




HARRIS®

GAS APPARATUS & BRAZING ALLOYS

HARRIS
UK CATALOGUE



www.mpbwelding.com

The Harris Products Group was officially formed on May 1, 2006, with the combination of Gainesville, Georgia-based Harris Calorific Inc.  and Mason, Ohio-based J.W. Harris Company . The merger resulted from a series of acquisitions by The Lincoln Electric Company .

The result of this union is a very powerful combination: the equipment and consumables customer service teams work together to provide best-in-class service to Harris' customers.



Harris Calorific, a pioneer in the production of gas welding and cutting apparatus, was founded by John Harris, who discovered the oxyacetylene method of cutting and welding equipment in 1899 while conducting research on the manufacture of synthetic rubies. His discovery led to the manufacture of the nation's first flame-cutting torch. After World War II, the company found new markets for its products in research laboratories and aircraft. Harris expanded its national distribution system, developed new equipment, stepped up its advertising program, and established subsidiaries and distributorships abroad.

Today Harris Calorific is a manufacturer of gas welding and cutting equipment, industrial and specialty gas regulation equipment and gas distribution systems.



Harris Calorific S.r.l. was opened in Bologna, Italy, with its own factory and commercial organization in 1965, becoming the centre of the international distribution.

The growth of the international market was enormous and today Bologna is responsible for the distribution in over 90 countries throughout the world.


The J.W. Harris Company, founded in 1914 by Joseph W. Harris Sr., 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. Included in the J.W. Harris acquisition made by The Lincoln Electric Company were Autobrazo, a manufacturer of precision brazing rings and return bends utilized in the HVAC industry, Gulf Wire Corporation, a producer of aluminum and stainless welding consumables, and Filler Metals, a supplier of niche welding alloys. Later in 2008, Brastak became part of the Harris Products Group.


The Sao Paulo, Brazil based company is an industry leader in brazing alloys, soldering, and welding products.


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





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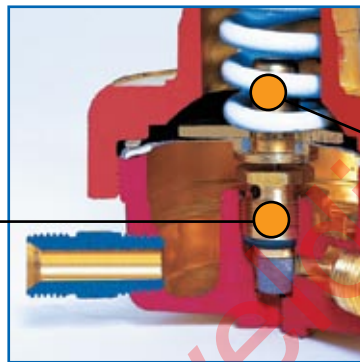
Regulators

General features:

- ▶ Harris regulators are designed and manufactured according to the most recent international standards:
 - EN ISO 2503 FOR CYLINDER PRESSURE REGULATORS
 - EN 13918 FOR CYLINDER FLOW REGULATORS
 - PRESSURE GAUGES CONFORM TO EN 562
- ▶ 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

Single Stage Regulators

Model 818B

Single stage gaugeless regulator

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 to 300 mm. steel
- ▶ Delivery pressure set by turning the knob on the calibrated bonnet

UK PART N°	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)
H1282	Acetylene	25	0 - 1.5	30
H1283	Oxygen	230	0 - 10	155
H1284	Propane	25	0 - 4	16.5

Model 918

Single stage gaugeless regulator

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
- ▶ Delivery pressure set by turning the knob on the calibrated bonnet
- ▶ Durable chrome bonnet
- ▶ Bull nose "O" ring



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)
H1001	Acetylene	25	0 - 1.5	30
H1002	Oxygen	300	0 - 10	155
H1003	Propane	25	0 - 4	16.5

Model 801B

Single stage two gauge 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 available



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1103	Acetylene	25	0 - 1.5	30	0 - 2.5	0 - 40
H1109	Oxygen	230	0 - 4	100	0 - 6	0 - 315
H1384	Propane	25	0 - 4	16.5	0 - 6	0 - 40
H1104	Oxygen	230	0 - 10	155	0 - 16	0 - 315
H1115	Acetylene	25	0 - 1.5	30	0 - 2.5	0 - 40
H1116	Oxygen	230	0 - 4	100	0 - 6	0 - 315

Model 901 Single stage two gauge 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 capsulate seat with Kel-F (CTFE) sealing surface
- ▶ Smooth adjustment, with high precision
- ▶ Durable chrome bonnet
- ▶ Bull nose "O" ring

UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1011	Acetylene	25	0 - 1.5	30	0 - 2.5	0 - 40
H1012	Oxygen	300	0 - 4	105	0 - 6	0 - 400
H1013	Oxygen	300	0 - 10	175	0 - 16	0 - 400
H1015	Inert Gas	300	0 - 10	175	0 - 16	0 - 400

Model 825/925 Single stage two gauge regulator



Applications:

- ▶ Heavy duty cutting, heating and welding

Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 300 bar
- ▶ Enough flow to cut up to 400 mm. steel
- ▶ High pressure capsulate seat with Kel-F (CTFE) sealing surface
- ▶ Large Ø 70 mm diaphragm stabilizes working pressure
- ▶ Stainless steel diaphragm on 25, 40 & 50 bar versions
- ▶ Side entry inlet connection available

UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1031	Acetylene	25	0 - 1.5	52	0 - 2.5	0 - 40
H1032	Oxygen	300	0 - 4	115	0 - 6	0 - 400
H1033	Oxygen	300	0 - 10	185	0 - 16	0 - 400
H1037	Oxygen	300	0 - 15	325	0 - 25	0 - 400
H1034	Inert Gas	300	0 - 10	185	0 - 16	0 - 400
H1038	Inert Gas	300	0 - 15	325	0 - 25	0 - 400
H1370	Inert Gas	300	0 - 25	400	0 - 40	0 - 400
H1087	Oxygen	300	0 - 40	500	0 - 60	0 - 400
H1088	Inert Gas	300	0 - 40	500	0 - 60	0 - 400
H1090	CO ₂	300	0 - 40	500	0 - 60	0 - 400
H1371	Inert Gas	300	0 - 50	600	0 - 100	0 - 400
H1374*	Inert Gas	300	0 - 50	600	0 - 100	0 - 400
H1031**	Acetylene	25	0 - 1.5	52	0 - 2.5	0 - 40
H1032**	Oxygen	300	0 - 4	115	0 - 6	0 - 400

* Fitted with "Flair Nipple" outlet. - ** Side entry inlet connection.

Shielding gas regulators

Model 801B/901

Single stage two gauge shielding gas regulators

Applications:

- ▶ Suitable for MIG/TIG welding

Features:

- ▶ Forged brass body for strength
- ▶ Maximum inlet pressure of 230 or 300 bar
- ▶ Delivery gauge calibrated in (Lpm)



UK PART No	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
H1106	Argon	230	0 - 15	0 - 315	0 - 15
H1109	Argon	230	0 - 30	0 - 315	0 - 30
H1117*	Argon	230	0 - 30	0 - 315	0 - 30
H1270**	Argon	300	0 - 50	0 - 400	0 - 50

* Side entry inlet connection.

** Regulator supplied with a NEVOC cylinder connection.

Model 814B

Single stage one gauge shielding gas regulators

Applications:

- ▶ Suitable for MIG/TIG welding

Features:

- ▶ Forged brass body for strength
- ▶ Maximum inlet pressure of 230 bar
- ▶ Delivery flow (H1148) set by turning the knob on the calibrated bonnet



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE/ FLOW	SUPPLY PRESSURE GAUGE (bar)
H1102*	Argon	230	3.5 bar	0 - 315
H1148	Argon	230	0 - 30 Lpm	0 - 315

* Regulator pre-set for use with a flowmeter.

Model 861/866 Flowmeters

Applications:

- ▶ Suitable for MIG/TIG welding

Features:

- ▶ Measure flow from 0 to 15/30 (Lpm) for Ar/CO₂
- ▶ Calibrated at 3.5 bar inlet pressure
- ▶ Easy to read polycarbonate outer cover, 360 ° visibility
- ▶ Brass body and knob
- ▶ Model 861 inlet 90° to knob, model 866 inlet 180° to knob

UK PART No	MODEL No	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)
H1111	861	Argon/CO ₂	3.5	0 - 15
H1112	861	Argon/CO ₂	3.5	0 - 30
H1258	866	Argon/CO ₂	3.5	0 - 15
H1259	866	Argon/CO ₂	3.5	0 - 30



Model 921DB Single stage one gauge double flow regulators

Applications:

- ▶ Suitable for MIG/TIG welding

Features:

- ▶ One regulator for two gas supply applications with separate flow control
- ▶ Maximum inlet pressure 300 bar
- ▶ Two flowmeters (With knob at 180° to inlet) with soft seat needle valve for smooth and precise control
- ▶ Flowmeters can be rotated to suite either side or top outlet cylinders



UK PART No	GAS	MAX INLET PRESSURE (bar)	FLOW (Lpm)	SUPPLY PRESSURE GAUGE (bar)	FLOWMETER (Lpm)
H1254	Argon	300	0 - 15	0 - 400	0 - 15
H1255	Argon	300	0 - 30	0 - 400	0 - 30
H1256*	Argon	300	0 - 15	0 - 400	0 - 15
H1257*	Argon	300	0 - 30	0 - 400	0 - 30

* Regulator supplied with a NEVOC cylinder connection.

Model 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. Because the 803-P 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.

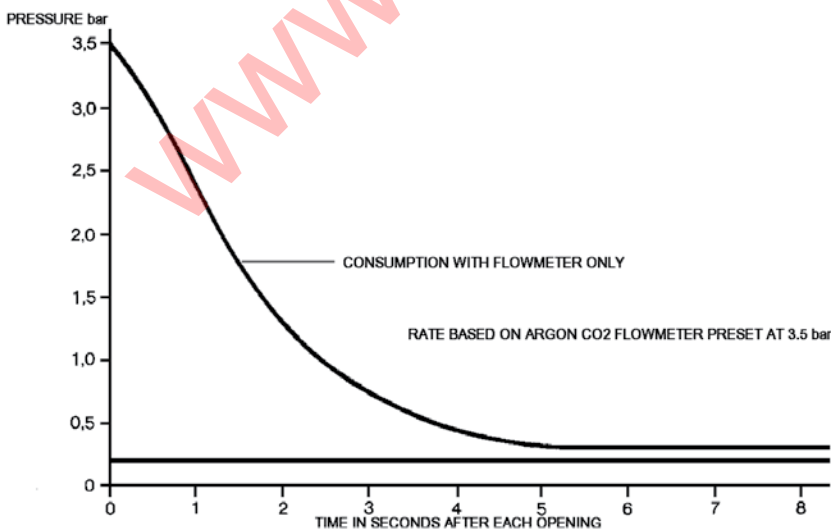


803P

Where to use:

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

UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	INLET	OUTLET
H1118	Argon / CO ₂	3.5	0.6-0.9	G 3/8"-RH-UNI ISO 228	G 3/8" 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 14 Lpm

Two stage regulators

Model 896B

Two stage two gauge regulator

Applications:

- ▶ Used where stable outlet pressure is required
- ▶ Ideal for quality cutting & welding applications

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



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1275	Acetylene	25	0 - 1.5	25	0 - 2.5	0 - 40
H1280	Oxygen	230	0 - 4	95	0 - 6	0 - 315
H1276	Oxygen	330	0 - 10	100	0 - 16	0 - 315
H1281	Inert Gas	230	0 - 4	95	0 - 6	0 - 315
H1277	Inert Gas	230	0 - 10	100	0 - 16	0 - 315
H1278	Hydrogen	230	0 - 10	100	0 - 16	0 - 315

Model 996

Two stage two gauge regulator

Applications:

- ▶ Used where stable outlet pressure is required
- ▶ Ideal for quality cutting, welding & laboratory applications

Features:

- ▶ Forged brass body for maximum strength
- ▶ Maximum inlet pressure of 300 bar
- ▶ High pressure capsulate 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 chrome bonnet
- ▶ Bull nose "O" ring



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1041	Acetylene	25	0 - 1.5	25	0 - 2.5	0 - 40
H1042	Oxygen	300	0 - 4	85	0 - 6	0 - 400
H1043	Oxygen	300	0 - 10	100	0 - 16	0 - 400
H1049	Oxygen	300	0 - 15	120	0 - 25	0 - 400
H1096	Inert Gas	300	0 - 4	85	0 - 6	0 - 400
H1048	Inert Gas	300	0 - 10	100	0 - 16	0 - 400
H1054	Inert Gas	300	0 - 15	120	0 - 25	0 - 400
H1047	Hydrogen	300	0 - 4	85	0 - 6	0 - 400
H1070	Hydrogen	300	0 - 10	100	0 - 16	0 - 400
H1050	Hydrogen	300	0 - 15	120	0 - 25	0 - 400
H1065	CO ₂	300	0 - 10	100	0 - 16	0 - 400
H1066	Compressed Air	300	0 - 10	100	0 - 16	0 - 400

Stainless steel diaphragm options available.

High flow & high pressure regulators

Model H25

High flow cylinder regulator

Applications:

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

Features:

- ▶ Machined bar stock body
- ▶ Maximum inlet pressure of 300 bar
- ▶ High pressure capsule seat with Kel-F (CTFE) sealing surface
- ▶ Stainless steel diaphragm
- ▶ Air flow up to 700 m³/h
- ▶ External safety relief valve
- ▶ 1/2" BSPM RH outlet
- ▶ Durable chrome bonnet
- ▶ Bull nose "O" ring



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1110	Oxygen	300	0 - 15	450	0 - 25	0 - 400
H1107	Inert Gas	300	0 - 40	720	0 - 60	0 - 400

Model 987

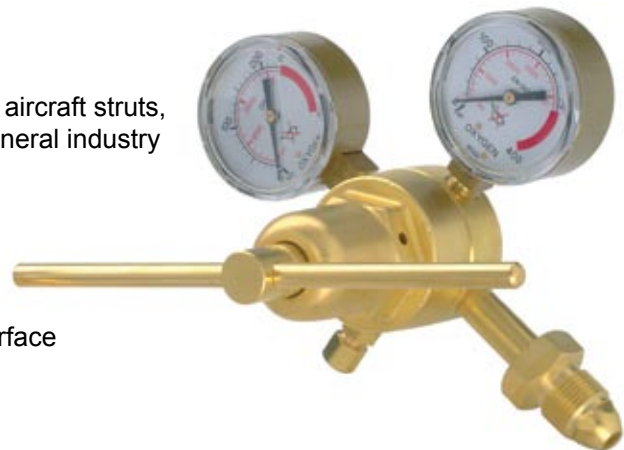
High pressure cylinder regulator

Applications:

- ▶ High pressure testing, charging accumulators, pressurising aircraft struts, oil refineries, chemical plants, research laboratories and general industry
- ▶ Ideal also for high pressure manifold systems

Features:

- ▶ Maximum inlet pressure of 300 bar
- ▶ Stainless steel diaphragm - 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
- ▶ Outlet is a 1/4" external diameter compression fitting
- ▶ Same regulator used for lightweight gases, without vibration



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
H1061	Oxygen	300	0 - 100	400	0 - 315	0 - 400
H1062	Oxygen	300	0 - 170	500	0 - 315	0 - 400
H1063	Inert Gas	300	0 - 100	400	0 - 315	0 - 400
H1064	Inert Gas	300	0 - 170	500	0 - 315	0 - 400

Model 8700 High pressure cylinder regulator

Applications:

- ▶ High pressure testing, charging accumulators, pressurising aircraft struts and general industry

Features:

- ▶ Maximum inlet pressure of 300 bar
- ▶ One piece encapsulated valve with CTFE seats & internal filter
- ▶ Elastomeric diaphragm for longer life
- ▶ Ergonomic knob for improved grip
- ▶ All gas and air models are self relieving



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
TBA	Inert Gas	300	0 - 205	500	0 - 280	0 - 400
TBA	Inert Gas	300	0 - 300	400	0 - 400	0 - 400

* Part number issued when inlet and outlet are confirmed.

Model HP750 Servo dome loaded regulator

Applications:

- ▶ Laser assist gases, pressure transfer, blanketing & high flow manifolds
- ▶ Applications where a constant flow and pressure are required

Features:

- ▶ High pressure, high flow regulator
- ▶ Maximum inlet pressure of 380 bar
- ▶ One piece encapsulated seat design with 10 micron filtration
- ▶ Servo dome loaded 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.



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	SUPPLY PRESSURE GAUGE (bar)
TBA	Inert Gas	300	0 - 17	>1000	0 - 28	0 - 400
TBA	Inert Gas	300	0 - 35	>1000	0 - 42	0 - 400
TBA	Inert Gas	300	0 - 70	>1000	0 - 138	0 - 400

* Part number issued when inlet and outlet are confirmed.

Heated regulators

Model 911

Electrically heated regulator regulator

Applications:

- ▶ Ideal for all welding applications using CO₂, also Argon mixed gases where high flowrates are in use causing regulator freezing

Features:

- ▶ Maximum inlet pressure of 300 bar
- ▶ CE marked
- ▶ Two independent heating elements controlled by thermostat
- ▶ Stabilized temperature up to 30 Lpm continuous CO₂
- ▶ Overheating protection with re-settable thermal fuse
- ▶ Insulation IP 64 (EN 60529)
- ▶ Voltage: 110 and 240 volt versions
- ▶ 3 meter long (9.87 feet) power cable



UK PART No	GAS	VOLTAGE	MAX INLET PRESSURE (bar)	DELIVERY MODE	DELIVERY MODE GAUGE	SUPPLY PRESSURE GAUGE (bar)
H1260	Ar/CO ₂	110V	300	0 - 30 (Lpm)	0 - 30 (Lpm)	0 - 400
H1261	Ar/CO ₂	220V	300	0 - 30 (Lpm)	0 - 30 (Lpm)	0 - 400
H1262	CO ₂	110V	300	0 - 30 (Lpm)	0 - 30 (Lpm)	0 - 400
H1263	CO ₂	220V	300	0 - 30 (Lpm)	0 - 30 (Lpm)	0 - 400
H1264	Inert Gas	110V	300	0 - 10 bar	0 - 16 bar	0 - 400
H1265	Inert Gas	220V	300	0 - 10 bar	0 - 16 bar	0 - 400
H1268*	Ar/CO ₂	110V	300	0 - 30 (Lpm)	0 - 30 (Lpm)	0 - 400
H1269*	Ar/CO ₂	220V	300	0 - 30 (Lpm)	0 - 30 (Lpm)	0 - 400

* Regulator supplied with a NEVOC cylinder connection.

Pipeline Regulators

Model 847

Pipeline regulator with one gauge

Applications:

- ▶ Specially designed to allow high flow rates from industrial and laboratory pipeline outlet points
- ▶ Particularly suited to machine cutting where more than one torch is in use.

Features:

- ▶ High flow and outlet pressure (Up to 15 bar)
- ▶ Forged brass body for maximum strength
- ▶ Sintered alloy filter to trap impurities
- ▶ Maximum inlet pressure 25 bar
- ▶ 15 & 30 Lpm flow versions available for Argon and CO₂



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)	FLOWGAUGE (Lpm)
H1075	Acetylene	25	0 - 1.5	13	0 - 2.5	-
H1076	Propane	25	0 - 4	76	0 - 6	-
H1077	Oxygen	25	0 - 4	80	0 - 6	-
H1078	Oxygen	25	0 - 10	95	0 - 16	-
H1080	Oxygen	25	0 - 15	135	0 - 25	-
H1084	Argon	25	0 - 10	95	0 - 16	-
H1379	Argon	25	-	-	-	0 - 30

Model H47 High flow pipeline regulators with one gauge

Applications:

- ▶ Designed for high flow pipeline requirements

Features:

- ▶ High flow and outlet pressure (Up to 40 bar)
- ▶ Rear inlet connection
- ▶ Air flow over 330 m³/h
- ▶ Maximum inlet pressure 60 bar
- ▶ T screw provides smooth action and long service



UK PART No	GAS	MAX INLET PRESSURE (bar)	DELIVERY PRESSURE (bar)	MAX AIR FLOW (m ³ /h)	DELIVERY PRESSURE GAUGE (bar)
H1110	Inert Gas	60	0 - 15	330	0 - 25
H1356	Oxygen	60	0 - 15	330	0 - 25
H1108	Oxygen	60	0 - 40	390	0 - 60

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)

Speciality Gas Regulators


HP721C - Single Stage Two Gauge.

- ▶ Brass bar stock, chrome plated.
- ▶ Stainless steel diaphragm
- ▶ For high purity gases Grade 5.0 (99.999).
- ▶ Available in working pressures - 15, 50, 125, 250 & 500 psi.


HP741 - Single Stage Two Gauge.

- ▶ Stainless bar stock
- ▶ Stainless steel diaphragm
- ▶ For high purity & corrosive gases Grade 6.0 (99.9999).
- ▶ Available in working pressures - 15, 50, 125, 250 & 500 psi.


HP722C - Two Stage Two Gauge.

- ▶ Brass bar stock, chrome plated.
- ▶ Stainless steel diaphragm
- ▶ For high purity gases Grade 5.0 (99.999).
- ▶ Available in working pressures - 15, 50, 125, 250 & 500 psi.


HP742 - Two Stage Two Gauge.

- ▶ Stainless bar stock
- ▶ Stainless steel diaphragm
- ▶ For high purity & corrosive gases Grade 6.0 (99.9999).
- ▶ Available in working pressures - 15, 50, 125, 250 & 500 psi.


HP723C - Pipeline Regulator

- ▶ Brass bar stock, chrome plated.
- ▶ Stainless steel diaphragm
- ▶ For high purity gases Grade 5.0 (99.999).
- ▶ Available in working pressures - 15, 50, 125, 250 & 500 psi.


HP743 - Pipeline Regulator.

- ▶ Stainless bar stock
- ▶ Stainless steel diaphragm
- ▶ For high purity & corrosive gases Grade 6.0 (99.9999).
- ▶ Available in working pressures - 15, 50, 125, 250 & 500 psi.

* Part number issued when inlet and outlet are confirmed.

Specialty Gas Manifold

Series SG 900
Semi-Automatic Manifold



Series SG 960
Fully Automatic Switchover



Regulation Box



Control Box



Alarm Box



Manifold Depth: 26 cm
Cabinet Weight: 25 Kg.

Please call our customer service for more information

Designed and manufactured according to EN ISO 5172.

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

Low pressure system with Acetylene, 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

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 (see page 34-35)

62-5F LOW PRESSURE "F" INJECTOR TORCHES (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUELS)						
90°Head		70°Head		180°Head		Length (mm)
Model	Weight (Kg)	Model	Weight (Kg)	Model	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



70° Head



180° Head

62-5 LOW PRESSURE TORCHES (FOR ACETYLENE)						
90°Head		70°Head		180°Head		Length (mm)
Model	Weight (Kg)	Model	Weight (Kg)	Model	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

* Available upon request

Supplied with G 3/8" A-RH-UNI ISO 228 inlet threads

Model 142



- ▶ Cuts up to 200 mm
- ▶ Stainless steel lever with hold-down button
- ▶ Triangular tube design
- ▶ Solid forged head
- ▶ Use with 6290 tips (see page 34-35)

142-E TORCH FOR ACETYLENE			142-F LOW PRESSURE "F" INJECTOR TORCH (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUELS)				
90°Head		Length (mm)	90°Head		70°Head		Length (mm)
Model	Weight (Kg)		Model	Weight (Kg)	Model	Weight (Kg)	
142-E	1.11	460	142-F	1.11	142-AFL-835	1.30	835

Supplied with G 3/8" A-RH-UNI ISO 228 inlet threads

TIP MIX TORCHES

Model 880-NM



- ▶ Cuts up to 200 mm
- ▶ Operates with acetylene or alternative fuel
- ▶ Tip mix principle
- ▶ Use with 8290 tips (see page 36)

Supplied with G 3/8" A-RH-UNI ISO 228 inlet threads.

880-NM EQUAL PRESSURE TIP MIX TORCHES (FOR ACETYLENE OR ALTERNATIVE FUELS)		
90°Head		Length (mm)
Model	Weight (Kg)	
880-NM	1.12	480

Model NM-250



- ▶ Cuts up to 250 mm
- ▶ Operates with all fuel gases
- ▶ Top stainless steel lever with hold-down button
- ▶ Triangular tubes design
- ▶ Tip mix principle
- ▶ Use with 8290 tips (see page 36)

Supplied with G 3/8" A-RH-UNI ISO 228 inlet threads.

NM-250 EQUAL PRESSURE TIP MIX TORCHES (FOR ACETYLENE AND ALTERNATIVE FUELS)				
90°Head		70°Head		Length (mm)
Model	Weight (Kg)	Model	Weight (Kg)	
NM-250	1.07			480
NM-250-835	1.23			835

Model 6000 Foundry Hand Cutting Torch

HEAVY CUTTING, SCARFING AND EMERGENCY CUT-OFF FOR CONTINUOUS CAST

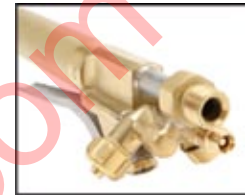
- ▶ Tip Mix Design
- ▶ Well Balanced For Operator Comfort
- ▶ Extra High Flow Capacity
- ▶ Ridged Triangular Tube Arrangement
- ▶ Stainless Steel Head & Tubes
- ▶ Built to specified lengths up to 18'
- ▶ Available in Two or Three Hose Configurations
- ▶ Available with 70°, 90° and 180° heads
- ▶ Cuts 50"



See Page 37 for Available Tip.



Emergency Cut-off Torch Stand



Model 6075R
Scarfing Torch with
Rod Feed

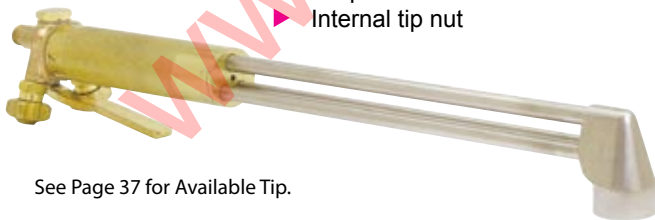
The Model 6000 Torch

Special Order Only

MODEL	MODEL NO.	HEAD	LENGTH**
SCF6000	Heavy Cutting & Scarfing	1800	Specify
SCF6075	Heavy Cutting & Scarfing	750	Specify
SCF6090	Heavy Cutting & Scarfing	900	Specify
SCF6175	Emergency Cut-off Torch with Stand	750	Specify
SCF6180	Emergency Cut-off Torch with Stand	900	Specify
SCF6075R	Special Scarfing Torch with Rod Feed	750	Specify

Model 136-2 Foundry Hand Cutting Torch

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



See Page 37 for Available Tip.

Special Order Only

MODEL NO.	HEAD ANGLE	LENGTH
136-2A-21	70°	21"
136-2-21	90°	21"
136-2B-21	180°	21"
136-2AL-36	70°	36"
136-2L-36	90°	36"
136-2BL-36	180°	36"
136-2AL-48	70°	48"
136-2L-48	90°	48"
136-2BL-48	180°	48"

* The 136-2 Heavy Duty Torch is available in other lengths and head angles.

6000 & 136 Hose Recommendations

GAS TYPE	HOSE SIZE
Oxygen	1/2" I.D.
Fuel Gas	3/8" I.D.
Oxygen Pre Heat for three hose torches	3/8" I.D.

Classic 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

49 Low Pressure Cutting Attachments (for Acetylene)

MODEL	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
49-3	90°	6290	43-2	0.678	248
*49-3A	70°	6290	43-2	0.686	258
*49-3L360	90°	6290	43-2	0.728	348
*49-3L500	90°	6290	43-2	0.750	490

* Available upon request.



49-3 Cuts up to 150 mm

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

MODEL	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
*49-3AF	70°	6290	43-2	0.674	258
49-3F	90°	6290	43-2	0.678	248
*49-3FL360	90°	6290	43-2	0.736	348
*49-3FL500	90°	6290	43-2	0.804	490

* Available upon request.

59-3 & 59-3MX Tip Mix Cutting Attachments (for Acetylene and Alternative Fuels)

MODEL	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
59-3	90°	8290	43-2	0.646	259
59-3MX	90°	8290	543MX	0.646	259

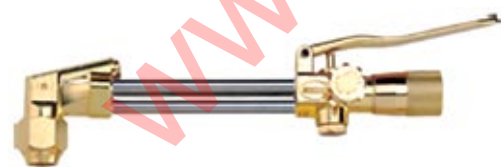
* Available upon request.



59-3 Cuts up to 150 mm

73-2MX Equal Pressure "E" Cutting Attachments (for Acetylene and Alternative Fuels)

MODEL	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
73-2MX	90°	6290	543MX	0.636	227



73-2MX Cuts up to 100 mm

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

MODEL	HEAD ANGLE	COMPATIBLE CUTTING TIPS	COMPATIBLE HANDLE	WEIGHT (Kg)	LENGTH (mm)
36-2	90°	6290	19-6, 50-10	0.326	189



36-2 Cuts up to 75 mm

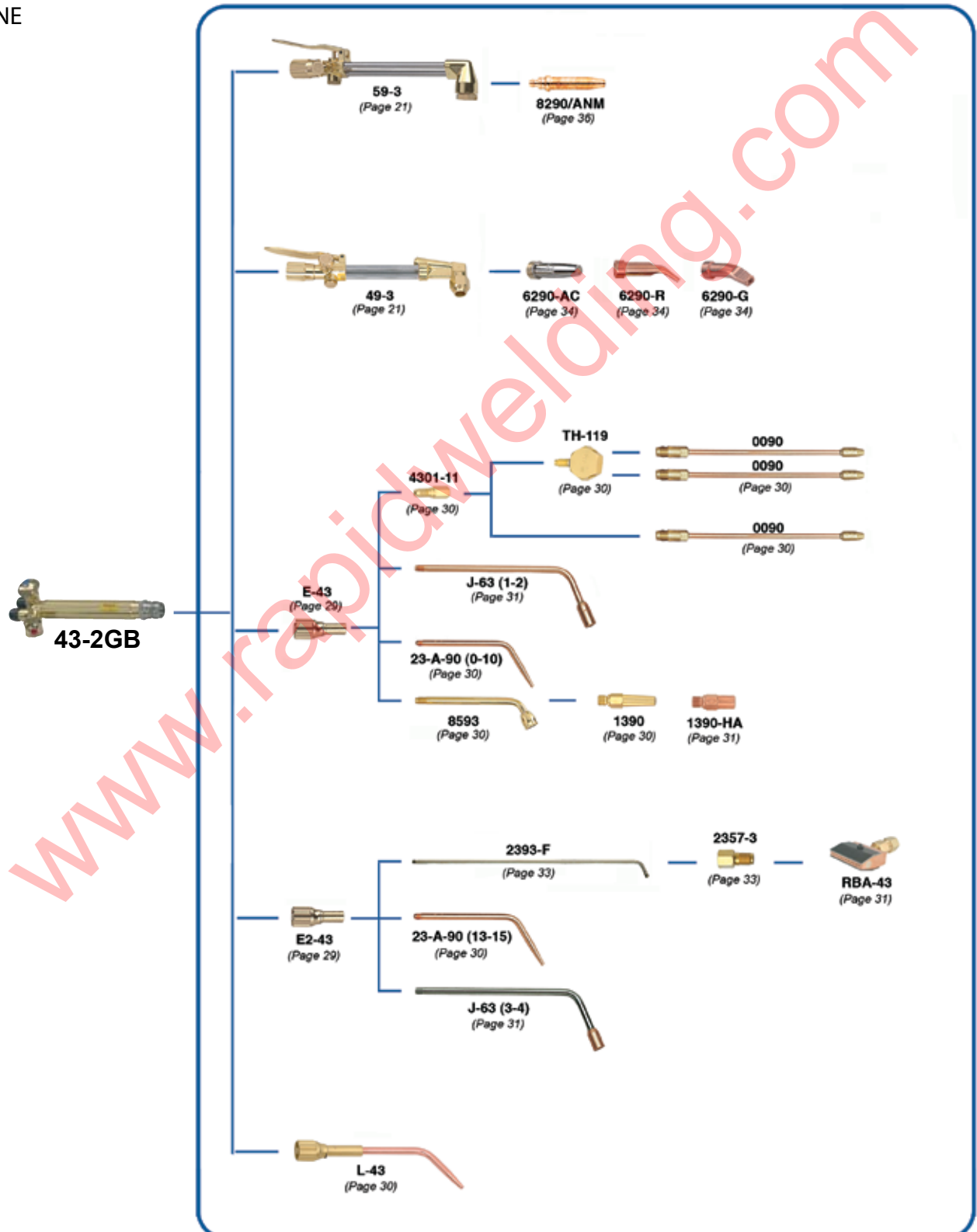
Model 43-2GB

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

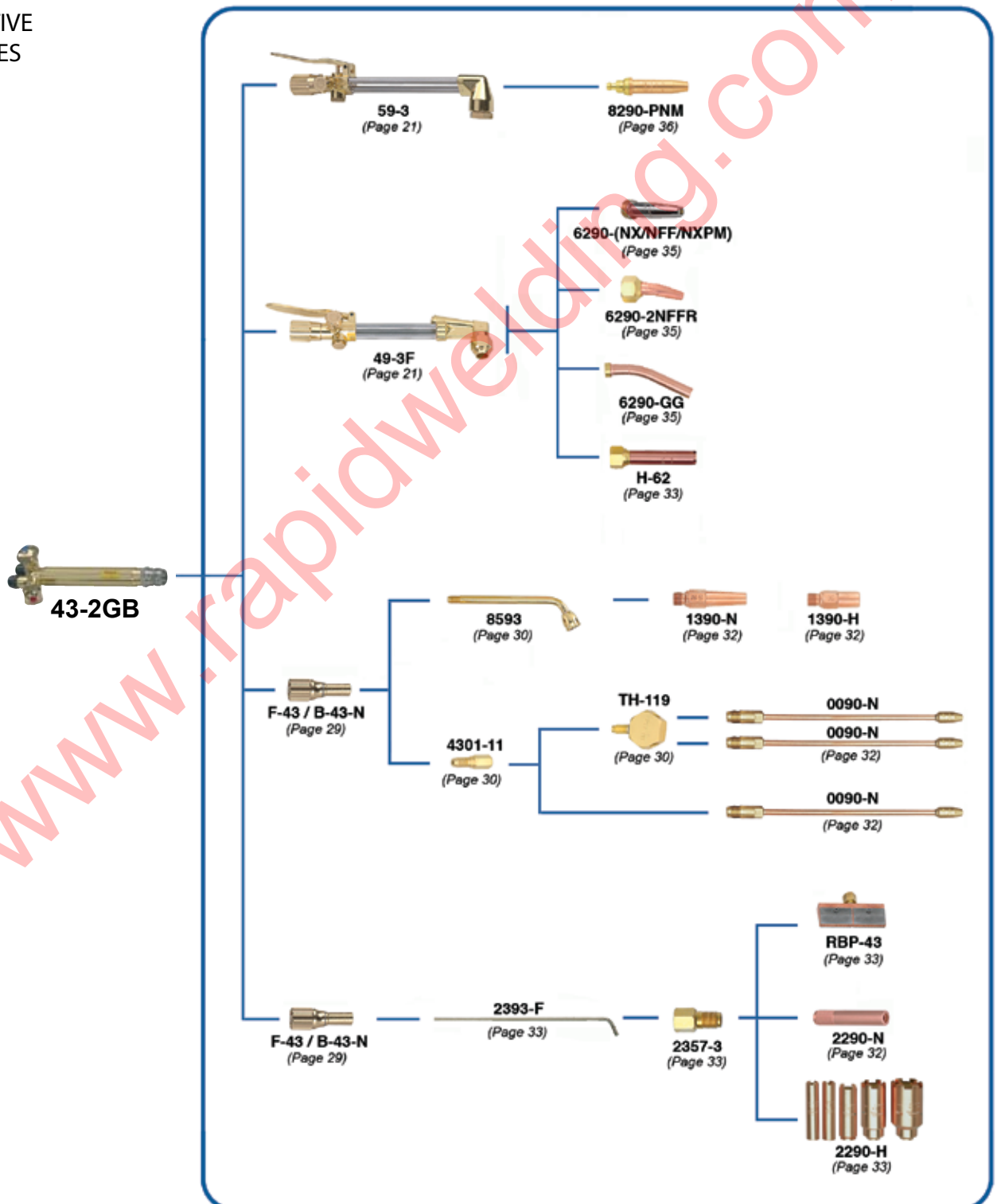


Features:

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

MODEL	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
43-2GB	49-3, 59-3	G 3/8" A-RH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228	0.558	208

ALTERNATIVE FUEL GASES



Model 543-MX

Welds up to 50 mm
Cuts up to 150 mm

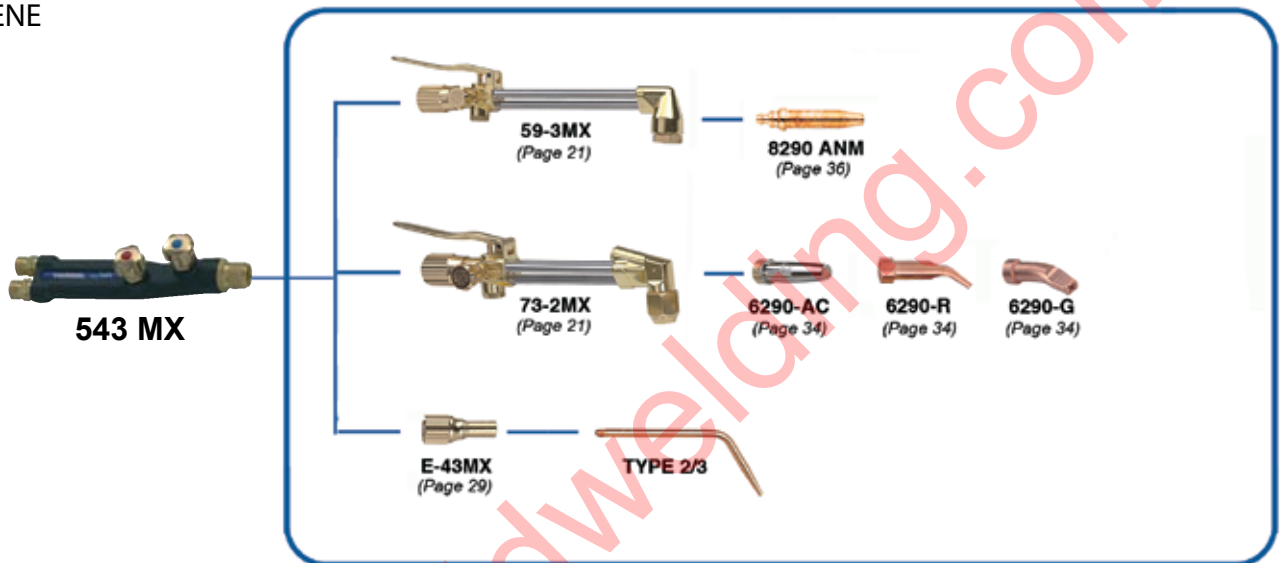


Features:

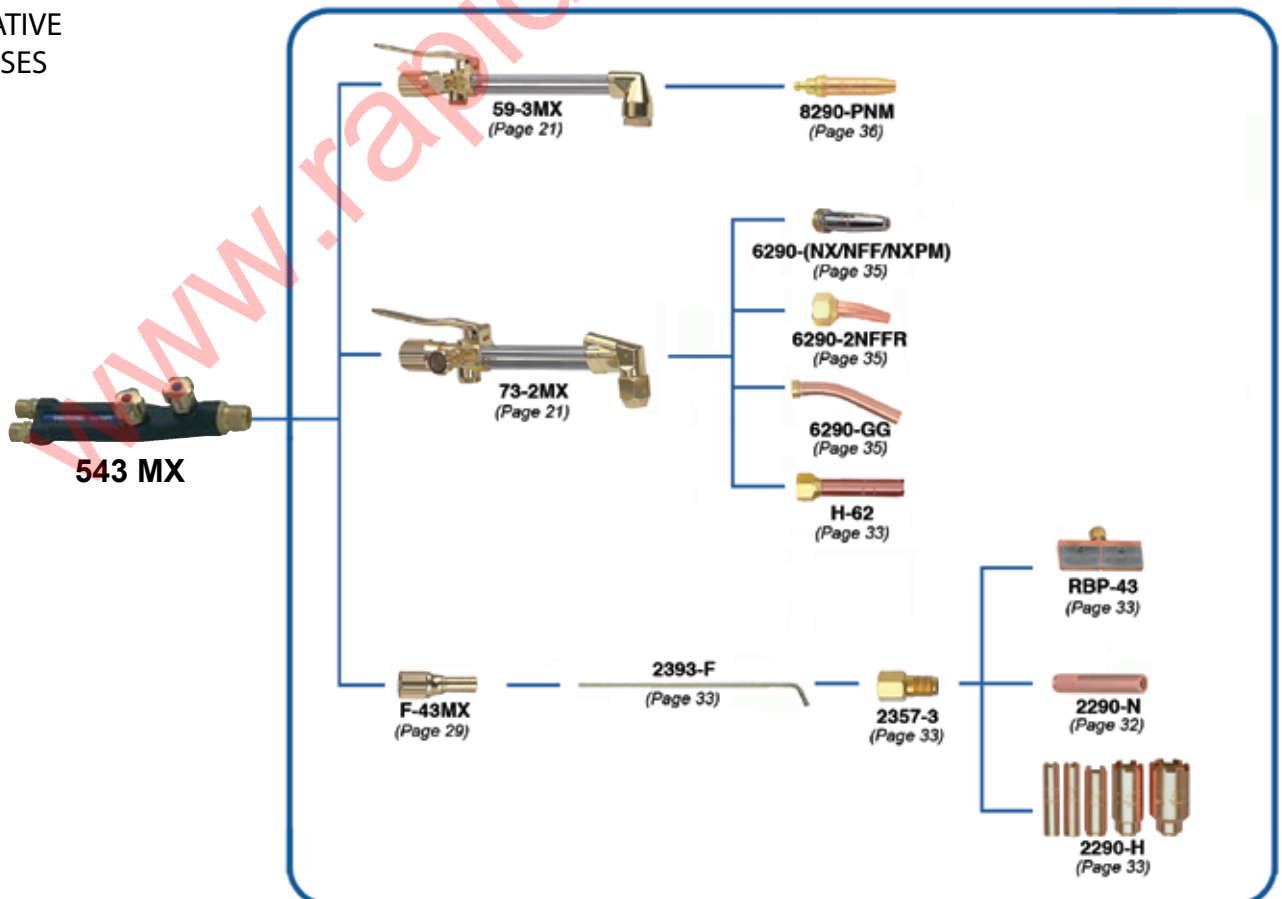
- ▶ Conforms to EN ISO 5172
- ▶ Ergonomic design with front valves
- ▶ Forged aluminium alloy body
- ▶ High precision ball valves
- ▶ Coated with tough black polyurethane for longer life

MODEL	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
543MX	59-3MX 73-2MX	G 3/8" A-RH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228	0.507	211

ACETYLENE



ALTERNATIVE FUEL GASES



Model 50-10-GB

Welds up to 14 mm



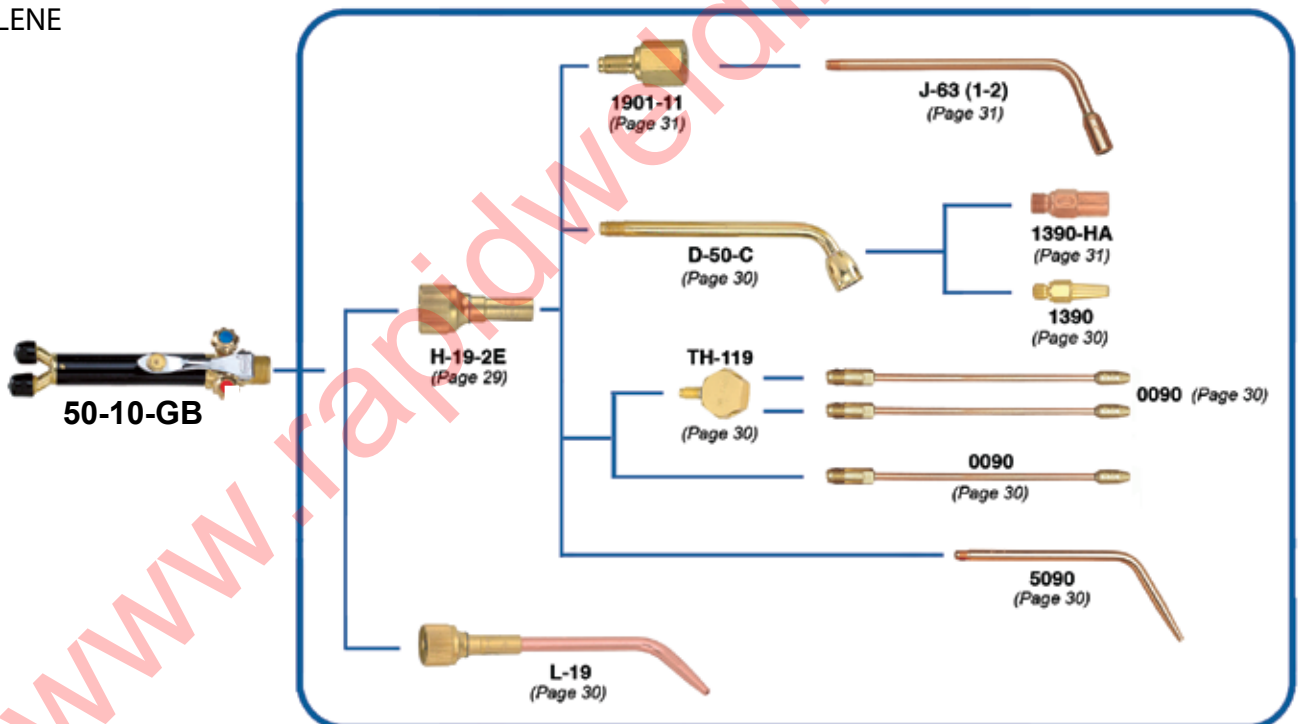
Automatic Torch Handle. The Harris 50-10 automatic torch handle feature a unique gas control system to reduce operating and improve safety and convenience. The thumb operated on/off gas control and adjustable pilot light eliminate relighting and flame readjustment each time the torch is used. The on/off 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.

Features:

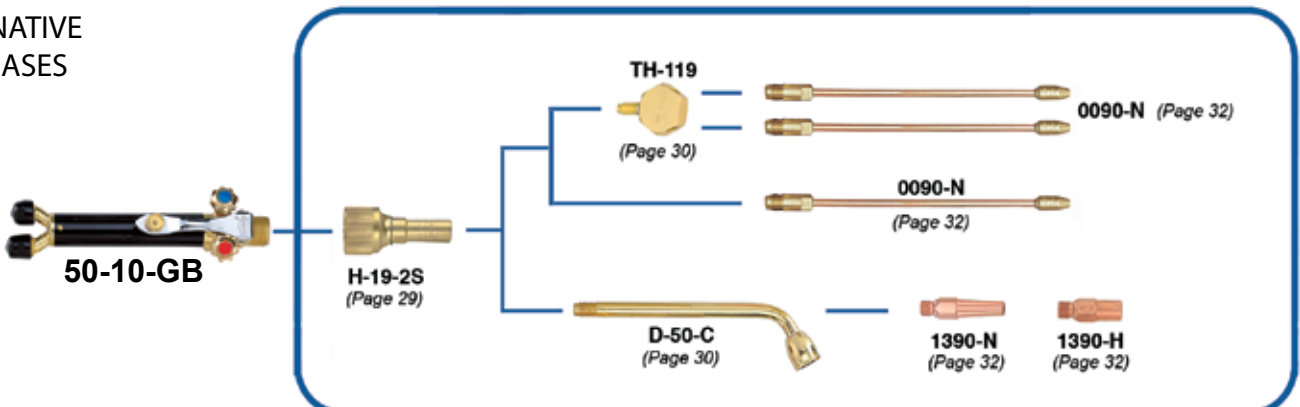
- ▶ Automatic on/off gas control
- ▶ Adjustable pilot light

MODEL	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
50-10-GB	36-2	G 1/4" A-RH-UNI ISO 228	G 1/4" A-LH-UNI ISO 228	0.308	169

ACETYLENE



ALTERNATIVE FUEL GASES



Model 19-6-GB

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.

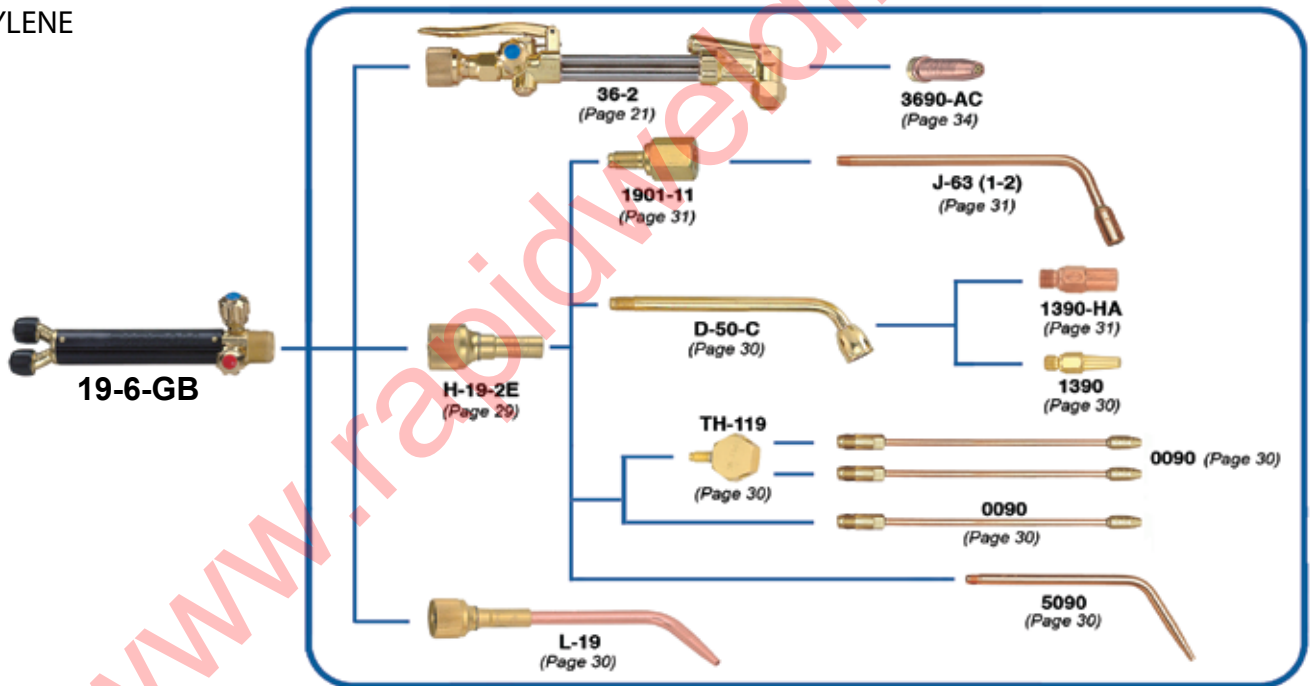


Features:

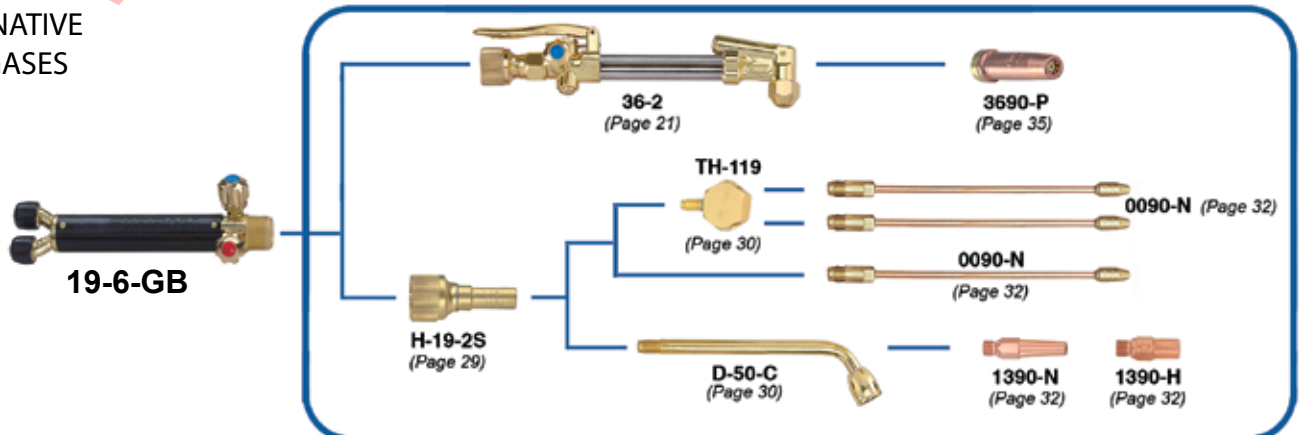
- ▶ Light weight handle
- ▶ Silver brazed twin tube construction for safety and durability
- ▶ Ball valve for fast and accurate flame adjustment

MODEL	COMPATIBLE CUTTING ATTACHMENT	THREAD OXYGEN	THREAD FUEL GAS	WEIGHT (Kg)	LENGTH (mm)
19-6-GB	36-2	G 1/4" A-RH-UNI ISO 228	G 1/4" A-LH-UNI ISO 228	0.238	154

ACETYLENE



ALTERNATIVE FUEL GASES



189-2 Automatic Soldering And Heating Assembly Propane, Natural Gas

- ▶ 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
- ▶ Max. Kcal. output
33.000 Kcal. with propane
21.000 Kcal. with natural gas
- ▶ Torch sold complete with 81-12 tip



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.



81-12 TIP

81-12 Heating Tip

MODEL	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

187 Metal Powder Spraying Assembly Oxy-Acetylene

- ▶ Metal spraying with cobalt, nickel, and iron bases; tungsten carbide and tribaloy
- ▶ 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



MODEL	OXYGEN PRESSURE (bar)		ACETYLENE PRESSURE (bar)		OXYGEN FLOW (l/h)		ACETYLENE FLOW (l/h)		HEATING POWER (Kcal/h)	
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. (1 lb) ideal for small jobs
- ▶ Powder recoveries of up to 95%

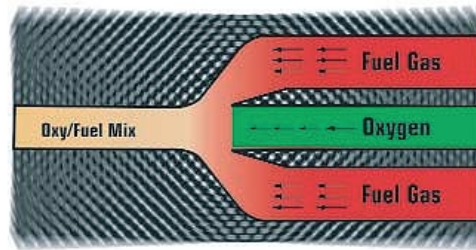
Fuel Mixer

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.

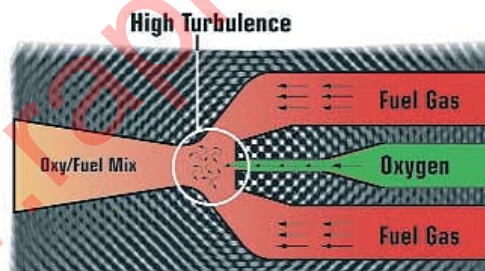
Both gases enter the mixing chamber at controlled pressures.

“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.

Equal Pressure "E" Type Mixer



E-43



E-243



E3-43/F-43



H-19-2E

MODEL	FITS HANDLE	GAS	WELDING TIPS	HEATING TIPS	BRAZING TIPS	FLAME CLEANING TIPS
E-43	43-2	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)	-	-
E-43-MX	543-MX	Oxy-Acetylene	TYPE 2/3 1,2,3,5,7,10,13,18			
E2-43	43-2	Oxy-Acetylene	23A90 tips 13,15	J-63 tips 3,4	-	RBA-43 tips 2,4,6 (+tube 2393+2357-3)
H-19-2E	19-6, 50-10	Oxy-Acetylene	5090 tips 0,1,3,5,6,8,9,10	J-63-tips 1,2 (+adapter 1901-11)	-	-
			0090 tips 1,3,5,6,8 (+tip holder TH-119)	1390-HA (+tube 8593)		
			1390 tips 00,0,1,3,5,6,8,9,10 (+tube D-50-C)			
			0090 tips 1,3,5,6,8			
F-43	43-2	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)
F-43-MX	543-MX	Oxy-Propane				

Low Pressure "F" Type Mixer



B-43-N



H-19-2S



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

MODEL	FITS HANDLE	GAS	HEATING TIPS	BRAZING TIPS	FLAME CLEANING TIPS
B-43-N	43-2	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 2,4,5 (+tube 2393+2357-3)
B-43-1	43-2	Oxy-Propane	-	1390-2N (+tube 8593) 0090-2N (+adapter 4301-11+tip holder TH-119)	-
B-43-3	43-2	Oxy-Propane	-	1390-3N/4N (+tube 8593) 0090-4N (+adapter 4301-11+tip holder TH-119)	-
B-43-5	43-2	Oxy-Propane	-	1390-5N (+tube 8593)	-
B-43-6	43-2	Oxy-Propane	-	1390-6N/7N (+tube 8593) 0090-6N (+adapter 4301-11+tip holder TH-119))	-
B-43-8	43-2	Oxy-Propane	-	1390-8N/H (+tube 8593) 0090-8N (+adapter 4301-11+tip holder TH-119)	-
B-43-9	43-2	Oxy-Propane	-	1390-9N (+tube 8593)	-
B-43-10	43-2	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)	-
			-	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	-				
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	0.3 - 0.8	0.3 - 0.8	2.5	0.015 - 0.2
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 Separate Welding and Brazing Tips

HANDLE	MIXER	TIP TUBE/ ADAPTER	TIP	WELDING ASSEMBLY
43-2	E2-43	-	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)	
19-6 50-10	H-19-2E	D-50-C	1390	L-19
		TH-119	0090	
			5090	



Acetylene Heating Tips and Assemblies



J - 63



**1901-11
ADAPTER**

HANDLE	MIXER	ADAPTER	HEATING TIPS PART NO.
43-2	E-43	-	J-63-1
	E-43		J-63-2
	E2-43		J-63-3
	E2-43		J-63-4
19-6 50-10	H-19-2E	1901-11	J-63-1 J-63-2

HANDLE	MIXER	TIP TUBE	TIP
43-2	E-43	8593	1390-HA
19-6/50-10	H-19-2E	D-50-C	1390-HA



Handle
(page 22-26)

Mixer
(page 29)

Tube and Tip
Assembly

Heating Tips and Assemblies Data Chart



1390-HA

MODEL	OXYGEN & ACETYLENE "EQUAL PRESSURE"		FLOW (l/h)		APPROX. HEATING OUTPUT (Kcal/h)
	MAX. (bar)	MIN. (bar)	OXYGEN	ACETYLENE	
J-63-1	0.15 - 0.4	0.15 - 0.4	600 - 1100	600 - 1000	7450 - 13000
J-63-2	0.2 - 0.5	0.2 - 0.5	900 - 1550	850 - 1400	11100 - 18700
J-63-3	0.3 - 0.6	0.3 - 0.6	1550 - 2500	1400 - 2250	18500 - 29800
J-63-4	0.6 - 1.0	0.6 - 1.05	2500 - 4300	2250 - 3950	29800 - 52000
1390-HA	0.35	0.35	1100	1000	-

Acetylene Flame Cleaning Tips

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

Select Model 2393 tip tube and adapter from page 33.

Oxy-Acetylene RBA Flame Cleaning Heads Data Chart

MODEL	LENGTH (mm)	PRESSURE		FLOW	
		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
RBA-43-4	100	0.7 - 0.9	0.7 - 0.9	1550 - 1650	1400 - 1500
RBA-43-6	150	0.8 - 1.0	0.8 - 1.0	1780 - 1820	1400 - 1650



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	F-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
19-6/50-10	-	B-43-10	1390-10N
		H-19-2S	1390-N/1390-H/ 5090-N

HEAVY DUTY HANDLE	MIXER	TIP TUBE/ ADAPTER	2290-N TIPS
43-2	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 33.

HANDLE	MIXER	ADAPTER	TIP
43-2	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/1390-H Tip Performance Data Chart

MODEL	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	-	1,0				550	140
1390-4N	0090-4N	1,4				700	175
1390-5N	-	1,8				900	225
1390-6N	0090-6N	1,8				1100	275
1390-7N	-	2,1				1350	345
1390-8N	0090-8N	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

2290-H Heating Tips, 2393 Tip Tubes, RBP-43 Flame Cleaning Heads - Alternative Fuels Tips



2290-H



H-62-P

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

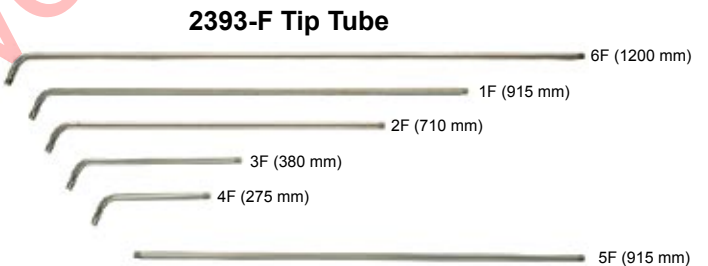
MODEL	PRESSURE (bar)		FLOW (l/h)		APPROX. HEATING OUTPUT (Kcal/h)
	OXYGEN	FUEL GAS	OXYGEN	PROPANE	
2290-1H	1-2	0.5	4000-7000	1000-2000	22300 - 44600
2290-2H	2-3	0.5	5900-12800	1500-3200	33500 - 71400
2290-3H	2-5	1.0	8500-22900	2200-5700	49000 - 127100
2290-4H	3-6	1.0	14000-28400	3600-7100	80300 - 158000
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

MODEL	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.



2357-3
TIP ADAPTER

HANDLE	MIXER	TIP TUBE/ADAPTER	TIP
43-2	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

MODEL	LENGTH (mm)	OXYGEN PRESSURE (bar)	PROPANE PRESSURE (bar)	OXYGEN FLOW (l/h)	PROPANE FLOW (l/h)
RBP-43-2	50	0.5 - 10	0.5	2550 - 3400	700 - 1050
RBP-43-4	100	1.0 - 1.5	0.5 - 1.5	6350 - 8500	1850 - 2500
RBP-43-6	150	2 - 3	1.0 - 1.5	13900 - 18100	3000 - 4150

Acetylene Cutting Tips

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



Plated Shell

MODEL	PLATE THICKNESS (mm)	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	ACETYLENE Low Pressure (bar)
6290-00AC	5 - 10	1.0 - 2.0	0.3 - 0.5	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

MODEL	METAL THICKNESS (mm)	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	WHERE USED
3690-00AC	0 - 6	1.0 - 2.0	0.35	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-G 6290-R

6290 Oxy-Acetylene Specialty Tip Chart

MODEL	APPLICATION	OXYGEN (bar)	ACETYLENE Equal Pressure (bar)	ACETYLENE Low Pressure (bar)	WHERE USED
6290-1G	Gouging Wide 3x6 mm	2.5	0.3 - 0.5	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			
6290-RW	Rivet washing	3.5			

Cleaning Instructions: Use Tip Cleaner C-9

Alternative Fuel Cutting Tips

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



Plated Shell

MODEL	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 - 0.5	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

MODEL	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 - 0.5	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

MODEL	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 - 0.5	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 and 3690-M Oxy-MAPP® Tip Chart



Unplated Shell

MODEL	METAL THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)	WHERE USED
3690-00P/00M	0-6	1.0 - 2.0	0.35	36-2 Cutting Attachment
3690-0P/0M	6-13	1.5 - 2.5		
3690-1P/1M	13-25	2.0 - 3.5		
3690-2P/2M	25-75	3.0 - 4.5		

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

6290-GG

6290-2NFFR



6290-NFW

MODEL	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 - 0.5	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



Nozzle Mix Tip 8290-ANM Oxy-Acetylene

UK PART No	TIP SIZE	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)	WHERE USED
H3240	ANM 1/32	6 - 13	2.0	0.15	NM250, 880NM, 59-3, 59-3MX
H3241	ANM 3/64	13 - 25	2.1	0.15	"
H3242	ANM 1/16	25 - 75	3.0	0.15	"
H3243	ANM 5/64	75 - 100	3.5	0.15	"
H3244	ANM 3/32	100 - 150	4.2	0.2	"
H3246	ANM 1/16	150 - 300	6.2	0.3	NM250, 880NM

Alternative Fuels Cutting Tips

Tip Mix Tips



Two Piece Nozzle Mix Tip 8290-PNM Oxy-Propane

UK PART No	TIP SIZE	PLATE THICKNESS (mm)	OXYGEN (bar)	FUEL GAS (bar)	WHERE USED
H3250	PNM 1/32	6 - 13	2.0	0.21	NM250, 880NM, 59-3, 59-3MX
H3251	PNM 3/64	13 - 25	2.1	0.21	"
H3252	PNM 1/16	25 - 75	3.0	0.21	"
H3253	PNM 5/64	75 - 100	3.5	0.3	"
H3254	PNM 3/32	100 - 150	4.2	0.4	"
H3256	PNM 1/16	150 - 300	6.2	0.5	NM250, 880NM

High Capacity Tips

Special Order Only For Model 136-2 Torch



136 Style One-Piece Oxy-Propane, Natural Gas Tip Chart*

MODEL	TIP SIZE	PLATE THICKNESS INCHES	OPERATING PRESSURE PSIG	GAS FLOW CU.FT./HR.
136-11	11	12-9	Fuel Gas 8-15 Oxygen 60 to 80	60 to 120 950 to 2900
136-13	13	19-28	Fuel Gas 10-15 Oxygen 60 to 80	60 to 120 2100 to 4000
136-15	15	28-36	Fuel Gas 15-20 Oxygen 80 to 100	80 to 150 2500 to 4800

* NOT FOR USE WITH ACETYLENE

Special Order Only For Model 6000 Torch



**STYLE 213
Cutting Tip**

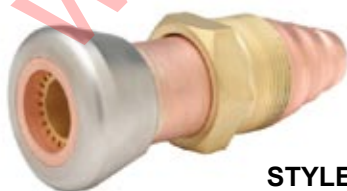
Style 213 Cutting Tips Oxy-Propane, Natural Gas*

STYLE	SIZE	CUT	THICKNES OPERATING	GAS FLOW CU.FT./HR.
213	10	20"-40"	Fuel Gas 15-20 PSIG Oxygen 80-120 PSIG	130-350 4000-5500
213	15	40"-50"	Fuel Gas 15-20 PSIG Oxygen 80-130 PSIG	150-400 5000-6500
213	20	Over 50"***	Fuel Gas 15-20 PSIG Oxygen 80-120 PSIG	180-450 6000-8000

* NOT FOR USE WITH ACETYLENE

** THREE HOSE OPTION RECOMMENDED FOR CUTTING OVER 50 "

Special Order Only For Model 6075 Scarfing Torch



**STYLE 250
Scarfing Tip**

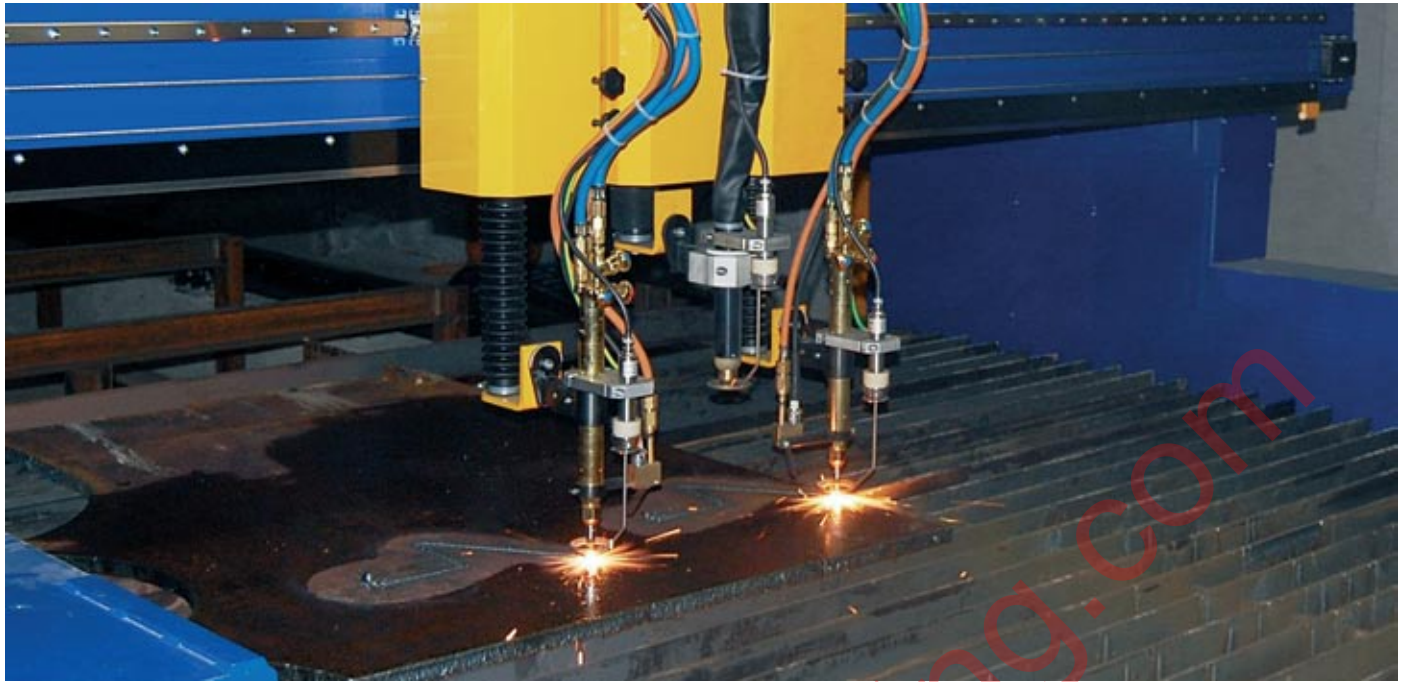
Style 250 Scarfing Tip - Propane, Natural Gas*

STYLE	SIZE	SCARF WIDTH	OPERATING PRESSURES	GAS FLOW CU.FT./HR.
250	18	UP TO 2 1/2"	Fuel Gas 15-20 PSIG Oxygen 80-120 PSIG	130-350 4000-5500

* NOT FOR USE WITH ACETYLENE

For proper cutting performance the following must be adhered to:

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



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 40-41)

Model 133-2/133-2F

Features:

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

Model 133-2V/133-2FV

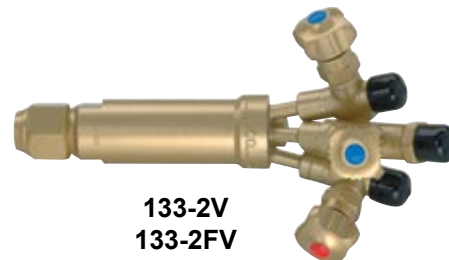
Features:

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

133-2
133-2F



133-2V
133-2FV



LOW PRESSURE "F" INJECTOR TYPE TORCHES
(FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUEL)

MODEL	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)

MODEL	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 40-41)

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



198-2T
198-2TF



198-2TR (with rack)



198-2
198-2F



198-4
98-4

LOW PRESSURE TORCHES (FOR ACETYLENE)				
MODEL	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	35
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
198-4B	3 tube G 1/4"	0.65	110	32
98-4B	3 tube G 1/4"	0.73	110	35

LOW PRESSURE "F" INJECTOR TYPE TORCHES (FOR MAXIMUM PERFORMANCE WITH ALTERNATIVE FUELS)				
MODEL	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	32
198-2TFR	3 tube & rack	1.39	250	32
198-4BF	3 tube	0.65	110	32
98-4BF	3 tube G 1/4"	0.73	110	35

Machine Cutting Tips

**6290-VVC
Plated Shell**



6290-NH



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

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

MODEL	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE (bar)	PREHEAT OX PRESSURE (High ¹ - 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 - 125	280 - 190	7.0	2.5 - 0.7	8000	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

MODEL	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE (bar)	PREHEAT OX PRESSURE (High ¹ - 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 - 125	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

**6290-VAX
Plated Shell**



**6290-VPM
Plated Shell**



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

6290-NHM



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

MODEL	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

MODEL	PLATE THICKNESS (mm)	CUTTING SPEED (mm/min)	CUTTING OX PRESSURE ¹ (bar)	PREHEAT OX PRESSURE (High - Low) (bar)	PREHEAT OX FLOW (Low Pressure) (l/h)	CUTTING OX FLOW (l/h)	PREHEAT FUEL FLOW ² (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 47 for complete check valve information).

Machine Cutting Guide

<p>CORRECT CUTTING</p>		<p>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.</p> <p>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.</p>
<p>DIRTY TIP</p>		<p>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.</p>
<p>CUTTING SPEED</p>		<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<p>TIP DISTANCE</p>		<p>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.</p> <p>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.</p>
<p>GAS ADJUSTMENT</p>		<p>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.</p> <p>TOO HOT PREHEAT - Rounded top edge caused by too much preheat. Excess preheat does not increase cutting speed. It only wastes gases.</p>
<p>WHAT TO LOOK FOR IN BEVEL CUTTING</p>		<p>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.</p> <p>POOR QUALITY - Gouging is the most common fault, and is caused by either speed too fast or pre-heat flame too mild. Another fault is a rounded top edge, caused by too much preheat indicating excessive gas consumption.</p>

UK Cutting & Welding Kits



Cuts up to 150 mm. Equal Pressure - Welds up to 3 mm (Acetylene)

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2301	543MX	E43MX	59-3MX	8290 3/64 ANM	TYPE 2/3 3,5,7,10	REGULATORS HOSE SET, FBA's, NOZZLE CLEANER, SPANNER, LIGHTER, GOGGLES	PLASTIC CARRY CASE

Cuts up to 75 mm. Equal Pressure - Welds up to 3 mm (Acetylene)

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2302	19-6GB	H192GB	36-2	3690 00AC, ASC	LW SWAGED 1,3,5,7,10	REGULATORS HOSE SET, FBA's, NOZZLE CLEANER, SPANNER, LIGHTER, GOGGLES	PLASTIC CARRY CASE

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

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2303	19-6GB	H192E	36-2	3690 00AC, ASC	1390 0,1,3,5,6,8,9	D50C NECK TUBE, NOZZLE CLEANER, SPANNER, LIGHTER, GOGGLES	PLASTIC CARRY CASE

UK Cutting & Welding Kits



Equal Pressure - Welds up to 20 mm (Acetylene)

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2304	19-6GB	H192E	-	-	1390 0,1,3,5,6, 8,9,10	D50C NECK TUBE	PLASTIC CARRY CASE

Cuts up to 150 mm. Equal Pressure - Welds up to 6 mm (Acetylene)

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2305	543MX	E43MX	59-3MX	8290 1/32 ANM 3/64 ANM	TYPE 2/3 1,3,5,7,10,13,18	NOZZLE CLEANER, SPANNER, LIGHTER	PLASTIC CARRY CASE

Equal Pressure - Welds up to 6 mm (Acetylene)

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2306	19-6GB	H192GB	-	-	LW SWAGED 1,3,5,7,10,13,18	-	PLASTIC CARRY CASE

Cuts up to 75 mm. Equal Pressure - Welds up to 3 mm (Acetylene)

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2307	19-6GB	H192GB	36-2	3690 00AC, ASC	LW SWAGED 1,3,5,7,10,13	NOZZLE CLEANER, SPANNER, LIGHTER	PLASTIC CARRY CASE

Low Pressure - Propane Brazing

UK PART No	HANDLE	MIXER	CUTTING ATTACHMENT	CUTTING TIPS	WELDING TIPS	ACCESSORIES	PACKAGING
H2316	19-6GB	H192S	-	-	1390N 2,3,5,6,8,9,10	D50C NECK TUBE	PLASTIC CARRY CASE

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)



H1134 - H1133

Regulator type

UK PART N°	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H ₂		
H1134	Fuel gas	30.000	-	1.5	5	3.5	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
H1133	Ox	100.000	15	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228

*1 bar=100 kPa



H1308 - H1307

UK PART N°	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H ₂		
H1308	Fuel gas	60.000	-	1.5	5	3.5	G 3/8"-LH-UNI ISO 228	G 3/8" A-LH-UNI ISO 228
H1307	Ox	180.000	15	-	-	-	G 3/8"-RH-UNI ISO 228	G 3/8" A-RH-UNI ISO 228

*1 bar=100 kPa

Torch Type



188-GG (L & R)

UK PART N°	FUEL GAS	MAX FLOW l/h	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
			OX	AC	LPG	H ₂		
188-GGGBL	Fuel gas	20.000	-	1.5	5	3.5	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	5	3.5	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

*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)

MODEL	FUEL GAS	MAX PRESSURE (bar) *				INLET THREAD	OUTLET THREAD
		OX	AC	LPG	H ₂		
88-3SVL	Fuel gas	-	1.5	5	3.5	G 1/4" A-LH-UNI ISO 228	G 1/4"-LH-UNI ISO 228
88-3SVR	Ox	15	-	-	-	G 1/4" A-RH-UNI ISO 228	G 1/4"-RH-UNI ISO 228
88-6CVTL	Fuel gas	-	1.5	5	3.5	9/16"-18-UNF-2A-LH	9/16"-18-UNF-2B-LH
88-6CVTR	Ox	15	-	-	-	9/16"-18-UNF-2A-RH	9/16"-18-UNF-2B-RH
88-6GBL	Fuel gas	-	1.5	5	3.5	G 3/8" A-LH-UNI ISO 228	G 3/8"-LH-UNI ISO 228
88-6GBR	Ox	15	-	-	-	G 3/8" A-RH-UNI ISO 228	G 3/8"-RH-UNI ISO 228

*1 bar=100 kPa

Quick Action Coupling

- ▶ 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



MODEL	DESCRIPTION	CONNECTION TYPE	TYPE
CPL6	Male	Hose connection Ø 1/4" (6 mm)	Hose
CPR6			
CPL8		Hose connection Ø 5/16" (8 mm)	Hose
CPR8			
CPL		Threads 9/16"-18-UNF-2B-LH	Torch
CPR			
CPLGB		Threads G 3/8"-LH-UNI ISO 228	Torch
CPRGB			
QACL6	Female	Hose connection Ø 1/4" (6 mm)	Hose
QACR6			
QACL8		Hose connection Ø 5/16" (8 mm)	Hose
QACR8			
QACL10		Hose connection Ø 3/8" (10 mm)	Regulator
QACR10			
QACLGB		Threads G 3/8"-LH-UNI ISO 228	Regulator
QACRGB			

Converters



38-2GBL 38-2GBR

MODEL	FROM (FEMALE)	TO (MALE)
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
38-5GL	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

Tip Nuts



UK PART. N°	CUTTING TORCHES / CUTTING ATTACHMENTS	TIPS
H2117	133, 142, 198, 49-3, 62-5, 73-2MX	6290
H2020	36-2	3690
H2115	59-3MX, 880-NM, NM-250	8290

Roller Guides & Circle Cutting Attachments

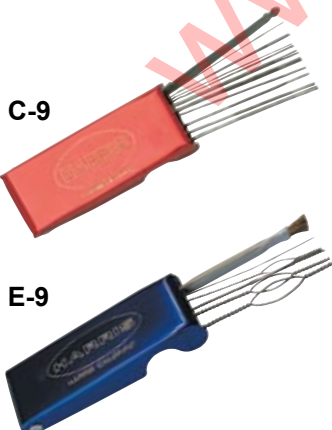


MODEL	ANGLE	CONNECTION FOR TIPS	CUTTING ATTACHMENTS / CUTTING TORCHES
I-69-6	45°-135°	6290	142, 62-5, 49-3, 73-2MX
I-69-7		3690	36-2
R-69-3B	90°	6290	142, 62-5, 49-3, 73-2MX
R-69-4C		8290	NM-250, 880-NM, 59-3MX

Tip Cleaners

C-9 Calibrated tip cleaner for hand cutting tips

E-9 Calibrated tip cleaner for machine cutting tips



Welding & Cutting Hoses

Hoses highly resistant to abrasion and flame
Hoses conform to EN 559
Fitted lengths conform to EN 1256

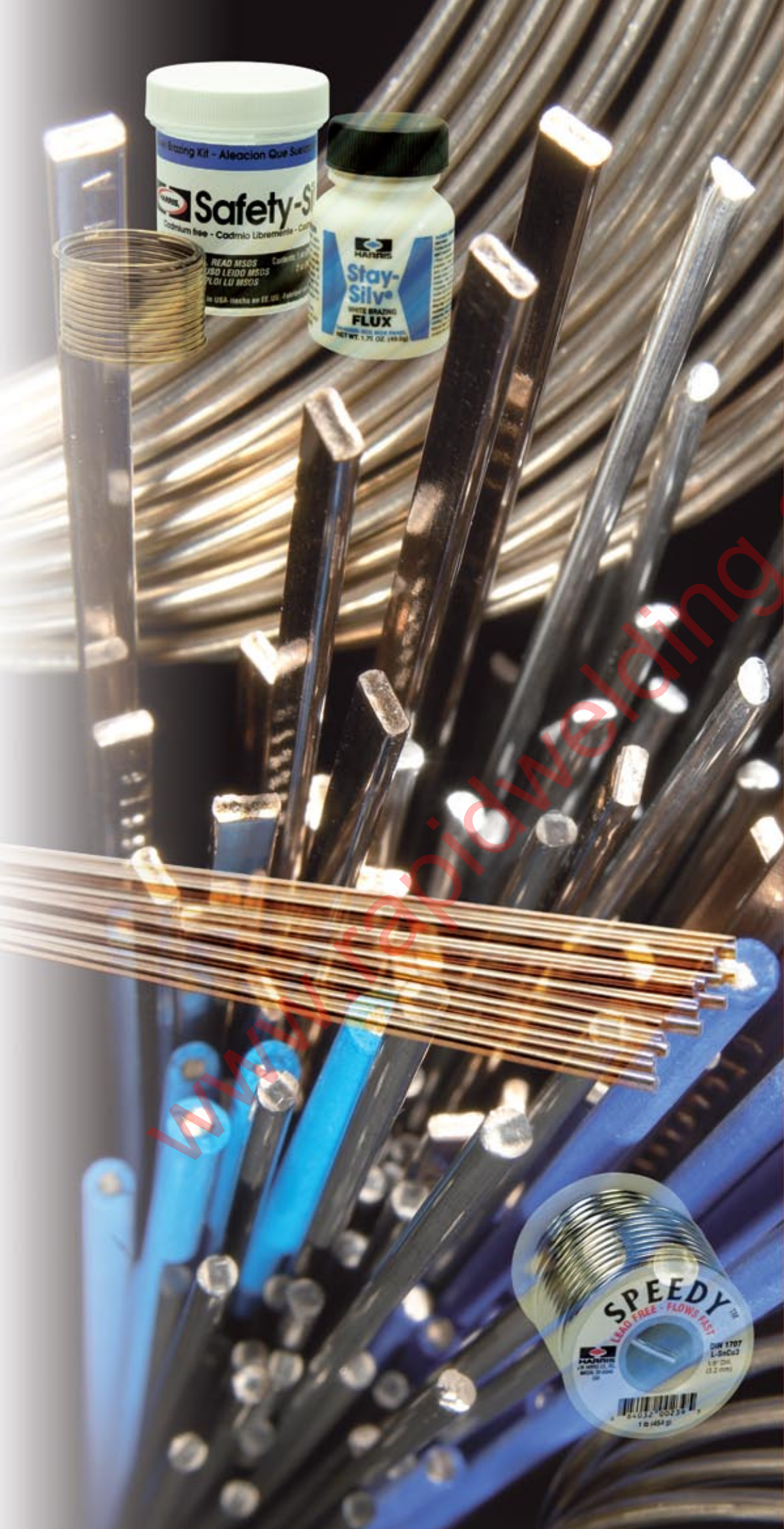
Available in
6 mm, 8 mm and 10 mm diameter,
Oxygen, Acetylene and Propane.



Wrench



I-62-X



BRAZING CONSUMABLES

FORMATS

The Harris Alloys are available in different formats

- ▶ Wires
- ▶ Strips
- ▶ Rods / flux coated rods
- ▶ Spools
- ▶ Rings
- ▶ Additional items available upon request



SILVER BRAZING ALLOYS

The Harris high silver brazing alloys are cadmium free. Only the purest metals are used, and precision production procedures ensure consistency in product quality and performance.

Harris provides alloys with a silver percentage included between 20 and 60 %. They are free flowing with unequalled capillary performance and deep penetration.

Ductility is high, corrosion resistance is suitable for all chemical applications offering high elongation properties. Suitable for use in the food processing industry.



PHOS-COPPER BRAZING ALLOYS

Phos/copper alloys are used to braze copper to copper and copper to brass. The phosphorus content in these alloys make them self-fluxing on copper.

The Harris Products Group is the brazing industries forerunner in developing the technology to control phosphorus content. This controls alloy melting temperatures so exactly, that brazing operators no longer need to make temperature adjustments from one batch of filler metals to the next. Operators know that with Harris alloys, the result will be the same with every batch, every time. Harris can provide phos-copper brazing alloys with a silver percentage between 2 and 18 %.



LEAD FREE SOLDERS

Extremely versatile, the Harris silver-bearing solders are widely used throughout the industry as a better than-brazing method in many situations.

The important advantage of these solders is the greater strength of the overall component. After joining its lower working temperatures eliminate the weakening of the base metals caused by annealment from high brazing heat.

The result is stronger and more economical.

These alloys range in temperature from 430°F to 535°F



BRAZING AND SOLDERING FLUXES

The use of fluxes is extremely important for a perfect metallurgical bond between base metal and filler metal for maximum strength.

To ensure the best connections, Harris produces a wide variety of flux products designed for specific applications throughout a number of different industries.

HARRIS FILLER METAL SELECTION CHART HIGH SILVER ALLOYS & FLUXES

Additional alloys and sizes not listed may be available upon request.

METAL TO BE JOINED	PART N°	DESCRIPTION	Ag% / Kg	SPECIFICATIONS	SOLIDUS C°	LIQUIDUS C°	FLUIDITY RATING	FLUXES
HIGH SILVER ALLOYS (CADMIUM BEARING)								
Steel, Nickel and Copper Alloys	JWH0151	L-AG20CD 1,5 X 500 mm - Flux Coated	20	EN 1044 : AG 309	605	765	4	Stay-Silv® White if required
	JWH0456	L-AG20CD 1,5 X 500 mm	20	EN 1044 : AG 309	605	765	4	
	JWH0411	L-AG20CD 2,0 X 500 mm - Flux Coated	20	EN 1044 : AG 309	605	765	4	
	JWH0303	L-AG20CD 2,0 X 500 mm	20	EN 1044 : AG 309	605	765	4	
	JWH1363	L-AG34CD 1,5 X 500 mm - Flux Coated	34	EN 1044 : AG 305	BS 1845: AG11	700	7	
	JWH0693	L-AG34CD 1,5 X 500 mm	34	EN 1044 : AG 305	BS 1845: AG11	700	7	
	JWH1894	L-AG34CD 2,0 X 500 mm - Flux Coated	34	EN 1044 : AG 305	BS 1845: AG11	700	7	
	JWH1173	L-AG34CD 2,0 X 500 mm	34	EN 1044 : AG 305	BS 1845: AG11	700	7	
	JWH0153	L-AG40CD 1,5 X 500 mm - Flux Coated	40	EN 1044 : AG 304	593	630	9	
	JWH0158	L-AG40CD 1,5 X 500 mm	40	EN 1044 : AG 304	593	630	9	
JWH0601	L-AG40CD 2,0 X 500 mm - Flux Coated	40	EN 1044 : AG 304	593	630	9		
JWH0425	L-AG40CD 2,0 X 500 mm	40	EN 1044 : AG 304	593	630	9		
HIGH SILVER ALLOYS (WITHOUT CADMIUM)								
Steel, Nickel, Copper and Stainless Steel Alloys	JWH0433	L-AG34SN 2,0 X 500 mm - Flux Coated	34	EN 1044 : AG 106	630	730	4	Stay-Silv® White and Stay-Silv® Black to Stainless Steel if required
	JWH0291	L-AG34SN 2,0 X 500 mm	34	EN 1044 : AG 106	630	730	4	
	JWH0444	L-AG40SN 1,5 X 500 mm - Flux Coated	40	EN 1044 : AG 105	BS 1845: AG20	710	6	
	JWH0445	L-AG40SN 2,0 X 500 mm	40	EN 1044 : AG 105	BS 1845: AG20	710	6	
	JWH1046	L-AG55SN 1,5 X 500 mm - Flux Coated	55	EN 1044 : AG 103	BS 1845: AG14	660	8	
	JWH0955	L-AG55SN 1,5 X 500 mm	55	EN 1044 : AG 103	BS 1845: AG14	660	8	
	JWH0908	L-AG55SN 2,0 X 500 mm	55	EN 1044 : AG 103	BS 1845: AG14	660	8	
	Universal	JWH0706	STAY-SILV POWDER FLUX, 250 GR JAR	250 gr.	EN 1045 FH-10	EN 1045 FH-10		
JWH0177		STAY-SILV PASTE FLUX, 1LB JAR	50 gr.	EN 1045 FH-10	EN 1045 FH-10			
JWH0174		STAY-SILV BLACK FLUX, 1 LB-JARS	450 gr.	EN 1045 FH-21	EN 1045 FH-21			
JWH0193		600 Powder	450 gr.	AWS A5.31 FB3-J				

L-Ag20Cd: Wide melting range. Suitable for large gaps. Recommended to join brass, bronze and copper-nickel alloys. Yellow colour.

L-Ag34Cd: Medium melting range. Suitable for not too tight joints. Recommended for steel and copper alloys. Light yellow. Clearance 0,05 - 0,13mm

L-Ag40Cd: Very narrow melting range. Suitable for tight joints (0,05-0,13mm). Recommended for all type of alloys, except stainless steel, aluminum and titanium alloys. White yellow. Clearance 0,05 - 0,20mm

L-Ag34Sn: This Cadmium free / Tin-bearing alloy combines good fluidity with low temperatures to produce clean joints. Medium elongation and mechanical properties. Broadly used in the Food and HVAC industries. Light yellow color. Clearance 0,05 - 0,13mm

L-Ag40Sn: Ductile, free-flowing alloy that offers good mechanical properties; penetration into tight connections at a medium temperature range. Good anti-corrosion properties to join Stainless Steel. Ideal to Join Tungsten Carbides. Silver to light yellow color as in polished brass. Clearance 0,1 - 0,25mm

L-Ag55Sn: Its particular composition maximizes the benefits of low fusion range and good wet. Broadly used in the food industry and ideal to avoid stress corrosion.

STAY-SILV® (WHITE FLUX) An all purpose, low temperature flux for use in silver brazing. Use with most ferrous and non ferrous metals. Not recommended on aluminum, magnesium, and titanium. The active temperature range is 566°C - 8710°C

STAY-SILV® (BLACK FLUX) An all purpose, high temperature flux for use in silver brazing. Formulated for applications where the work is subjected to rapid, localized heating. Particularly useful in applications where large amounts of refractory oxides may form, such as with stainless steel, carbide, heavy parts, prolonged heating cycles. The active temperature range is 566°C - 982°C

HARRIS FILLER METAL SELECTION CHART

BRONZE - BRASS ALLOYS & PHOS-COPPER ALLOYS

Additional alloys and sizes not listed may be available upon request.

METAL TO BE JOINED	PART N°	DESCRIPTION	Ag%	Kg	SPECIFICATIONS	SOLIDUS C°	LIQUIDUS C°	FLUIDITY RATING	FLUXES
Steel with Steel	BRONZE - BRASS								
	JWH0217	Low Fuming Bronze 1/8" X 36" - Flux Coated	0	1	Similar to CU304 BS: 1845 CZ6, 1453 C2	870	900	2	600 Powder Flux
	JWH0212	Low Fuming Bronze 1/16" X 36" / 1,60 X 914 mm	0	1	Similar to CU304 BS: 1845 CZ6, 1453 C2	870	900	2	
	JWH0213	Low Fuming Bronze 3/32 X 36" / 2,40 X 914 mm	0	1	Similar to CU304 BS: 1845 CZ6, 1453 C2	870	900	2	
PHOS-COPPER ALLOY									
Copper with Copper and Copper with Brass	JWH0694	L-CuP7 1,5 X 500 mm	0	1	EN 1044 : CP105 BS 1845: CP3	710	820	5	No flux to join Copper to Copper. Stay-Silv® White to Copper to Brass
	JWH0033	L-CuP7 2,0 X 500 mm	0	1	EN 1044 : CP105 BS 1845: CP3	710	820	5	
	JWH0031	L-CuP7 2,5 X 500 mm	0	1	EN 1044 : CP105 BS 1845: CP3	710	820	5	
	JWH0126	DYNAFLOW FLAT MARKED		1		645	796	3	
	JWH1635	BLOCKADE		1	AWSA5.8 BCuP-5	637	674	4	
	JWH1636	BLOCKADE		1		637	674	4	
	JWH0094	L-Ag2P 1,5 X 500 mm	2	1	EN 1044 : CP105 BS 1845: CP2	645	825	4	
	JWH0096	L-Ag2P 2,0 X 500 mm	2	1	EN 1044 : CP105 BS 1845: CP2	645	825	4	
	JWH0092	L-Ag2P 2,0 X 2,0 X 500 mm	2	1	EN 1044 : CP105 BS 1845: CP2	645	825	4	
	JWH0088	L-Ag2P 2,5 X 500 mm	2	1	EN 1044 : CP105 BS 1845: CP2	645	825	4	
	JWH0382	L-Ag2P 3,0 X 500 mm	2	1	EN 1044 : CP105 BS 1845: CP2	645	825	4	
	JWH1105	L-Ag5P 1,5 X 1,5 X 500 mm	5	1	EN 1044 : CP104 BS 1845: CP4	645	815	3	
	JWH0120	L-Ag5P 2,0 X 500 mm	5	1	EN 1044 : CP104 BS 1845: CP4	645	815	3	
	JWH0118	L-Ag5P 2,0 X 2,0 X 500 mm	5	1	EN 1044 : CP104 BS 1845: CP4	645	815	3	
	JWH0792	L-Ag5P 2,4 X 500 mm	5	1	EN 1044 : CP104 BS 1845: CP4	645	815	3	
JWH0551	L-Ag5P 3,0 X 500 mm	5	1	EN 1044 : CP104 BS 1845: CP4	645	815	3		
JWH0130	L-Ag15P 2,0 X 500 mm		15	EN 1044 : CP102 BS 1845: CP1	645	800	3		

Harris American Low Fuming Bronze is a copper/zinc alloy developed for braze welding steel, cast iron, and copper. It can also be used for build up and overlay. Harris American Bronze flows easily with minimal fuming. Deposits can be machined and have excellent ductility.

L-CuP7: This low cost alloy is suitable for most copper-to-copper or brass joints where good fit-up exists, and the assemblies are not subject to excessive vibration nor movement. The phosphorus content serves as a "self-fluxing" agent in joining copper to copper.

DYNAFLOW® melts and flows at temperatures very close to Stay Silv 15, and provides comparable brazed mechanical properties. This makes Dynaflo an excellent cost effective alternative to the 15% silver alloys. This premium, medium range silver alloy has been meticulously formulated to even tighter specifications than our standard copper-to-copper alloys.

BLOCKADE® is a proprietary phosphorus-tin-silicon alloy engineered to provide a low cost alternative to silver bearing filler metals. It is self fluxing on copper and its lower melting temperature makes it an excellent choice for brass. Blockade flows rapidly but can be used to "cap" brazed joints.

L-Ag2P: This economical, low silver alloy, is designed to broaden the melting range of Harris 0, and has proven useful in some specific applications where mechanical properties are less critical.

L-Ag5P: This medium-range alloy is well suited where close fit-up cannot be maintained. This filler metal is somewhat more ductile than Harris 0 or the L-Ag2P.

L-Ag15P: This filler metal is excellent for situations in which close fit-up does not exist, and where thermal expansion and service vibration are involved.



DET NORSKE VERITAS
QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certificato No. / Certificate No. **CERT-04356-99-AQ-IND-SINCERT**

Si attesta che / This certifies that

IL SISTEMA DI GESTIONE PER LA QUALITÀ DI / THE QUALITY MANAGEMENT SYSTEM OF

HARRIS CALORIFIC S.r.l.

Via Nazionale, 79 - 40065 Pianoro (BO) - Italy

Via Amendola, 1 - 40065 Pianoro (BO) - Italy

**È CONFORME AI REQUISITI DELLA NORMA PER I SISTEMI DI GESTIONE PER LA QUALITÀ
CONFORMS TO THE QUALITY MANAGEMENT SYSTEMS STANDARD**

UNI EN ISO 9001:2000 (ISO 9001:2000)

Questa certificazione è valida per il seguente campo applicativo:

This certificate is valid for the following products or services:

*(Ulteriori chiarimenti riguardanti lo scopo e l'applicabilità dei requisiti della normativa si possono ottenere consultando l'organizzazione certificata)
(Further clarifications regarding the scope and the applicability of the requirements of the standard(s) may be obtained by consulting the certified organisation)*

Progettazione, produzione, vendita ed assistenza di riduttori di pressione e flussimetri per gas industriali e medicinali; cannelli ed accessori per il taglio, la saldatura ed il riscaldamento a gas. Commercializzazione di dispositivi medici per ossigeno terapia

Design, manufacture, sale and service of pressure regulators and flow-metering devices for use with industrial and medical gases; gas cutting, welding and heating torches and accessories. Trade of medical devices for oxygen-therapy

*Luogo e data
Place and date*

Agrate Brianza, (MI) 2006-12-29

*Data Prima Emissione:
First Issue Date:*

1999-05-06

*per l'Organismo di Certificazione
for the Accredited Unit*

Det Norske Veritas Italia S.r.l.

Lead Auditor: GIANGUIDO ANDOLFI

Settore EA: 19 - 18

SINCERT

ACCREDITAMENTO ORGANISMO DI CERTIFICAZIONE E SPEDIZIONE

SGQ Registrazione N. 003A
SQA Registrazione N. 003D
PRQ Registrazione N. 003B

Membro degli Accordi di Mutuo Riconoscimento EA e IAF
Signatory of EA and IAF Mutual Recognition Agreements

Vittore Marangon
Management Representative

*La validità del presente certificato è subordinata a sorveglianza periodica (ogni 6, 9 o 12 mesi) e al riesame completo del sistema con periodicità triennale
The validity of this certificate is subject to periodical audits (every 6, 9 or 12 months) and the complete re-assessment of the system every three years
Le aziende in possesso di un certificato valido sono presenti nella banca dati sul sito www.dnv.it e sul sito Sincert (www.sincert.it) - All the companies with a valid certificate are online at the following addresses: www.dnv.it and www.sincert.it*

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 ³ /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 ³ /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

Nm³/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

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

AIR ► to

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.

Harris Calorific therefore reserves the right to make changes in specifications without notice.

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