lead and rubber connection hose from machine to cutting torch
- ▶ Harris cutting torch model 198 with 3 tips
- ▶ Tool set
- ▶ Operation manual

## HARRIS HA

Harris HA is a portable, hand cutting machine with integrated drive system, suitable as a hand-held cutter as well as an automated cutting machine. It allows the operator to cut all kinds of profiles in a simple and accurate manner.

Due to low weight, Harris HA can be used as simple as an ordinary hand cutting torch.

MODEL NO.	DESCRIPTION	NOTE
PCS-HAF	HARRIS HA 220 V	Propane
PCS-HA	HARRIS HA 220 V	Acetylene

### Specifications

Cutting thickness	3 ~ 30 mm
Running speed	200 ~ 700 mm/min
Input voltage	110V, 220V AC
Speed control	Transistor control
Overall length	500 mm
Weight	2.7 kg
Standard wheel	Attaches to machine body
Cutting Tips	Propane: HS106 (size 0 to 2) Acetylene: HS102 (size 0 to 2)





## LIGHT DUTY OXY-ACETYLENE KITS

Compact lightweight ideal for plumbers, do-it-yourself and small work-shops.

### Features:

- ▶ 19-6 handle with front valves for easy regulation
- ▶ 36-2 cutting attachment with triangular stainless steel tube construction for maximum strength
- ▶ Protected "O" ring on cutting attachment, mixer and welding assembly



19/36-S



19/36-SU



19/36-STD-EP2



19/36-STD-UP

### Cuts up to 75 mm Equal Pressure - Welds up to 14 mm Equal Pressure (Acetylene)

PART NO.	HANDLE	MIXER	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	HEATING TIP	ACCESSORIES	PACKAGING
19/36-S	19-6	H-19-2E	38-L3/R3	36-2	3690-0AC/1AC/2AC	5090-0/3/5/9	J-63-1	Wrench (I-62-X), Circle Cutting Attachment (I-69-7), Tip cleaner (C-9), Connector (1901-11)	Steel case (1943-K) Plastic Internal (1949-P)

### Cuts up to 75 mm Equal Pressure - Welds up to 14 mm Low Pressure (Acetylene)

PART NO.	HANDLE	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIPS	WELDING ASSEMBLIES	ACCESSORIES	PACKAGING
19/36-SU	19-6	38-L3/R3	36-2	3690-0AC/2AC	L-19-1/3/5/6/9	Wrench (I-62-X), Circle Cutting Attachment (I-69-7), Tip cleaner (C-9)	Steel case (1943-K) Plastic Internal (1949-PUA)
19/36-STD-UP	19-6	38-L3/R3	36-2	3690-0AC/2AC	L-19-1/3/5/6/9	Wrench (I-62-X), Tip cleaner (C-9)	Steel case (1943-K) Plastic Internal (1949-PL)

### Cuts up to 75 mm Equal Pressure - Welds up to 4 mm Equal Pressure (Acetylene)

PART NO.	HANDLE	MIXER	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	HEATING TIP	ACCESSORIES	PACKAGING
19/36-STD-EP2	19-6	H-19-2E	38-L3/R3	36-2	3690-0AC/2AC	5090-0/3/5 0090-3	J-63-1	Wrench (I-62-X), Connector (1901-11)	Steel case (1943-KSR) Plastic Internal (1949-PSA)





## HEAVY DUTY OXY-ACETYLENE KITS

Professional equipment designed for maximum safety and long life. Ideal for industry, workshops, shipyards, construction sites and oil industry.

### Features:

- ▶ 43-2 handle in forged brass with connection piece in stainless steel
- ▶ Cutting attachment with triangular stainless steel tube construction for maximum strength
- ▶ Head mixing for operator safety
- ▶ Flat-seat cutting tips for longer life



### Cuts up to 50 mm Equal Pressure - Welds up to 9 mm Equal Pressure (Acetylene)

PART NO.	HANDLE	MIXER	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIP	WELDING TIPS	ACCESSORIES	PACKAGING
43/73-STD-EP	43-2	E-43	38-L2/R2	73-3	6290-2AC	23-A-90-3/5/8	Wrench I-62-X	Steel case (1943-K) Plastic Internal (4349-P)

### Cuts up to 50 mm Low Pressure - Welds up to 9 mm Low Pressure (Acetylene)

PART NO.	HANDLE	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIP	WELDING ASSEMBLIES	ACCESSORIES	PACKAGING
43/49-STD-UP	43-2	38-L2/R2	49-3	6290-2AC	L-43/3/5/8	Wrench I-62-X	Steel case (1943-K) Plastic Internal (4349-PS)

### Cuts up to 150 mm Low Pressure - Welds up to 20 mm Equal Pressure (Acetylene)

PART NO.	HANDLE	MIXER	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	HEATING TIP	ACCESSORIES	PACKAGING
43/49-SAC	43-2	E-43	38-L2/R2	49-3	6290-0AC/2AC/4AC	23-A-90-3/5/6/10	J-63-2	Wrench I-62-X. Twin wheel circle cutting attachment (I-69-6)	Steel case (1943-K) Plastic Internal (4349-P)

### Cuts up to 150 mm Low Pressure - Welds up to 50 mm Low Pressure (Acetylene)

PART NO.	HANDLE	HOSE CONNECTIONS	CUTTING ATTACHMENT	CUTTING TIPS	WELDING ASSEMBLIES	ACCESSORIES	PACKAGING
43/49-SUAC	43-2	38-L2/R2	49-3	6290-0AC/2AC/4AC	L-43-3/5/6/9/15	Wrench I-62-X. Twin wheel circle cutting attachment (I-69-6)	Steel case (1943-K) Plastic Internal (4349-PI)

## MASTERLINE KITS

- ▶ Brass handle with large flow capacity for heavy duty applications
- ▶ Cutting attachment with triangular stainless steel tube design
- ▶ Equal pressure mixer for maximum safety - no backfire
- ▶ Regulator with improved quality, performance and durability
- ▶ Kits complete with goggles, lighter with flints and 6 mt. long twin hose with fittings
- ▶ Attractive completely recyclable packaging



Cuts up to 150 mm Equal Pressure Welds up to 9 mm Equal Pressure (Acetylene)

PART NO.	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIP	WELDING TIPS	HEATING TIP	SINGLE STAGE OXYGEN REGULATOR	SINGLE STAGE FUEL GAS REGULATOR	ACCESSORIES
MASTERLINE DIAMOND	43-2	E-43	73-3	6290-2	23A90-3/5/8	J-63-2	94-10-OX	94-1.5-AC	6 M Hose (4300591), Goggles (APS010), Lighter (26S), Flints (26L)
MASTERLINE PLATINUM							25GX-10-OX	25GX-1.5-AC	

Cuts up to 150 mm Equal Pressure Welds up to 4 mm Equal Pressure (Acetylene)

PART NO.	HANDLE	MIXER	CUTTING ATTACHMENT	CHECK VALVES	CUTTING TIPS	WELDING TIP	SINGLE STAGE OXYGEN REGULATOR	SINGLE STAGE FUEL GAS REGULATOR	ACCESSORIES
MASTERLINE GOLD	43-2	E-43	73-3	886-CVTR 886-CVTL	6290-1	23A90-5	94-10-OX	94-1.5-AC	6 M Hose (4300591), Goggles (APS010), Lighter (26S), Flints (26L)
MASTERLINE SILVER	263	E-43	73-3				25GX-10-OX	25GX-1.5-AC	

Cuts up to 100 mm Equal Pressure Welds up to 4 mm Equal Pressure (Acetylene)

MODEL NO.	HANDLE	MIXER	CUTTING ATTACHMENT	CHECK VALVES	CUTTING TIP	WELDING TIP	SINGLE STAGE OXYGEN REGULATOR	SINGLE STAGE FUEL GAS REGULATOR	ACCESSORIES
MASTERLINE BRONZE	85	D-85	73-3	886-CVTR 886-CVTL	6290-1	23A90-5	801-10-OX	801-1.5-AC	6 M Hose (4300591), Goggles (APS010), Lighter (26S), Flints (26L)
FLAMEPOWER	85	D-85	72-3				6290-1AC	23A90-5	





## IRONWORKER KIT

- ▶ Compatible with VICTOR® equipment
- ▶ Spiral mix system
- ▶ Heavy duty S45 regulators
- ▶ Kit complete with Goggles, lighter with flints and 6 mt hose



Cuts up to 150 mm - Welds up to 20 mm

PART NO.	HANDLE	MIXER	CUTTING ATTACHMENT	CHECK VALVES	CUTTING TIPS	WELDING TIP	SINGLE STAGE OXYGEN REGULATOR	SINGLE STAGE FUEL GAS REGULATOR	ACCESSORIES
IRONWORKER	VH31	E-43HV	VH24	188SHTL 188SHTR	1-101-1 HV	23A90-3	S45-10-OX	S45-1,5-AC	6 M Hose (4300591), Goggles (4304482), Lighter (26S), Flints (26L)

## MASTERCUTTER KIT



Cuts up to 300 mm Low Pressure (Propane)

MODEL NO.	CUTTING TORCH	CHECK VALVE	HOSE CONNECTIONS	CUTTING TIPS	SINGLE STAGE OXYGEN REGULATOR	SINGLE STAGE FUEL GAS REGULATOR	ACCESSORIES
MASTERCUTTER	62-5F	886-CVTR/CVTL	38-R2/L2	6290-1NX/2NX	25GX-10-OX	25GX-4-LP	6 M Hose (4300533), Goggles (APS010), Lighter (26S), Flints (26L)



## INFERNO®

### APPLICATIONS:

- ▶ Repairing road surfaces
- ▶ Removing paint
- ▶ Burning brush, weeds and stumps
- ▶ Melting snow and ice

### FEATURES:

- ▶ 126.000 Kcal/h
- ▶ Brass valve for flame adjustment
- ▶ 3 m gas hose
- ▶ Flint striker



## SAFETY DEVICES

### Harris safety devices help prevent:

- ▶ The entry of air or oxygen into the distribution line or single cylinders
- ▶ Flashback which is the rapid propagation of flame down the hose
- ▶ Further gas flow in the case of burnback



### 1. Security against the reverse flow of gas

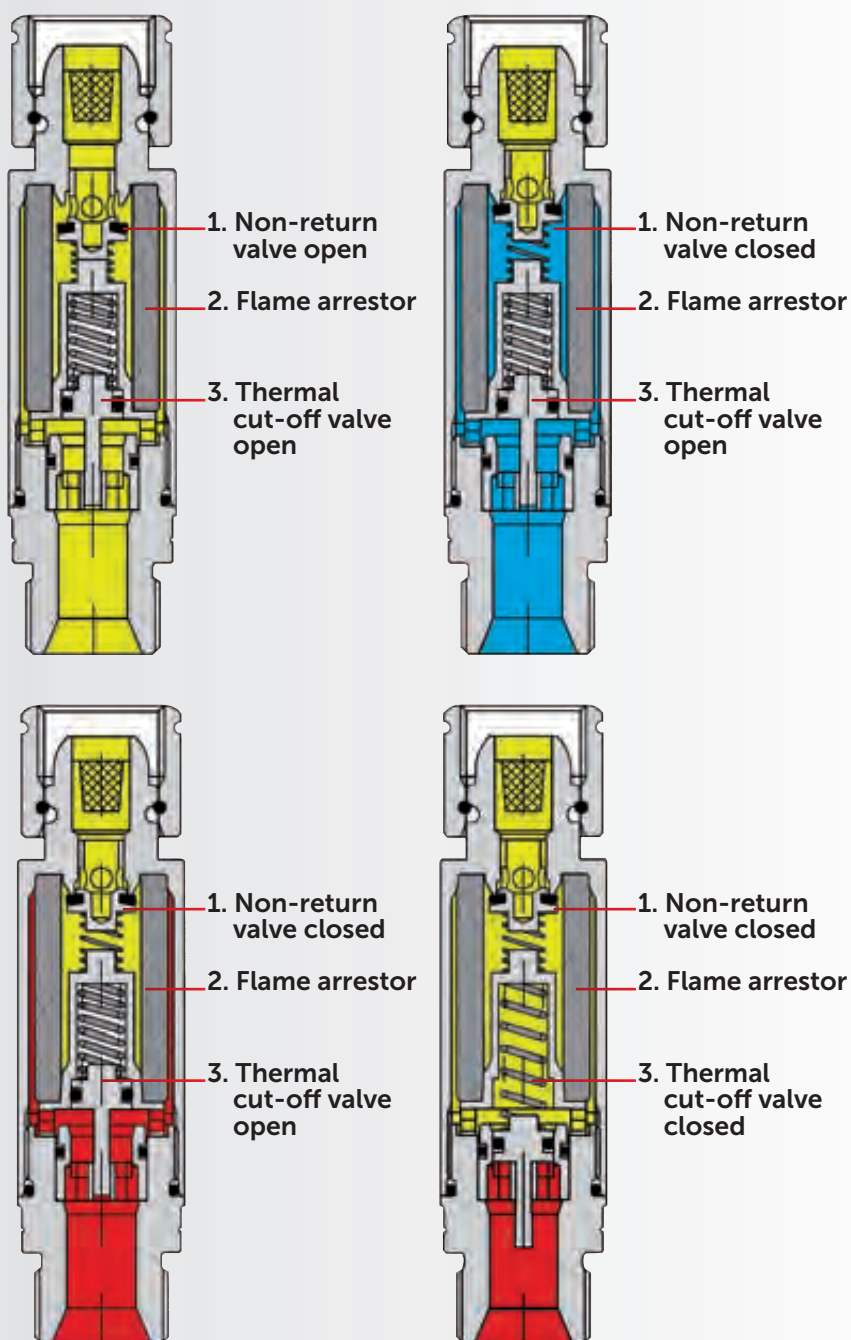
- ▶ The gas non-return valve prevents leakage or the sudden return of air or oxygen in the distribution line or single cylinders

### 2. Stops Flashbacks

- ▶ A sintered stainless steel flame arrestor prevents flashback from the gas outlet side and cools the flame down to below the ignition temperature, so that the gas cannot re-ignite on the inlet side.

### 3. Prevent Burnbacks

- ▶ The temperature regulated thermal cut-off valve consists of a spring-loaded valve, which is held in the open position by a soldered element. - In the case of excessive temperatures in the safety device due to flashbacks or burnbacks, the valve closes automatically and cuts off the gas flow and stops burnback





## Flashback Arrestors

- ▶ Prevent reverse flow of gases with built-in check valve
- ▶ Extinguish flashback fire with sintered metal filter
- ▶ Thermal cut-off which positively shuts off the gas in case of hose fire, burn or repeated flashbacks (only T version)
- ▶ Pressure operated cut-off which positively shuts off the gas when pressure exceeds (only 3T version)



### Regulator type



188- (L & R)



188-2 (L & R)



188-T (L & R)



188-3T (LGB & RGB)



188- TT (L6 & R6)

PART NO.	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H <sub>2</sub>		
188-L	Fuel gas	30.000	-	1.5	5	3.5	9/16"-18-UNF-2B-LH	9/16"-18-UNF-2A-LH
188-R	Ox	100.000	25	-	-	-	9/16"-18-UNF-2B-RH	9/16"-18-UNF-2A-RH
188-LGB	Fuel gas	30.000	-	1.5	5	3.5	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
188-RGB	Ox	100.000	15	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228
188-2L	Fuel gas	60.000	-	1.5	5	4.0	9/16"-18-UNF-2B-LH	9/16"-18-UNF-2A-LH
188-2R	Ox	180.000	25	-	-	-	9/16"-18-UNF-2B-RH	9/16"-18-UNF-2A-RH
188-2AL	Fuel gas	60.000	-	1.5	5	4.0	5/8"-18-UNF-LH	5/8"-18-UNF-LH
188-2AR	Ox	180.000	25	-	-	-	5/8"-18-UNF-RH	5/8"-18-UNF-RH
188-2LGB	Fuel gas	60.000	-	1.5	5	4.0	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
188-2RGB	Ox	180.000	25	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228
188-GL	Fuel gas	30.000	-	1.5	5	3.5	G 1/4"-LH-UNI ISO 228	G 1/4" A-LH-UNI ISO 228
188-GR	Ox	100.000	25	-	-	-	G 1/4"-RH-UNI ISO 228	G 1/4" A-RH-UNI ISO 228
188-FFL	Fuel gas	30.000	-	1.5	5	3.5	M16x1.5-6H-LH	M16x1.5-6g-LH
188-FFR	Ox	100.000	15	-	-	-	M16x1.5-6H-RH	M16x1.5-6g-RH

\*1 bar=100 kPa

PART NO.	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H <sub>2</sub>		
188-TL	Fuel gas	30.000	-	1.5	5	3.5	9/16"-18-UNF-2B-LH	9/16"-18-UNF-2A-LH
188-TR	Ox	100.000	25	-	-	-	9/16"-18-UNF-2B-RH	9/16"-18-UNF-2A-RH
188-TAL	Fuel gas	30.000	-	1.5	5	3.5	5/8"-18-UNF-LH	5/8"-18-UNF-LH
188-TAR	Ox	100.000	25	-	-	-	5/8"-18-UNF-RH	5/8"-18-UNF-RH
188-TLGB	Fuel gas	30.000	-	1.5	5	3.5	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
188-TRGB	Ox	100.000	15	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228
188-2TAL	Fuel gas	60.000	-	1.5	5	4.0	5/8"-18-UNF-LH	5/8"-18-UNF-LH
188-2TAR	Ox	180.000	25	-	-	-	5/8"-18-UNF-RH	5/8"-18-UNF-RH
188-2TL	Fuel gas	60.000	-	1.5	5	4.0	9/16"-18-UNF-2B-LH	9/16"-18-UNF-2A-LH
188-2TR	Ox	180.000	25	-	-	-	9/16"-18-UNF-2B-RH	9/16"-18-UNF-2A-RH
188-2TLGB	Fuel gas	60.000	-	1.5	5	4.0	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
188-2TRGB	Ox	180.000	25	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228

\*1 bar=100 kPa

PART NO.	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H <sub>2</sub>		
188-3TLGB	Fuel gas	60.000	-	1.5	5	4.0	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
188-3TRGB	Ox	180.000	15	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228

\*1 bar=100 kPa

### Hose to Hose type

PART NO.	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H <sub>2</sub>		
188-TTL6	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 1/4"(6 mm)	Ø hose 1/4"(6 mm)
188-TTR6	Ox	65.000	20	-	-	-	Ø hose 1/4"(6 mm)	Ø hose 1/4"(6 mm)
188-TTL8	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 5/16"(8 mm)	Ø hose 5/16"(8 mm)
188-TTR8	Ox	65.000	20	-	-	-	Ø hose 5/16"(8 mm)	Ø hose 5/16"(8 mm)

\*1 bar=100 kPa



## Torch Type



188-1G (L6 & R6)



188-GG (L & R)

PART NO.	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H <sub>2</sub>		
188-1GBL6	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 1/4"(6 mm)	G 3/8"-LH-UNI ISO 228
188-1GBR6	Ox	65.000	20	-	-	-	Ø hose 1/4"(6 mm)	G 3/8"-RH-UNI ISO 228
188-1GBL8	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 5/16"(8 mm)	G 3/8"-LH-UNI ISO 228
188-1GBR8	Ox	65.000	20	-	-	-	Ø hose 5/16"(8 mm)	G 3/8"-RH-UNI ISO 228
188-1GL6	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 1/4"(6 mm)	G 1/4"-LH-UNI ISO 228
188-1GR6	Ox	65.000	20	-	-	-	Ø hose 1/4"(6 mm)	G 1/4"-RH-UNI ISO 228
188-1L6	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 1/4"(6 mm)	9/16"-18-UNF-2A-LH
188-1R6	Ox	65.000	20	-	-	-	Ø hose 1/4"(6 mm)	9/16"-18-UNF-2A-RH
188-1L8	Fuel gas	20.000	-	1.5	4	4.0	Ø hose 5/16"(8 mm)	9/16"-18-UNF-2A-LH
188-1R8	Ox	65.000	20	-	-	-	Ø hose 5/16"(8 mm)	9/16"-18-UNF-2A-RH
188-GGAL	Fuel gas	20.000	-	1.5	4	4.0	5/8"-18-UNF-LH	5/8"-18-UNF-LH
188-GGAR	Ox	65.000	15	-	-	-	5/8"-18-UNF-RH	5/8"-18-UNF-RH
188-GGGBL	Fuel gas	20.000	-	1.5	4	4.0	G 3/8" A-LH-UNI ISO 228	G 3/8"-LH-UNI ISO 228
188-GGGBR	Ox	65.000	15	-	-	-	G 3/8" A-RH-UNI ISO 228	G 3/8"-RH-UNI ISO 228
188-GGGL	Fuel gas	20.000	-	1.5	4	4.0	G 1/4" A-LH-UNI ISO 228	G 1/4"-LH-UNI ISO 228
188-GGGR	Ox	65.000	15	-	-	-	G 1/4" A-RH-UNI ISO 228	G 1/4"-RH-UNI ISO 228
188-GGL	Fuel gas	20.000	-	1.5	4	4.0	9/16"-18-UNF-2A-LH	9/16"-18-UNF-2B-LH
188-GGR	Ox	65.000	15	-	-	-	9/16"-18-UNF-2A-RH	9/16"-18-UNF-2B-RH

\*1 bar=100 kPa

## Check Valves

- ▶ Torch type
- ▶ Help prevent dangerous reverse flow mixing of gas in the hose
- ▶ Compact light weight design add extra operator safety



88-6CVT (L&R)

PART NO.	FUEL GAS	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
		OX	AC	LPG	H <sub>2</sub>		
88-6SVL	Fuel gas	-	1.5	5	20	G 1/4" A-LH-UNI ISO 228	G 1/4"-LH-UNI ISO 228
88-6SVR	Ox	20	-	-	-	G 1/4" A-RH-UNI ISO 228	G 1/4"-RH-UNI ISO 228
88-4CVL**	Fuel gas	-	1.5	5	20	9/16"-18-UNF-2A-LH	9/16"-18-UNF-3B-LH
88-4CVR**	Ox	20	-	-	-	9/16"-18-UNF-2A-RH	9/16"-18-UNF-3B-RH
88-6AL	Fuel gas	-	1.5	5	20	.622"-18-UN-2A-LH	9/16"-18-UNF-3B-LH
88-6AL1	Fuel gas	-	1.5	5	20	.622"-18-UN-2A-LH	.622"-18-UN-LH
88-6AR	Ox	20	-	-	-	.622"-18-UN-2A-RH	9/16"-18-UNF-3B-RH
88-6AR1	Ox	20	-	-	-	.622"-18-UN-2A-RH	.622"-18-UN-RH
88-6CTL	Fuel gas	-	1.5	5	20	M16x1.5-6g-LH	M16x1.5-6G-LH
88-6CTR	Ox	20	-	-	-	M16x1.5-6g-RH	M16x1.5-6G-RH
88-6CVTL	Fuel gas	-	1.5	5	20	9/16"-18-UNF-2A-LH	9/16"-18-UNF-2B-LH
88-6CVTR	Ox	20	-	-	-	9/16"-18-UNF-2A-RH	9/16"-18-UNF-2B-RH
88-6FL	Fuel gas	-	1.5	5	20	M16x1.5-6g-LH	9/16"-18-UNF-3B-LH
88-6FR	Ox	20	-	-	-	M16x1.5-6g-RH	9/16"-18-UNF-3B-RH
88-6GBL	Fuel gas	-	1.5	5	20	G 3/8" A-LH-UNI ISO 228	G 3/8"-LH-UNI ISO 228
88-6GBR	Ox	20	-	-	-	G 3/8" A-RH-UNI ISO 228	G 3/8"-RH-UNI ISO 228
88-6GBR1	Ox	20	-	-	-	G 3/8" A-RH-UNI ISO 228	9/16"-18-UNF-3B-RH
88-6GL	Fuel gas	-	1.5	5	20	G 3/8" A-LH-UNI ISO 228	9/16"-18-UNF-3B-LH
88-6GR	Ox	20	-	-	-	G 1/4" A-RH-UNI ISO 228	9/16"-18-UNF-3B-RH

\*1 bar=100 kPa \*\*Regulator type

## Quick Action Couplings

- ▶ Long lasting stainless steel pin connection
- ▶ Automatic gas cut-off to positively shut off the gas supply when disconnected
- ▶ Durable brass and stainless steel construction

CPLGB

QACLGB



CPL8



QACL8



PART NO.	DESCRIPTION	CONNECTION TYPE	TYPE
CPL6		Hose connection Ø 1/4" (6 mm)	Hose
CPR6			
CPL8		Hose connection Ø 5/16" (8 mm)	
CPR8			
CPL10		Hose connection Ø 3/8" (9,5 mm)	
CPR10			
CPLGB		Threads G 3/8"-LH-UNI ISO 228	Torch
CPRGB		Threads G 3/8"-RH-UNI ISO 228	
CPL		Threads 9/16"-18-UNF-2B-LH	
CPR		Threads 9/16"-18-UNF-2B-RH	
QACL6		Hose connection Ø 1/4" (6 mm)	Hose
QACR6			
QACL8		Hose connection Ø 5/16" (8 mm)	
QACR8			
QACL10		Hose connection Ø 3/8" (9,5 mm)	Regulator
QACR10			
QACL		Threads 9/16"-18-UNF-2B-LH	
QACR		Threads 9/16"-18-UNF-2B-LH	
QACLGB		Threads G 3/8"-LH-UNI ISO 228	
QACRGB		Threads G 3/8"-RH-UNI ISO 228	

## Flowmeters Models 861 & 866

- ▶ Measure flow from 0 to 15/30 Lpm for Ar/CO<sub>2</sub>
- ▶ Measure flow from 0 to 20/50 Lpm for Formier gas
- ▶ Calibrated at 3.5 bar inlet pressure (optional 4 bar)
- ▶ Easy to read flowtube has virtually unbreakable transparent polycarbonate outer cover for maximum strength and 360° visibility
- ▶ Brass body and knob
- ▶ Needle valve for accurate adjustment of flow
- ▶ Simplified choice of outlet connections on the body
- ▶ Calibration (bar/PSI)
- ▶ Inlet threads 1/4" NPT male (for other inlets refer to the table below)



**mod. 861**  
90° Inlet & Knob

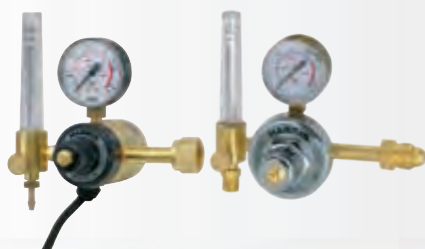


**mod. 866**  
180° Inlet & Knob

PART NO. 861	PART NO. 866	FLOW (l/m)	GAS	OUTLET THREAD
861-15L-ARC	866-15L-ARC	15	Argon/CO <sub>2</sub>	9/16"-18-UNF-2A-RH
861-30L-ARC	866-30L-ARC	30		9/16"-18-UNF-2A-RH
861-15L-ARC-1	866-15L-ARC-1	15		G 3/8" A-RH-UNI ISO 228
861-30L-ARC-1	866-30L-ARC-1	30		G 3/8" A-RH-UNI ISO 228
861-15L-ARC-2	866-15L-ARC-2	15		G 1/4" A-RH-UNI ISO 228
861-30L-ARC-2	866-30L-ARC-2	30		G 1/4" A-RH-UNI ISO 228
861-15L-ARC-3	866-15L-ARC-3	15		.622"-18-UN-RH
861-30L-ARC-3	866-30L-ARC-3	30		.622"-18-UN-RH
861-15L-ARC-5	866-15L-ARC-5	15		Hose connection 1/4" (6 mm)
861-30L-ARC-5	866-30L-ARC-5	30		Hose connection 1/4" (6 mm)
861-15L-ARC-6	866-15L-ARC-6	15		Hose connection 3/8" (10 mm)
861-30L-ARC-6	866-30L-ARC-6	30	Hose connection 3/8" (10 mm)	
861-15L-ARC-7	866-15L-ARC-7	15	Hose connection 5/16" (8 mm)	
861-30L-ARC-7	866-30L-ARC-7	30	Hose connection 5/16" (8 mm)	
861-15L-ARC-11	866-15L-ARC-11	15	M16x1,5-6g-RH	
861-30L-ARC-11	866-30L-ARC-11	30	M16x1,5-6g-RH	
861-20L-FG-8	866-20L-FG-8	20	Formier gas	9/16"-18-UNF-2A-LH
861-50L-FG-8	866-50L-FG-8	50		9/16"-18-UNF-2A-LH
861-20L-FG-4	866-20L-FG-4	20		G 3/8" A-LH-UNI ISO 228
861-50L-FG-4	866-50L-FG-4	50		G 3/8" A-LH-UNI ISO 228
861-20L-FG-9	866-20L-FG-9	20		G 1/4" A-LH-UNI ISO 228
861-50L-FG-9	866-50L-FG-9	50		G 1/4" A-LH-UNI ISO 228
861-20L-FG-5	866-20L-FG-5	20		Hose connection 1/4" (6 mm)
861-50L-FG-5	866-50L-FG-5	50		Hose connection 1/4" (6 mm)
861-20L-FG-6	866-20L-FG-6	20		Hose connection 3/8" (10 mm)
861-50L-FG-6	866-50L-FG-6	50		Hose connection 3/8" (10 mm)
861-20L-FG-7	866-20L-FG-7	20		Hose connection 5/16" (8 mm)
861-50L-FG-7	866-50L-FG-7	50	Hose connection 5/16" (8 mm)	
861-15L-OX	866-15L-OX	15	Oxygen	9/16"-18-UNF-2A-RH
861-15L-OX-1	866-15L-OX-1	15		G 3/8" A-RH-UNI ISO 228
861-15L-OX-2	866-15L-OX-2	15		G 1/4" A-RH-UNI ISO 228
861-15L-OX-3	866-15L-OX-3	15		.622"-18-UN-RH
861-15L-OX-5	866-15L-OX-5	15		Hose connection 1/4" (6 mm)
861-15L-OX-6	866-15L-OX-6	15		Hose connection 3/8" (10 mm)
861-15L-OX-7	866-15L-OX-7	15		Hose connection 5/16" (8 mm)
861-15L-OX-11	866-15L-OX-11	15	M16x1,5-6g-RH	

ALL PART NUMBERS CAN BE SUPPLIED ALSO WITH THE FOLLOWING INLET / FEATURE		
MODEL	MODEL	INLET THREAD / FEATURE
861A	866A	G 3/8"-RH-UNI ISO 228 (female)
861B	866B	G 1/4"-RH-UNI ISO 228 (female)
861C	866C	.622"-18-UN-RH (female)
	866D	Right hand (nameplate and scale at 270° from inlet)
861E	866E	Measuring scale 180° from inlet (standard is 90°)
861F	866F	9/16"-18-UNF-3B-RH (female)
861G	866G	G 1/8"-RH-UNI ISO 228 (male), only for model 601
861P	866P	dia-index knob
861X	866X	Pressure 4 bar (60 psi)

For inlet connection refer to this table.  
Please add the corresponding letter to the PART NO.  
(Eg. 861A-15L-ARC for inlet G 3/8"-RH-UNI ISO 228 female)



Flowmeter regulators (see pages 14)



## Gauges

- ▶ Safety gauge conforms to ISO 5171
- ▶ Easy to read dual scale gauges with polycarbonate lens for durability
- ▶ Steel case protected by oven baked corrosion resistant paint

### Rubber Cover



CPR6333



8E-615



8A-802-1

### Rubber Cover



CPR63332

for  
8A-802... & 8E-601...  
gauges



8E-601-1

PART NO.	GAUGE SCALE	GAS	Ø & THREAD	
8A-6001	0-15 l/min		Ø 63 - 1/4" NPT	
8A-6002	0-50 l/min			
8A-6003	0-30 l/min			
8A-615	0-315 bar / 0-4568 psi			
8A-615-OX	0-315 bar / 0-4568 psi	Oxygen		
8A-617-AC	0-40 bar / 0-580 psi	Acetylene		
8A-619-OX	0-16 bar / 0-232 psi	Oxygen		
8A-6411-OX	0-25 bar / 0-362 psi	Oxygen		
8A-686-AC	0-2.5 bar / 0-36 psi	Acetylene		
8A-617	0-40 bar / 0-580 psi			
8A-619	0-16 bar / 0-232 psi			
8A-6411	0-25 bar / 0-362 psi			
8A-686	0-2,5 bar / 0-36 psi			
8A-661	0-6 bar / 0-87 psi			
8E-6001	0-15 l/min			Ø 63 - G 1/4"
8E-6002	0-50 l/min			
8E-6003	0-30 l/min			
8E-615	0-315 bar / 0-4568 psi			
8E-615-OX	0-315 bar / 0-4568 psi	Oxygen		
8E-615K	0-30000 kPa			
8E-615K-OX	0-30000 kPa	Oxygen		
8E-617	0-40 bar / 0-580 psi			
8E-617-AC	0-40 bar / 0-580 psi	Acetylene		
8E-617K	0-4000 kPa			
8E-617K-AC	0-4000 kPa	Acetylene		
8E-619	0-16 bar / 0-232 psi			
8E-619-OX	0-16 bar / 0-232 psi	Oxygen		
8E-619K	0-1600 kPa			
8E-619K-OX	0-1600 kPa	Oxygen		
8E-621	0-400 bar / 0-5800 psi			
8E-621-OX	0-400 bar / 0-5800 psi	Oxygen		
8E-621K	0-40000 kPa			
8E-623	0-100 bar / 0-1450 psi			
8E-6411	0-25 bar / 0-362 psi			
8E-6411-OX	0-25 bar / 0-362 psi	Oxygen		
8E-6411K	0-2500 kPa			
8E-6411K-OX	0-2500 kPa	Oxygen		
8E-661	0-6 bar / 0-87 psi			
8E-661-OX	0-6 bar / 0-87 psi	Oxygen		
8E-661K	0-600 kPa			
8E-661K-OX	0-600 kPa	Oxygen		
8E-6620	0-60 bar / 870 psi			
8E-6620-OX	0-60 bar / 870 psi	Oxygen		
8E-6620-K	0-6000 kPa			
8E-686	0-2.5 bar / 0-36 psi			
8E-686-AC	0-2.5 bar / 0-36 psi	Acetylene		
8E-686K	0-250 kPa			
8E-686K-AC	0-250 kPa	Acetylene		

### FOR REGULATORS MODEL 802/822

PART NO.	GAUGE SCALE	Ø & THREAD
8A-802-1	0-100 bar	Ø 50 - G 1/8"
8A-802-2	0-10 bar	
8A-802-3	0-6 bar	
8A-802-4	0-315 bar	

### FOR REGULATORS MODEL 601

PART NO.	GAUGE SCALE	GAS	Ø & THREAD
8E-601-1	0-315 bar / 0-4568 psi		Ø 50 - G 1/8"
8E-601-1-OX	0-315 bar / 0-4568 psi	Oxygen	
8E-601-2	0-30 l/min		
8E-601-3	0-25 bar / 0-362 psi		
8E-601-3-AC	0-25 bar / 0-362 psi	Acetylene	
8E-601-4	0-40 bar / 0-580 psi		
8E-601-4-AC	0-40 bar / 0-580 psi	Acetylene	
8E-601-5	0-6 bar / 0-87 psi		
8E-601-6	0-16 bar / 0-232 psi		
8E-601-6-OX	0-16 bar / 0-232 psi	Oxygen	
8E-601-7	0-15 l/min		



## Outlet Nipples for regulators



957 - L

957 - R

PART NO.	INLET THREAD	OUTLET THREAD	NOTES
957-L	1/4" NPT	9/16"-18-UNF-2A-LH	-
957-R		9/16"-18-UNF-2A-RH	
957-SL		G 3/8" A-LH-UNI ISO 228	
957-SR		G 3/8" A-RH-UNI ISO 228	
957-AA		.622"-18-UN-LH	
957-AO		.622"-18-UN-RH	
F-957-L		M16x1,5-6g-LH	
F-957-R		M16x1,5-6g-RH	
G-957-1L		G 1/4" A-LH-UNI ISO 228	
G-957-1R		G 1/4" A-RH-UNI ISO 228	
60157-L	M11x1-6g-RH	9/16"-18-UNF-2A-LH	Only for model 601
60157-R		9/16"-18-UNF-2A-RH	
60157-SL		G 3/8" A-LH-UNI ISO 228	
60157-SR		G 3/8" A-RH-UNI ISO 228	
60157-AA		.622"-18-UN-LH	
60157-AO		.622"-18-UN-RH	
60157-FL		M16x1,5-6g-LH	
60157-FR		M16x1,5-6g-RH	
60157-AL	G 1/4" A-LH-UNI ISO 228	Only for model 601 L & flowmeters	
60157-AR	G 1/4" A-RH-UNI ISO 228		
60157-L-2	G 1/8" A-RH-UNI ISO 228		9/16"-18-UNF-2A-LH
60157-R-2			9/16"-18-UNF-2A-RH
60157-SL-2			G 3/8" A-LH-UNI ISO 228
60157-SR-2			G 3/8" A-RH-UNI ISO 228
60157-AA-2			.622"-18-UN-LH
60157-AO-2			.622"-18-UN-RH
60157-FL-2			M16x1,5-6g-LH
60157-FR-2			M16x1,5-6g-RH
60157-AL-2		G 1/4" A-LH-UNI ISO 228	
60157-AR-2		G 1/4" A-RH-UNI ISO 228	

## Calibrated Outlet Nipples for regulators



957 - AO15-ARCD

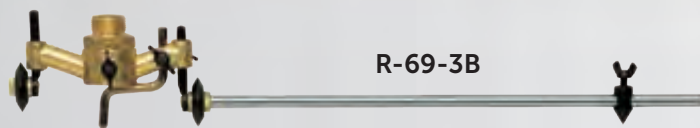
PART NO.	GAS	MAX FLOW (l/m)	INLET THREAD	OUTLET THREAD	NOTES
957-AO15-ARCD	Argon/CO <sub>2</sub>	15	1/4" NPT	.622"-18-UN-RH	
957-AO30-ARCD	Argon/CO <sub>2</sub>	30		.622"-18-UN-RH	
957-AO50-ARCD	Argon/CO <sub>2</sub>	50		.622"-18-UN-RH	
957-AR15-ARCD	Argon/CO <sub>2</sub>	15		G 1/4" A-RH-UNI ISO 228	
957-AR15-N2O-M	Nitrous oxide	15		G 1/4" A-RH-UNI ISO 228	Chrome plated
957-AR15-OX-M	Oxygen	15		G 1/4" A-RH-UNI ISO 228	Chrome plated
957-AR30-ARCD	Argon/CO <sub>2</sub>	30		G 1/4" A-RH-UNI ISO 228	
957-AR50-ARCD	Argon/CO <sub>2</sub>	50		G 1/4" A-RH-UNI ISO 228	
957-FR15-ARCD	Argon/CO <sub>2</sub>	15		M16x1,5-6g-RH	
957-FR30-ARCD	Argon/CO <sub>2</sub>	30		M16x1,5-6g-RH	
957-FR50-ARCD	Argon/CO <sub>2</sub>	50		M16x1,5-6g-RH	
957-R15-AIR-M	Oxygen	15		9/16"-18-UNF-2A-RH	Chrome plated
957-R15-N2O-M	Nitrous oxide	15		9/16"-18-UNF-2A-RH	Chrome plated
957-R15-ARCD	Argon/CO <sub>2</sub>	15		9/16"-18-UNF-2A-RH	
957-R15-OX	Oxygen	15		9/16"-18-UNF-2A-RH	
957-R15-OX-M	Oxygen	15		9/16"-18-UNF-2A-RH	Chrome plated
957-R30-ARCD	Argon/CO <sub>2</sub>	30		9/16"-18-UNF-2A-RH	
957-R50-ARCD	Argon/CO <sub>2</sub>	50		9/16"-18-UNF-2A-RH	
957-SL-30-FG	Formiergas	30		G 3/8" A-LH-UNI ISO 228	
957-SL-50-FG	Formiergas	50		G 3/8" A-LH-UNI ISO 228	
957-SL-50-H2	Hydrogen	50		G 3/8" A-LH-UNI ISO 228	
957-SR-15-ARCD	Argon/CO <sub>2</sub>	15		G 3/8" A-RH-UNI ISO 228	
957-SR-15-N2O	Nitrous oxide	15		G 3/8" A-RH-UNI ISO 228	
957-SR-15-N2O-M	Nitrous oxide	15		G 3/8" A-RH-UNI ISO 228	Chrome plated
957-SR-15-OX-M	Oxygen	15		G 3/8" A-RH-UNI ISO 228	Chrome plated
957-SR-30-ARCD	Argon/CO <sub>2</sub>	30		G 3/8" A-RH-UNI ISO 228	
957-SR-50-ARCD	Argon/CO <sub>2</sub>	50		G 3/8" A-RH-UNI ISO 228	

## Tip Nuts



PART NO.	CUTTING TORCHES / CUTTING ATTACHMENTS	TIPS
6259B	133, 142, 198, 42-4, 49-3, 62-5, 72-3, 73-3, 242, 273	6290
2859	28, H28	2890
9008437	36-2	3690
4559	59-3, 880-NM, NM-250, 242-NM, 273-NM	8290
9002537	573, 880	6290
9005236	V-Series	1-101-HV
VH24593	VH24	1-101-HV

## Roller Guides & Circle Cutting Attachments



R-69-3B

PART NO.	ANGLE	CONNECTION FOR TIPS	CUTTING ATTACHMENTS / CUTTING TORCHES	NOTES
I-69-4	90°	6290	142, 62-5, 42-3, 42-4, 49-3, 572, 72-3, 73-3, 242, 273	Single wheel guide
I-69-5		3690	36-2	
I-69-6	45°-135°	6290	142, 62-5, 42-3, 42-4, 49-3, 572, 72-3, 73-3, 242, 273	
I-69-6-HV		1-101-HV	V-Series	
I-69-7		3690	36-2	
R-69-3B	90°	6290	142, 62-5, 42-3, 42-4, 49-3, 572, 72-3, 73-3, 242, 273	
R-69-4C		8290	NM-250, 880-NM, 59-3, 242-NM, 273-NM	
R-69-880		6290	880, 573	
R-69-A		2890	28, H28	

## Converters



38-2GBL

38-2GBR

PART NO.	FROM (FEMALE)	TO (MALE)
38-2AL	9/16"-18-UNF-3B-LH	.622"-18-UN-LH
38-2AR	9/16"-18-UNF-3B-RH	.622"-18-UN-RH
38-2FL	9/16"-18-UNF-3B-LH	M16x1,5-6g-LH
38-2FR	9/16"-18-UNF-3B-RH	M16x1,5-6g-RH
38-2GBL	9/16"-18-UNF-3B-LH	G 3/8" A-LH-UNI ISO 228
38-2GBR	9/16"-18-UNF-3B-RH	G 3/8" A-RH-UNI ISO 228
38-2GR	9/16"-18-UNF-3B-RH	G 1/4" A-RH-UNI ISO 228
38-4GL	9/16"-18-UNF-3B-LH	G 1/4" A-LH-UNI ISO 228
38-3FL	M16x1,5-4H-LH	9/16"-18-UNF-2A-LH
38-3FR	M16x1,5-4H-RH	9/16"-18-UNF-2A-RH
38-5GL	G 1/4"-LH-UNI ISO 228	9/16"-18-UNF-2A-LH
38-5GR	G 1/4"-RH-UNI ISO 228	9/16"-18-UNF-2A-RH
38-6GL	G 3/8"-LH-UNI ISO 228	9/16"-18-UNF-2A-LH
38-6GR	G 3/8"-RH-UNI ISO 228	9/16"-18-UNF-2A-RH

## Needle Valves

Needle valve for precise flow control can replace outlet nipples on regulators. Particularly recommended for laboratory installations.



52-L

PART NO.	GAS	INLET	OUTLET
52-L	Fuel gas	1/4" NPT	9/16"-18-UNF-LH
52-R	Oxygen	1/4" NPT	9/16"-18-UNF-RH
52-DR	Oxygen	1/4" NPT	1/4" NPT

## "Y" Pieces

"Y" piece for attaching two hose lines to same regulator Assembly on regulator outlet.



37-L

PART NO.	GAS	THREADS	NOTES
37-L	Fuel gas	9/16"-18-UNF-LH	WITH VALVES
37-R	Oxygen	9/16"-18-UNF-RH	
37-FL	Fuel gas	M16x1,5-4H-LH	
37-FR	Oxygen	M16x1,5-4H-RH	
37-GBL	Fuel gas	G 3/8"-LH-UNI ISO 228	WITHOUT VALVES
37-GBR	Oxygen	G 3/8"-RH-UNI ISO 228	
37-L2	Fuel gas	9/16"-18-UNF-LH	
37-R2	Oxygen	9/16"-18-UNF-RH	
37-SL2	Fuel gas	G 3/8"-LH-UNI ISO 228	
37-SR2	Oxygen	G 3/8"-RH-UNI ISO 228	



## Stems & Nuts

Inlet stems & Nuts are supplied according to country specification.



## Goggles



APS010

## Wrench



I-62-X

## Tip Cleaners

C-9 Calibrated tip cleaner for hand cutting tips

E-9 Calibrated tip cleaner for machine cutting tips



C-9



E-9

## Lighter with flint



26-SL

## Hose Assemblies

Hose highly resistant to abrasion and flame

4300591

1/4" x 1/4" twin hose 6 mt.  
with 9/16" fittings (red & green) - "R" grade

4300533

1/4" x 1/4" twin hose 6 mt.  
with 9/16" fittings (red & green) - "T" grade



## Twin Hoses

TA8X8 (100MT)

section mm 8x8 (red & blue).

TA6X6 (100MT)

section mm 6x6 (red & blue).



TA8X8LP (100 MT)

section mm 8x8 (orange and blue)  
for propane and LPG

TA6X6LP (100 MT)

section mm 6x6 (orange and blue)  
for propane and LPG





## STAND 3

### Empty stand

Is used to show Harris products.  
Can be fitted with products as  
per your requirements.  
In stainless steel.  
Length: 100 cm  
Depth: 40 cm  
Height: 240 cm





# HARRIS FILLER METAL SELECTION CHART

METAL TO BE JOINED	FILLER METALS		MELTING RANGE		FLUIDITY RATING *	FLUXES	TORCHES & FLAMES **
	SOLDERS	BRAZING FILLER METALS	SOLIDUS °F/°C	LIQUIDUS °F/°C			
Copper or Brass to Copper or Brass	Stay-Brite® 8		430/221	430/221	10	Stay-Clean® Soldering Flux	Harris Powertorch® Air - Fuel Equipment
	Stay-Brite® 8		430/221	535/279	8	Bndgit® Water Soluble Paste Flux	Harris Powertorch® Air - Fuel Equipment
	Bridgit®		460/238	630/332	6		
		Blockade®	1178/637	1247/674	7		
		Harris® 0	1310/410	1475/802	5	No flux required for copper to copper joints	
		Stay-Silv® 5	1190/643	1500/816	3	with the phosphorus-bearing filler metals	Harris Powertorch® or Classic Oxy-Acetylene Equipment (reducing flame)
		Dynaflow®	1190/643	1465/796	3	For brass and other alloys of copper, use Stay-Silv® White Brazing Flux	
		Stay-Silv® 6	1190/643	1425/774	5		
		Stay-Silv® 15	1190/643	1480/804	3		
		Stay-Brite®		430/221	430/221	10	Stay-Clean® Soldering Flux
Copper or Brass to Steel or Stainless	Stay-Brite® 8		430/221	535/279	8		
		Safety-Silv® 56	1145/618	1205/652	8	Stay-Silv® White Brazing Flux	Harris Powertorch® or Classic Oxy-Acetylene Equipment (slightly reducing flame)
		Safety-Silv® 40	1250/677	1350/732	5	Stay-Silv® Black Flux for Stainless	
		Safety-Silv® 45	1225/663	1370/743	6,5		
		Safety-Silv® 45T	1195/646	1265/685	7		
Steels or Stainless to Steels or Stainless	Stay-Brite®		430/221	430/221	10	Stay-Clean® Soldering Flux	Harris Powertorch® Air - Fuel Equipment
	Stay-Brite® 8		430/221	535/279	8		
		Safety-Silv® 56	1145/618	1205/652	8		
		Safety-Silv® 40	1250/677	1350/732	5		
		Safety-Silv® 40Ni2	1220/660	1435/779	4,5	Stay-Silv® White Brazing Flux	Harris Powertorch® or Classic Oxy-Acetylene Equipment (slightly reducing flame)
		Safety-Silv® 45	1225/663	1370/743	6,5	Stay-Silv® Black Flux for Stainless	
		Safety-Silv® 45T	1195/646	1265/685	7		
		Safety-Silv® 50N	1220/660	1305/707	7		
		Not Recommended					
		Safety-Silv® 40Ni2	1220/660	1435/779	4,5	Stay-Silv® White Brazing Flux	Harris Powertorch® - or Classic Oxy - Acetylene Equipment (reducing flame)
Steel or Stainless to Carbides		Safety-Silv® 50N	1220/660	1305/707	7		
	Alsoldr® 500		391/119	482/250	NOT RATED	Stay-Clean® Aluminium Soldering Flux	Harris Powertorch® Air - Fuel Equipment
	Alcor®		1070/577	824/440	NOT RATED	No Flux Required	Harris Powertorch® Air - Fuel Equipment
Aluminium to Aluminium (1) Aluminium to Copper or Brass (2)* Aluminium to Steel or Stainless (2)*							

\* The higher the fluidity rating, the faster the alloy flows within the melting range.  
\*\* For best results and strong leakproof bonds, filler metals should be applied to the joint area only after the parts are heated to the proper brazing temperature. Oxy acetylene torches may be substituted for air-fuel but will require care to prevent melting of the base metals with this higher temperature flame.

Safety Information: WARNING: PROTECT yourself and others. Read and understand this information. FUMES AND GASES can be hazardous to your health. HEAT RAYS (INFRARED RADIATION) from flame or hot metal can injure eyes. Before use, read and understand the manufacturer's instructions, Material Safety Data Sheet (MSDS) and your employer's safety practices. Keep your head out of fumes. Use enough ventilation, exhaust at the flame, or both, to keep fumes and gases from your breathing zone and the general area. Wear correct eye, ear and body protection. See American National Standard Z49.1, Safety in Welding, Cutting, and Allied Processes, published by the American Welding Society, 550 N.W. LeJeune Road, -Miami, Florida 33126; OSHA Safety Standards, available from the U.S. Government Office, Washington, DC 20402. STATEMENT OF LIABILITY - DISCLAIMER Any suggestion of product applications or results is given without representation or warranty, either expressed or implied. Without exception or limitation, there are no warranties of merchantability or of fitness for particular purpose or application. The user must fully evaluate every process and application in all aspects, including suitability, compliance with applicable law and non-infringement of the rights of others. The Harris Products Group and its affiliates shall have no liability in respect thereof.

(1) Can be directly brazed or soldered.  
(2) Solder directly with Alsoldr® 500, or coat steel side with Alcor® aluminium and solder with Alcor® or Braze with Albraze® 1070

Albraze® 1070 Flux





**THE HARRIS PRODUCTS GROUP**

# ALLOY CATALOG

**BRAZING, SOLDERING, WELDING,  
FLUXES, & ACCESSORIES**





# Certificate

Standard **ISO 9001:2008**

Certificate Registr. No. **75 100 31125**

TÜV Rheinland InterCert Kft. certifies:

Certificate Holder:



**Harris Calorific International Sp. z o.o.**  
ul. Strefowa 8  
PL - 58-200 Dzierżoniów

**Harris Calorific Srl**  
Via Ronco Maruni 34  
I - 40068 San Lazzaro di Savena (Bologna)

Scope:

design and development, production, sale, marketing and service of pressure regulators and flowmeters of industrial gasses, as well as torches and accessories for gass cutting, welding, brazing and heating.

An audit was performed. Proof has been furnished that the requirements according to ISO 9001:2008 are fulfilled.

Validity:

The certificate is valid from **2012-12-22** until **2015-12-21**

Warsaw, 2012.11.30

*Guzgaa Guabka*

Accredited Certification Body  
TÜV Rheinland InterCert Kft.  
H-1132 Budapest, Váci út 48/a-b

Branch Office in Poland  
TÜV Rheinland Polska Sp. z o.o.  
PL-02-146 Warszawa,  
ul. 17 Stycznia 58

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 **TÜVRheinland®**  
Precisely Right.

# Useful data – Conversion table

## VOLUME

	cu in	cu ft	cu yd	cu cm	cu meter	liter	US gal
1 cu in	1	-	16,387			0,02	
1 cu ft	1,728,00	1	0,037	28.317	0,028	28,32	7,481
1 cu yd	46.656	27	1	-	0,764	764,5	202
1 cu cm	0,06	-	-	1	-	0,001	-
1 cu meter	61.024	35,31	1,308	1.000.000	1	1.000	264,2
1 liter	61 .024	0,035	1		0,001	1	0,264
1 gallon (US)	231	0,133	0,004	3,785,40	0,003	3,785	1

## PRESSURE

	psi	bar	atm	mm Hg	inch Hg	inch water	kPa
1 psi	1	0,068	0,068	51,713	2,035	27,68	6,895
1 bar	14,504	1	0,986	750,06	29,53	401:48:00	100
1 atm	14,696	1,013	1	760	29,921	406,8	101,325
1 mm Hg (torr)	0,019	0,001	0,001	1	0,039	0,535	0,133
1 in Hg	0,491	0,033	0,033	25,4	1	13,596	3
1 in water	5,202	0,358	0,002	269,02	10,591	1	35,808
1 kPa	0,145	0,01	0,009	7,519	0	4,015	1

## WEIGHT

	grain	oz	lb	ton	gram	kg	metric ton
1 grain	1	0,002	-	-	0,064	-	-
1 ounce	437,5	1	0,062	-	28,35	0,028	-
1 pound	7.000	16	1	0,000	453,6	0,453	-
1 ton		32.000	2.000	1		907,2	0,907
1 gram	15,43	0,04	-	-	1	0,001	-
1 kilogram		35,274	2,205	-	1.000	1	0,001
1 metric ton	-	35,274	2,205	1,102	-	1.000	1

## FLOW

	scc/min	Lpm	SCFM	l/h	Nm <sup>3</sup> /h	SCFH	
1 scc/min	1	0,001	0,06			0,002	
1 Lpm	1.000	1	0,035	60	0,06	2,119	
1 SCFM	28.317	26	1	1.699	1,699	60	
1 l/h	16,667	0,016	1		0,001	0,035	
1 Nm <sup>3</sup> /h	16.667	16,667	0,589	1.000	1	35,314	
1 SCFH	471,95	0,472	0,016	28,317	0,028	1	

SCFM = Standard Cubic Feet per Minute	scc/min = Standard Cubic Centimeters per Minute
SCFH = Standard Cubic Feet per Hour	Lpm = Liter per Minutes
	Nm <sup>3</sup> /h = Normal Cubic Meter per Hour

## ENERGY

	BTU	cal	watts-hour			
1 BTU	1	251,98	0,293			
1 cal	3.968x10-3	1	-			
1 watts-hour	3,414	-	1			

# GAS CONVERSION FACTORS

AIR ► to

	FACTOR	INVERSE
ACETYLENE (C <sub>2</sub> H <sub>2</sub> )	1,050	0,952
ARGON (Ar)	0,851	1,175
ARGON/CO <sub>2</sub> (75% Ar – 25% CO <sub>2</sub> )	0,833	1,200
NITROGEN (N <sub>2</sub> )	1,020	0,980
CARBON DIOXIDE (CO <sub>2</sub> )	0,808	1,238
SULFUR DIOXIDE (SO <sub>2</sub> )	0,660	1,515
BUTANE (C <sub>4</sub> H <sub>10</sub> )	0,700	1,429
HELIUM (He)	2,695	0,371
ETHANE (C <sub>2</sub> H <sub>6</sub> )	0,980	1,020
ETHYLENE (C <sub>2</sub> H <sub>4</sub> )	1,010	0,990
FORMIER GAS (90% N <sub>2</sub> – 10% H <sub>2</sub> )	1,300	0,769
HYDROGEN (H <sub>2</sub> )	3,810	0,262
METHANE (CH <sub>4</sub> )	1,350	0,741
METHYLAACETYLENE PROPADIENE (MPS – C <sub>3</sub> H <sub>4</sub> )	1,238	0,808
CARBON OXIDE (CO)	1,020	0,980
NEON (Ne)	1,200	0,833
OXYGEN (O <sub>2</sub> )	0,950	1,053
PROPANE (C <sub>3</sub> H <sub>8</sub> )	0,800	1,250
PROPYLENE (C <sub>3</sub> H <sub>6</sub> )	1,237	0,808
NITROGEN PROTOXIDE (N <sub>2</sub> O)	0,810	1,235

## WARRANTY

The Company warrants each new product or part thereof to be free from defects in workmanship and material.

If any part thereof shall prove to be defective in workmanship or material within one year from the date of purchase by the user, as a result of normal use and service for purposes for which it was intended, as determined by the Company, the Company will replace the part or parts so determined by it to be defective with new parts, at Company's cost and expense.

This warranty is exclusive, and there are no other warranties or representations, expressed or implied.

### NOTE:

We are constantly improving our products.

We therefore reserve the right to make changes in specifications without notice.

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**Harris Calorific International Sp. z o.o.**  
**ul. Strefowa 8, 58-200 Dzierzoniow, POLAND**  
**phone: +48 74 646 23 52-3**  
**fax: +48 74 646 23 43**  
**marketing@harriscal.it**  
**www.harrisproductsgroup.com**

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