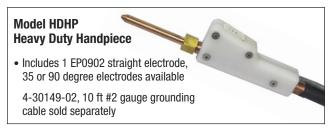


Model THP Tweezer Handpiece Includes 1 pair ET0402 electrodes

Model PHP Probe Handpiece • Includes 1 pair EP0402 electrodes for handpiece and 1 pair EP0802 for probe



Model GHP Handpiece • Includes 1 pair EP0802 electrodes, straight extension and 30° elbow adapter





Accessories

A successful resistance spot welding process generally requires a welding power supply, a spot welding head, and a weld monitor or weld checker. Selecting the right accessories for these critical components can enhance and improve your results, and provide additional safety for your operators.

HANDPIECES

Generally speaking, welding handpieces should be used only when it is impractical to use a welding head. Their relative ease of use, combined with low maintenance and flexibility, make them well-suited for small batch production and R&D environments.

- Both the Model THP Tweezer, and PHP Probe Handpiece are used to weld small parts which require less than 125 watt-seconds or 1/2 cycle AC, and welding forces less than 7 pounds. The Model HFP High Force Probe is used for applications which require higher energy and/or force than either THP or PHP. All three models are force fired to ensure repeatability.
- The Model GHP and HDHP are switch fired handpieces and can be used to weld or tack materials that don't require stringent force control

Handpieces are available with either 4 ft or 10 ft long cables. As a general rule, the energy delivered to the workpiece with 10 ft #6 cables will be approximately 15% of that delivered with 4 ft #6 cables. Handpieces are furnished with cables, as indicated in the following table, and one pair of RWMA electrodes.

| Rating | THP | PHP | HFP | GHP | HDHP |
|----------------------------|------------------|---------------------|----------------------|---------------|--------|
| DC (watt seconds) | 125 | 125 | 500 | 125 | 500 |
| AC (KVA-1/2 cycle) | 2 | 2 | 7.5 | 2 | 10 |
| Force Range – Max (Min) | 7 lb (1.0 lb) | 7 lb (1.0 lb) | 25 lb (3 lb) | N/A | N/A |
| Cable Size (AWG) | #2 or #6 | #2 or #6 | #2 | #2 or #6 | #2 |
| Cable Length | 4 ft or 10 ft | 4 ft or 10 ft | 5 ft or 10 ft | 4 ft or 10 ft | 7 ft |
| Electrode Series | ET0400 | EP0400 or EP0400 | EP0800 and EP0800 | EP0800 | EP0900 |

| Accessories are an important part of any welding system. For convenience AMADA WELD TECH provides: | or your |
|--|---------|
| Index | Page |
| Welding Handpieces | 1 |
| Optics and Illumination Accessories | 2 |
| Chillers, Fume Extractors, Pull Tester | 3 |
| Footpedals and Footswitches | |
| Electrode Force Gauges | 5 |
| Electrode Material and Electrodes | |
| UNIBOND and UNITIP Electrodes | 7 |
| Kovar Ribbon, Polishing Disks, Tab Material | 7 |
| Cables, Terminals, Connectors and Adapters | |
| Electrode Holders and Adapters | 9 |
| Starter and Calibration Kits | |
| For assistance in selecting accessories or for accessories not in | |

For assistance in selecting accessories or for accessories not included in this data sheet, contact your local AMADA WELD TECH sales representative or telephone our customer service department at (626) 303-5676.

OPTIC ACCESSORIES

Two versions of the SMZ-460 are available for a wide range of magnification. The model 10-395-01 uses a 10X eyepiece and has a magnification range of 3.5 - 15X. The model 10-395-02 uses a 20X eyepiece and has a magnification range of 7.5 - 30X. Both utilize the 0.5X objective lens and have a working distance of 181 mm. Its lightweight housing is airtight, anti-mold and anti-electrostatic. It includes the C-Bonder Arm and is compatible with any LT-050B or TL-080B welding head.

The Model OMA Optic Mounting Assembly (2) provides the posts and hardware required to support the optic pod. The Model BPTL, THIN-LINE® base plate (3) is drilled to accept all TL-080B THIN-LINE weld heads and the optic mounting assembly. The base plate is 6 inches wide x 14-7/8 in deep x 1/4 in (15.2 cm x 37.8 cm x 6.3 mm). The BLF0I Fiber Optic Illuminator System (4) transmits light through bifurcated, fiber optic light guides to produce cool, flicker-free, high-intensity light at the worksite. The model BFL0I operates at voltages from 90-250 VAC, 50/60Hz.



The Model TMMWC (Trinocular Mounted Microscope with Camera) Stereo Zoom Microscope is supplied with 10X

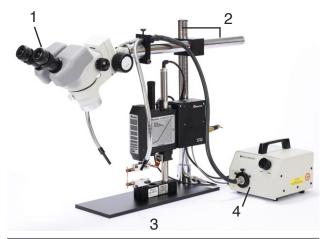
eyepieces and a 0.5X objective lens. It provides magnification which is adjustable from 4.0-25X and a working distance of 211 mm. It is available with mounting kits for weld heads shown in table below or sold as standalone system using part

number 270-607 noted below. It is compatible with most SR-070A or TL-080B Series welding heads.

LOUPE

An eye loupe is an indispensable item for quick observation. This pocket sized tool will magnify the process 10x and allows for the first line of inspection.







The Model IVSC (Inspection

The Model IVSC (Inspection Vision System w/Camera) is a standalone system and contains a macro video lens on extended post stand with HD measurement camera and diffused LED ring light. Includes 23 in LCD monitor and flash card for saving images.

MAGNIFICATION

In many cases, the process is smaller than what the human eye can see, thus magnification is key to properly observing the process results. We offer a range of different magnification devices that can be used to look at the weld to detect small defects. An eye loupe is an indispensable item that can be used for quick observation. To take pictures of the process, portable, USB microscope, desktop stereoscopes, and trinocular microscopes are available.



USB Microscope and stand

MICROSCOPE KITS

| Kit Number | Description | Applicable Weld Heads |
|------------|--|---|
| 10-430-03 | SMZ-460, 15X Stereo Microscope kit, Includes OMA, BPTL and BFLOI-LED, 120/230 VAC, 181 mm working distance | TL-080B, TL-086B, TL-087B |
| 10-430-04 | SMZ-460, 30X Stereo Microscope kit, Includes OMA, BPTL and BFLOI-LED, 120/230 VAC, 181 mm working distance | TL-080B, TL-086B, TL-087B |
| 10-431-03 | SMZ-460, 15X Stereo Microscope kit, Includes OMA, and BFLOI-LED, 120/230 VAC, 181 mm working distance | SR-071A |
| 10-431-04 | SMZ-460, 30X Stereo Microscope kit, Includes OMA, and BFLOI-LED, 120/230 VAC, 181 mm working distance | SR-071A |
| 10-432-03 | SMZ-460, 15X Stereo Microscope kit, Includes OMA2, and BFL0I-LED, 120/230 VAC, 181 mm working distance | SR-072A, TL-180B |
| 10-432-04 | SMZ-460, 30X Stereo Microscope kit, Includes OMA2, and BFL0I-LED, 120/230 VAC, 181 mm working distance | SR-072A, TL-180B |
| 10-433-01 | SMZ-460, 15X Stereo Microscope kit, Includes BFL0I-LED, 120/230 VAC, 181 mm working distance | LT-050B, and any weld head with existing microscope mount** |
| 10-433-02 | SMZ-460, 30X Stereo Microscope kit, Includes BFL0I-LED, 120/230 VAC, 181 mm working distance | LT-050B, and any weld head with existing microscope mount** |
| 10-434-01 | SMZ-460, 15X Stereo Microscope kit, Includes Series 320 weld head stand, OMA352 microscope mount, BFL0I-LED, 120/230 VAC, 181 mm working distance | SL-320 Series weld heads |
| 10-434-02 | SMZ-460, 30X Stereo Microscope kit, Includes Series 320 weld head stand, OMA352 microscope mount, BFL0I-LED, 120/230 VAC, 181 mm working distance | SL-320 Series weld heads |
| 10-440-01* | IVSC, Inspection Station, Includes Macro lens, Stand, Ring light, Smart Camera w/measurement tool, 23 in LCD monitor | N/A |
| 10-450-01* | TMMWC, Trinocular Micro Scope Kit, Includes 1080P HD Camera, 23 in LCD Monitor, OMA, BPTL and BFL0I-LED, 120/230 VAC | TL-080B, TL-086B, TL-087B |
| 10-451-01* | TMMWC, Trinocular Micro Scope Kit, Includes 1080P HD Camera, 23 in LCD Monitor, OMA2, BPTL and BFLOI-LED, 120/230 VAC | SR-072A, TL-180B |
| 270-607* | Trinocular Microscope System, Includes Trinocualr Stereo Microscope, 0.4x video coupler, 10x eyepieces and 0.5x Objective lens, Focus Mount, 1080P HD camera, 23 in LCD monitor, | LT-050B, and any weld head with existing microscope mount** |
| 475-549 | Jeweler's Loupe | N/A |
| 8-453-01 | USB Microscope and Stand | N/A |

^{*}Includes image capture software ** Requires BFLOI-LED light source

FUME EXTRACTION

Spot welding, fusing and brazing are all processes that can eject material of various sizes from the part. Fume extractors are necessary to remove harmful airborne particles so that operators and engineers are not exposed. These sometimes toxic fumes need to be collected and properly filtered. Use the following table to identify the best fume extractor for a given process:



| Part Name | Part Number | Process |
|----------------------|-------------|-----------------|
| Fume Extractor-Small | 4-61359-01 | Spot Welding |
| Fume Extractor-Large | 720-225 | Fusing, Brazing |



VORTEX COLD AIR BLASTER

Cold Air Blasters use vortex tube technology and filtered compressed air to produce sub-freezing air as low as -30 deg F for numerous industrial spot cooling applications. With no moving parts to wear out, Cold Air Blasters require no electricity, just a compressed air source. The Vortex Cold Air Blaster System includes a magnetic base and a 5 micron auto-drain compressed air filter. Great for spot cooling when water cooling is not sufficient or available.

Compressed air pressure: (psig) 80 - 100 Inlet size: (NPT pipe thread, inches) 1/4

Minimum outlet temperature, deg F: (at 70 deg F inlet air) -10

Air consumption @ 100 psig: (scfm) 15 Outlet air flow rate: (scfm) 2 to 15

Dimensions, inches - overall length: 19 5/8,

Diameter: 1 34, nozzle length: 9



WATER **CHILLERS**

chillers necessary for cooling higher powered welders. They control temperature of the water to keep condensation from building when facility water cannot. The following chillers provide



the necessary cooling capacity for the approximate kVA rating running at full power and duty cycle. The table below is a general rule, always consider each circuit in the welding system for required GPM (Gallons Per Minute)

| Model | Part Number | kVA | GPM (STD) |
|----------------------------|-------------|------|-----------|
| OTC-1.0A Chiller | 4-90837-02 | <100 | 4 |
| OTC-2.0A Chiller | 4-90837-05 | <200 | 7 |
| OTC-5.0A Chiller | 4-90837-07 | <500 | 12 |
| OTC-7.5A Chiller | 4-90837-09 | <500 | 18 |
| Water connector kit, small | 4-69984-01 | | |
| Water connector kit, large | 4-66985-01 | | |

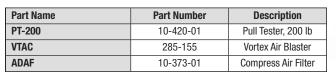
PULL TESTER

One method to test the strength of a weld is to pull the two joined materials apart. The 200 lb pull tester can be configured for tension compression testing applications up to 200 lbF (890 N) for laboratory and production needs. The 10-420-01, 200 lbs pull tester comes with motorized test stand, force gauge, and wedge grips. Platform is customizable for specific applications.



ADAF

Auto drain air filter, 5 micron element, metal bowl with sight glass, differential pressure indicator, for use with all air actuated weld heads.





FOOTSWITCHES FOR AIR ACTUATED HEADS

The Model FS2L Two-Level Footswitch is intended for use with all AMADA WELD TECH power supplies. The first level actuates the weld head via the air valve driver of the power supply; the second level, along with the force firing switch in the weld head, initiates the welding current.

The Model FS1L One-Level Footswitch also may be used with all AMADA WELD TECH power supplies. The single level switch actuates the weld head and initiates the welding current simultaneously (when the firing switch closes).

MODEL FS

Single level firing switch without safety guard. Used to fire power supplies immediately upon initiation.



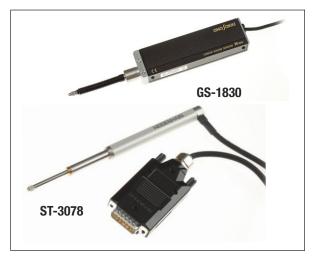
FOOTPEDALS

The Model CP Cable Pedal pivots under the heel for optimum force control. It is equipped with an adjustable down-stop which prevents the application of excess force. It is rated at 25 pounds, and can be used with the LT-050B-F, TL-080B-F, TL-086B-F, TL-087B-F weld heads.

The Model MSP Medium Force Swing Pedal is fully adjustable for length, stroke, angle and left or right-foot operation. It provides a 5-to-1 mechanical advantage and is rated at 100 pounds. It is used with TL-083B-F, TL-084B-F, TL-088B-F, TL-089B-F, and TL-180B-F weld heads.



FS1L



DISPLACEMENT SENSORS

Displacement sensors can be used to measure initial part thickness, collapse during weld, and final part thickness. When used with the proper weld control or weld monitor, displacement sensors can also be used to stop the weld when the desired collapse has occurred.

| Model | IPB-5000B | MM-400A | WM-100A | MG-300A |
|------------------------------------|-----------|---------|---------|---------|
| GS-1813 (13 mm) GS-1830 (30 mm) | Х | Х | | |
| ST1278 (12 mm) ST3078 (30 mm) | | | Х | Х |



DISPLACEMENT BRACKETS

Holds Heidenhain type displacement sensors ST-1278 and ST-3078 to THIN-LINE series weld heads as noted.

ELECTRODES

Highly conductive workpiece materials generally require electrodes of high resistance. Similarly, hard materials require softer, copper-based electrodes. When welding dissimilar materials such as copper and nickel, the normal choice would be a molybdenum electrode against the copper and a GLIDCOP electrode against the nickel.

If stored energy or half-cycle equipment is used to weld dissimilar materials, place the more resistive material against the negative electrode. Likewise, if similar materials with thickness ratios greater than 4:1 are welded, place the thinner material against the negative electrode.

To clean electrode surface and maintain shape, electrodes should be dressed with either 600 or 1000 grit silicon carbide paper, rather than with a file. Refer to page 7 for polishing disks.



ELECTRODE FORCE GAUGES

Electrode force gauges are used to establish weld schedules and to calibrate weld heads and handpieces. They are color coded to indicate the usable force range. The accuracy is $\pm 2\%$ of full scale.

| Model | Capacity | Scale | Notes |
|----------|----------|----------------|------------|
| FG20* | 20 lb | 20 lb x 0.2 lb | Serialized |
| FG100* | 100 lb | 100 lb x 1 lb | Serialized |
| FG200* | 200 lb | 200 lb x 2 lb | Serialized |
| FG10kg* | 10 kg | 10 kg x 0.1 kg | Serialized |
| FG100kg* | 100 kg | 100 kg x 1 kg | Serialized |

^{*}Calibration Certificate models also available

ELECTRODE MATERIALS

GLIDCOP - DISPERSION STRENGTHENED COPPER with 0.15% ALUMINUM OXIDE - 68B Rockwell hardness, 92% conductivity. Longer life, greater thermal stability, higher strength than RWMA 2. Generally interchangeable with RWMA 2 without changing schedules. All AMADA WELD TECH weld heads are supplied with GLIDCOP electrodes.

RWMA 2 - COPPER CHROMIUM ALLOY - 83B Rockwell hardness, 85% conductivity. Used for welding steels, nickel alloys and other high resistance materials.

RWMA 3 - COPPER COBALT BERYLLIUM ALLOY - 100B Rockwell hardness, 48% conductivity. Used for welding high resistance materials requiring high weld forces.

RWMA 11 - COPPER TUNGSTEN ALLOY 99B Rockwell hardness, 46% conductivity. Usually inserted into an RWMA 2 shank. Used for welding cuprous and precious metals. Used for light projection welding dies.

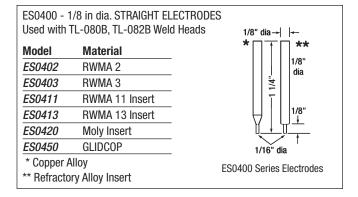
RWMA 13 - TUNGSTEN - 70A Rockwell hardness, 32% conductivity. Usually inserted into an RWMA 2 shank. Cannot be machined but may be ground to the desired shape. Used to weld non-ferrous metals such as copper and brass.

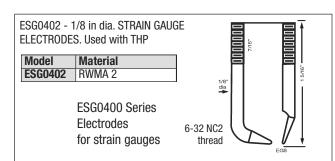
RWMA 14 MOLYBDENUM - 90B Rockwell hardness, 31% conductivity. Usually inserted into an RWMA 2 shank. Machineable. Used for welding copper, silver, gold and their alloys.

| | 1/8 in dia. PROBE ELEC THP and PHP Handpie | | 6-32 NC2 thread |
|--------|---|----------|------------------------------|
| Model | Material | | 1 5/16" - l |
| EP0402 | RWMA 2 | | |
| EP0403 | RWMA 3 | | - 7/16"→ |
| EP0450 | GLIDCOP | EPC | 0400 Series Electrodes |

1/8 Inch Electrodes

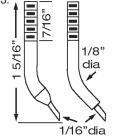
| | 1/8 in dia. OFFSET ELI TL-080B Series Weld | 1/8" dia → I |
|----------|---|--|
| Model | Material | " "" |
| E00402 | RWMA 2 | |
| E00403 | RWMA 3 | |
| E00411 | RWMA 11 Insert | |
| E00413 | RWMA 13 Insert | "9\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ |
| E00420 | Moly Insert | Ĩ |
| * Copper | Allov | 1/16" dia. |
| 1 | ory Alloy Insert | E00400 Series Electrodes |





ET0400 - 1/8 in dia. TWEEZER ELECTRODES. Used with THP and PHP

| Model | Material |
|--------|----------------|
| ET0402 | RWMA 2 |
| ET0403 | RWMA 3 |
| ET0411 | RWMA 11 Insert |
| ET0413 | RWMA 13 Insert |
| ET0420 | Moly Insert |
| ET0450 | GLIDCOP |



ET0400 Series Electrodes

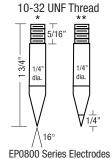
- * Copper Alloy
- ** Refractory Alloy Insert

1/4 Inch Electrodes

EP0800 - 1/4 in dia. PROBE ELECTRODES. Used with GHP and HFP handpieces

| Model | Material |
|--------|----------------|
| EP0802 | RWMA 2 |
| EP0803 | RWMA 3 |
| EP0811 | RWMA 11 Insert |
| EP0820 | Moly Insert |

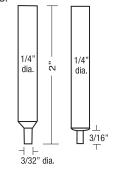
- * Copper Alloy
- ** Refractory Alloy Insert



ES0800 - 1/4 in dia. STRAIGHT ELECTRODES. Used with TL-082B, TL-083B, TL-084, and TL-180B Series Weld Heads

| Model | Material |
|---------|------------------------|
| ES0802 | RWMA 2 |
| ES0803 | RWMA 3 |
| ES0850 | GLIDCOP |
| ES0811 | RWMA 11 Insert |
| ES0813 | RWMA 13 Insert |
| ES0820 | Moly Insert |
| ES0820A | 1/8 in dia Moly Insert |

- * Copper Alloy
- ** Refractory Alloy Insert



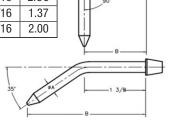
**

ES0800 Series Electrodes

EP0900 - 5/16 in dia. ELECTRODES.
Used with HDHP Switch Fired Handpiece

| | Description | Α" | B" |
|-----------|-------------|------|------|
| EP0902 | Straight | 5/16 | 2.00 |
| EP0902-90 | 90 degree | 5/16 | 1.37 |
| EP0902-35 | 35 degree | 5/16 | 2.00 |

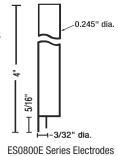
Unless otherwise noted, all material is RWMA Class II copper

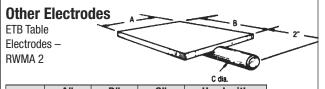




ES0800E - 0.245 in dia. ECCENTRIC STRAIGHT ELECTRODES. Used with TL-088B, TL-089B, and TL-188B Weld Heads and HE38V and HE88 holders

| Model | Material |
|----------|-------------------------|
| ES0802E | RWMA 2 |
| ES0803E | RWMA 3 |
| ES0850E | GLIDCOP |
| ES0820E | Moly Insert |
| ES0850ES | GLIDCOP (0.062 in face) |





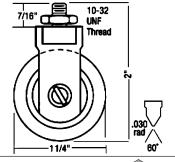
| | A" | B" | C" | Used with | |
|------|----|-------|-----|----------------|-----|
| ETB2 | 2 | 1-3/4 | 3/8 | TL-080B Series | 1 |
| ETB3 | 3 | 3 | 5/8 | TL-180B Series | |
| | | | | В | _A. |
| | | | 7 | | |

 A"
 B"
 Used with

 ETB4
 3
 3-3/4
 TL-080B, TL-086B

EW4002 1.25 in WHEEL ELECTRODE RWMA2, Used with HW1090

HW1090 Holder with EW4002 Wheel



4-38924-01 — SR-073A-Z Pincer Electrode, Moly, sold as pair

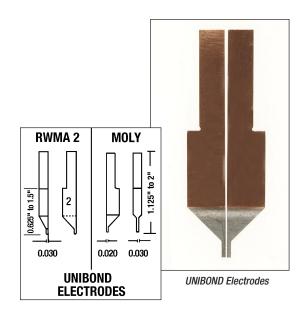
| | Material |
|------------|------------|
| 4-38924-01 | Molybdenum |
| • | |



Electrode Rod (12 in length)

| Model | Material | Dia.(in) | Model | Material | Dia.(in) |
|--------|----------|----------|---------|----------|----------|
| ER0213 | RWMA 13 | 1/16 | ER0802 | RWMA 2 | 1/4 |
| ER0220 | MOLY | 1/16 | ER0803 | RWMA 3 | 1/4 |
| ER0402 | RWMA 2 | 1/8 | ER0811* | RWMA 11 | 1/4 |
| ER0403 | RWMA 3 | 1/8 | ER0820* | Moly | 1/4 |
| ER0413 | RWMA 13 | 1/8 | ER0850 | GLIDCOP | 1/4 |
| ER0420 | MOLY 1/8 | 1/8 | ER1202 | RWMA 2 | 3/8 |
| ER0450 | GLIDCOP | 1/8 | ER2002 | RWMA 2 | 5/8 |

* 8 in long



UNIBOND® ELECTRODES

UNIBOND Electrodes are used for parallel gap bonding and reflow soldering. Generally, RWMA2 copper UNIBOND Electrodes are used with resistive and/or hard materials such as gold plated kovar and nickel. Molybdenum UNIBOND Electrodes are used for bonding conductive or soft materials such as copper or gold. The face of a UNIBOND Electrode is 0.020 in (0.5 mm) wide by 0.030 in (0.75 mm) deep. In unfixtured applications, this limits their use to bonding ribbons (wire) which are at least 0.010 in (0.25 mm) wide because of the limited visibility.

| | | | | FACE | |
|----------|------------------|----------|-------|-------|--------|
| Model | Material | Length | Width | Depth | Length |
| EU1000 | RWMA2 | 1.125 in | 0.020 | 0.030 | 0.080 |
| EU1002 | RWMA2 | 2 in | 0.020 | 0.030 | 0.080 |
| EU2030M | Copper Clad Moly | 1.125 in | 0.020 | 0.030 | 0.080 |
| EU2030ML | Moly | 2 in | 0.020 | 0.030 | 0.080 |
| EU2537M | Moly | 1.125 in | 0.025 | 0.037 | 0.100 |
| EU2030MR | Moly | 1.125 in | 0.020 | 0.030 | 0.080 |

UNITIP® ELECTRODES

UNITIPS are electrodes for parallel gap bonding of gold plated kovar, copper, or gold ribbons (wires) which are smaller than 0.010 in (0.25 mm). They are made from two pieces of molybdenum, which are permanently bonded to an insulating spacer. This fixed gap and bonded construction results in a tip which wears uniformly when properly dressed. The length of the UNITIP and the flat area on the front allows it to bond ribbons extremely close to the walls of packages as deep as 0.450 in (11.5 mm). The narrower THIN-LINE "L" series UNITIPS have a tapered profile, enabling them to be used closer to the corners of packages.

| | FACE | | | Max. force | Max. force | |
|----------|-------|-------|-------|------------|------------|------|
| Model | Width | Depth | Gap | Length | OZ. | kgf. |
| UTM111L | 0.009 | 0.010 | 0.001 | 0.025 | 33 | 0.94 |
| UTM112L | 0.010 | 0.010 | 0.002 | 0.025 | 33 | 0.94 |
| UTM152L | 0.010 | 0.005 | 0.002 | 0.025 | 17 | 0.47 |
| UTM222L | 0.018 | 0.020 | 0.002 | 0.050 | 132 | 3.75 |
| UTM237L | 0.030 | 0.020 | 0.007 | 0.050 | 161 | 4.57 |
| UTM111C | 0.009 | 0.010 | 0.001 | 0.025 | 33 | 0.94 |
| UTM112C | 0.010 | 0.010 | 0.002 | 0.025 | 33 | 0.94 |
| UTM222C | 0.018 | 0.020 | 0.002 | 0.050 | 132 | 3.75 |
| UTM224C | 0.020 | 0.020 | 0.004 | 0.050 | 132 | 3.75 |
| UTM224L | 0.020 | 0.020 | 0.004 | 0.050 | 132 | 3.75 |
| UTM112CS | 0.010 | 0.010 | 0.002 | 0.015 | 33 | 0.94 |
| UTM112LS | 0.010 | 0.010 | 0.002 | 0.015 | 33 | 0.94 |

All dimensions in inches unless noted.

NOTE: Refer to UNITIP & UNIBOND Electrodes datasheet.

POLISHING DISKS

Model PD Polishing Disks, 600 and 1000 grit silicon carbide, 1.5 in diameter. Package of 50.

10-031-02, PD-600 10-031-02-01, PD-1000

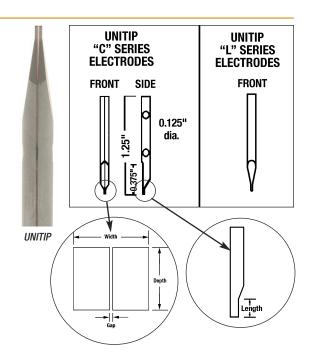
Model CPD Ceramic Polishing Disks, 1 in square x .025 in thick. Package of 20.



1 1/2 in dia. Polishing Disk



1 in square Ceramic Polishing Disk



GOLD PLATED KOVAR RIBBON

| Model | Size |
|-------|------------------------------|
| KR207 | 0.002 in x 0.0065 in x 10 ft |
| KR305 | 0.002 in x 0.005 in x 10 ft |
| KR310 | 0.003 in x 0.010 in x 20 ft |
| KR315 | 0.003 in x 0.015 in x 20 ft |
| KR320 | 0.003 in x 0.020 in x 20 ft |

NICKEL TAB MATERIAL

| Part number | Part Name | Description |
|-------------|--------------------------------|-------------|
| 145-025 | 145-025, Nickel Battery Tab | Nickel 201 |
| | 0.250 in x 1.125 in x 0.005 in | |
| 145-026 | 145-026, Nickel Battery Tab | Nickel 201 |
| | 0.375 in x 1.125 in x 0.005 in | |

Other sizes available upon request

CABLES, TERMINALS, CONNECTORS AND ADAPTERS

Common size weld cables, sold in pairs

| #2 AWG Cables | | |
|---------------|--------|---------------|
| Part Number | Length | Terminal Size |
| 18-2U-AA-12 | 12 in | 5/16 in |
| 18-2U-AA-16 | 16 in | 5/16 in |
| 18-2U-AA-18 | 18 in | 5/16 in |
| 18-2U-AA-24 | 24 in | 5/16 in |
| 18-2U-AA-28 | 28 in | 5/16 in |
| 18-2U-AA-36 | 36 in | 5/16 in |
| 18-2U-AA-40 | 40 in | 5/16 in |
| 18-2U-AA-48 | 48 in | 5/16 in |
| 18-2U-DD-6 | 6 in | 10-32 |
| 18-2U-DD-14 | 14 in | 10-32 |
| 18-2U-DD-17 | 17 in | 10-32 |
| 18-2U-DD-30 | 30 in | 10-32 |
| 18-2U-DD-36 | 36 in | 10-32 |
| 18-2U-DD-42 | 42 in | 10-32 |
| 18-2U-DD-48 | 48 in | 10-32 |

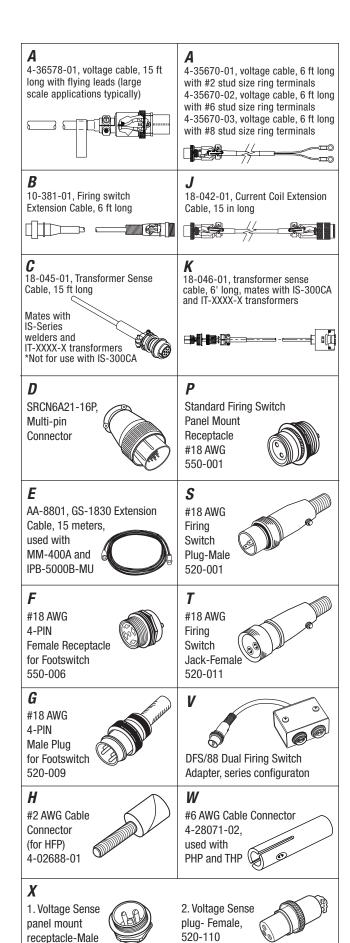
2/0 AWG Cables

| Part Number | Length | Terminal Size |
|--------------|--------|---------------|
| 18-20U-BB-12 | 12 in | 5/16 in |
| 18-20U-BB-16 | 16 in | 5/16 in |
| 18-20U-BB-24 | 24 in | 5/16 in |
| 18-20U-BB-30 | 30 in | 5/16 in |
| 18-20U-BB-36 | 36 in | 5/16 in |
| 18-20U-BB-48 | 48 in | 5/16 in |

4/0 AWG Cables

| 4/U AVVU Udbiles | | | | |
|------------------|--------|---------------|--|--|
| Part Number | Length | Terminal Size | | |
| 18-40U-EE-24 | 24 in | 5/16 in | | |
| 18-40U-EE-36 | 36 in | 5/16 in | | |
| 18-40U-EE-45 | 45 in | 5/16 in | | |
| 18-40U-EE-48 | 48 in | 5/16 in | | |
| 18-40U-EE-57 | 57 in | 5/16 in | | |
| 18-40U-EE-60 | 60 in | 5/16 in | | |
| 18-40U-JJ-11 | 11 in | 7/16 in | | |
| 18-40U-JJ-12 | 12 in | 7/16 in | | |
| 18-40U-JJ-24 | 24 in | 7/16 in | | |
| 18-40U-JJ-36 | 36 in | 7/16 in | | |
| 18-40U-JJ-42 | 42 in | 7/16 in | | |
| 18-40U-JJ-44 | 44 in | 7/16 in | | |
| 18-40U-JJ-48 | 48 in | 7/16 in | | |
| 18-40U-JJ-60 | 60 in | 7/16 in | | |
| 18-40U-JJ-70 | 70 in | 7/16 in | | |
| 18-40U-JJ-72 | 72 in | 7/16 in | | |

Special size cables can be purchased on request



550-070

ELECTRODE HOLDERS AND ADAPTERS

















HOLDERS UNITIP/THERMODE for TL-087B weld heads.

Holder .245 in dia. ES0800 Series electrodes in TL-088B Weld Head, Set (2)

HE88 ELECTRODE HOLDER HE188 ELECTRODE HOLDER Holder 245 in dia ES0800E Series electrodes in TL-180B Weld Head, Set (2)

HE50 HOLDERS LINITIP for LT-050B

HE50RF HOLDER, THERMODE, for LT-050B Weld Heads.

HE50UB FLEXURE SET holds UNIBOND electrodes and UNITIP adapter in LT-050B Weld Head.

HE127SFRE ROUND ELECTRODE HOLDER SET Holds 1/8 in dia. electrodes in TL-086B Weld Heads, Set (2)

HE127SF STANDARD FLEXURE SET Holds UNIBOND electrodes in TL-086B Weld Head. Set (2)















HE1208 ELECTRODE HOLDER. 2 long. for 1/4 dia. electrodes.

HE1600 STANDARD ELECTRODE HOLDERS for TL-084B Weld Heads holds 1/4 in electrodes. 1/2 in dia. x 2.312 Long

FIN Nuts for THP and PHP Handpieces. Pkg. (15)

HE30GH 30° ANGLED ELECTRODE HOLDER Holders EP0800 Series Electrodes in GHP at 30° angle.

HE1200S STANDARD 2 in ELECTRODE HOLDER Holds 1/8 in dia. electrodes in TL-080B Weld Head.

HF1200L 3-1/2 in ELECTRODE HOLDER Holds 1/8 in dia. electrodes in TL-080B Weld Head.

HE0435 35° OFFSET ELECTRODE HOLDER Holds 1/8 in dia. electrodes in TL-080B Weld Head.











HE08040 SLEEVE ADAPTER Adapts 3/8 in electrode holder (for 1/8 in electrodes) to TL-180B and TL-188B Weld Heads. Set (2)

HE2000 ELECTRODE HOLDER Holds 1/4 in electrodes in TL-180B Weld Head.

HE2000WC WATER COOLED ELECTRODE HOLDER Holds 1/4 in dia. and 1/8 in dia. electrodes in TL-088B, TL-180B, TL-188B Weld Heads. Includes plastic tubing. Set (2)

electrodes in TL-188B Weld Head. Set (2)

HE38V04 ELECTRODE HOLDERS, vertical, anti-rotation feature Holds 1/8" dia series electrodes in TL-188B Weld Head

UTA UNITIP ADAPTER SET adapts HE50UB and TL-086B Weld Heads to hold UNITIPS, Set (2)

SL-320 Series Electrode Holders



| Part Number | 12-100-01 | 12-100-02 | 12-102-01 | 12-103-01 | 12-103-02 | 12-101-01 | 12-101-02 |
|-------------|--------------------------|------------------------------|---------------|-------------------|---------------------|-----------------------|---------------------------------|
| Part Name | Opposed holder inline | Opposed metric holder inline | UNITIP holder | UNIBOND holder | Microjoin holder | Opposed offset holder | Opposed offset metric holder |

^{*} includes all mounting hardware

STARTER KITS

Starting new welding project can seem daunting at first. Not only do you need to purchase the welding equipment, but also need to consider peripheral equipment to ensure that the process is successful and safe. We have created start-up kits for the different products to help you get started.

| Kit | 10-415-01 | 10-416-01 | 10-417-01 | 10-418-01 |
|-----------------|--|--|--|--|
| Includes | Includes 20 lbs force gauge, 1000 grit polishing disc, 10X loupe, safety glasses and various electrodes | Includes 20 lbs force gauge, 1000 grit polishing disc, 10X loupe, safety glasses and various electrodes | Includes 100 lbs force gauge, 600 grit polishing disc, 10X loupe, safety glasses and various electrodes | Includes 100 lbs force gauge, 600 grit polishing disc, 10X loupe, safety glasses and various electrodes |
| Weld Head Model | TL-080B and SR-071B Series | TL-088B Series | TL-180B and SR-073 Series | TL-188B Series |

CALIBRATION KITS

Calibration of your equipment is essential to maintain proper operation, calibration should be done on an annual basis. These kits include everything needed to calibrate the UB series or HF-2500A/HF-2700A power supplies. Choose the kit with or without oscilloscope depending on your needs.

| Part Number | Part Name | Description |
|---------------|---|--|
| Part Nulliber | Part Name | Description |
| 10-377-02 | UB Series Calibration Kit | Calibration kit for UB Series, includes shunt, cables and necessary hardware |
| 10-377-03 | UB Series Calibration Kit with Oscilloscope | Calibration kit for UB Series, includes oscilloscope, shunt, cables and necessary hardware |
| 10-410-01 | HF-2500A/HF-2700A Calibration Kit | Calibration kit for HF-2500A/HF-2700A, includes shunt, cables and necessary hardware |
| 10-410-02 | HF-2500A/HF-2700A Calibration Kit with Oscilloscope | Calibration kit for HF-2500A/HF-2700A, includes oscilloscope, shunt, cables and necessary hardware |



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