

# **THERMAL DYNAMICS®**



**A THERMADYNE® Company**

**AUTOMATION**

## **MERLIN® 6000**

**3/4" (19.1mm) Production Capacity @ 150 Amps**

**1" (25.4mm) Production Capacity @ 300 Amps**



**Automated Plasma Cutting System**

# Automated Plasma Cutting

## MERLIN® 6000



MERLIN® 6000 systems are designed for high production metal cutting using Air, Nitrogen, Ar-H<sub>2</sub> or even Oxygen plasma gases. The 150 Amp base system, consisting of a Master Power Supply, Remote Arc Starter Box, Water Mist Secondary Control, Remote Current Control and a MAXIMIZER™ 300 Liquid-Cooled Torch with cables, hoses and leads, is rated for up to 3/4" (19.1mm) plate. Add a second Power Supply and the system becomes a 300 Amp plasma cutting system rated for 1" (25.4 mm) plate. Material up to 2" (50.8 mm) may be cut when starting the cut from the edge of the plate.

The MERLIN 6000 with patented MAXIMIZER 300 torch is normally operated using economical Air plasma and Air secondary gas for cutting mild steel and most non-ferrous metals resulting in quality surface finishes and dross-free cuts.

For lowest cost non-ferrous cutting and unmatched cut quality, use our unique Water Mist Secondary (WMS™) process with Nitrogen plasma and H<sub>2</sub>O secondary. If heavy non-ferrous cutting is required, switch to Ar-H<sub>2</sub> (H35) and Nitrogen secondary for premium non-ferrous performance up to 2" (50.8 mm).

The MERLIN 6000 system, which includes an RC6010 Remote Amperage Control, becomes a completely integrated system when coupled with the optional SC-10 Torch Height Control and Lifter Station. A single connector on the rear of the Remote Current Control provides an integrated interface to your cutting machine. Just plug in, and you are ready for high production plate cutting.

### Maximizer® 300 Plasma Cutting Torch

Rugged heavy duty Multi Gas Maximizer 300 operates from 50 to 300 Amps cutting gauge to 2" (50mm) plate.

#### Features:

- Liquid-Cooled Torch Head
- 50 – 300 Amp Operating Range
- Copper End Cap to Protect Tip

*Liquid-Cooled Torch for Maximum Consumable Life*



Slave Power Supply

Master Power Supply



Remote Arc Starter

Maximizer 300 Torch



Maximizer 300 Torch Head



Electrode



Gas Distributor



Tip



Shield Cup Body



End Cap

### Automated Process Controls

#### GC3000 Gas Control (optional)

The optional GC3000 Gas Control Module may be remotely mounted near the machine operator. The operator may select from one of four plasma gases, three secondary gases or secondary water which can all be connected to the rear of the power supply.

Select a Plasma Gas:

- Air
- Oxygen
- Nitrogen
- Argon-Hydrogen

Select a Secondary:

- Air
- Nitrogen
- Other (user defined)
- Water



GC3000

#### RC6010 Remote Control

The RC6010 permits remote control of the power supply output.

- Output Current Control
- Variable Current Control During "Corner Slow Down"
- Digital Current Display (Preview & Actual)
- Single Cable CNC Interface



RC6010

*For your convenience, all control units are stackable*

#### SC-10 Remote Control (optional)

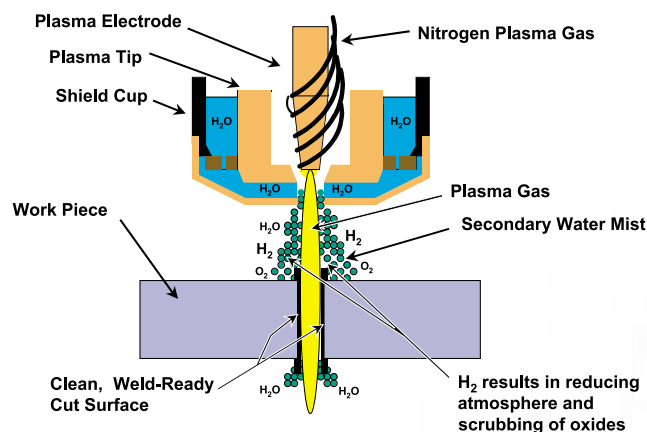
The optional SC-10 stand-off control and torch lifter station offers precise control of the torch to work distance while cutting.

- Arc Voltage Control
- Variable Pierce Height Control
- Variable Pierce Time Control
- Variable "End-of-cut" Retract
- Digital Arc Voltage Display (Preview & Actual)
- Single Cable Control Interface
- High Speed Lifter Station Included



SC-10

### Advanced Technology Plasma Processes



#### WMS Optimizes Non-Ferrous Cutting

WMS (Water Mist Secondary) delivers excellent non-ferrous cut quality and lowest cost of operation by using N<sub>2</sub> as plasma gas and ordinary tap water as the secondary. A reducing atmosphere is produced in the cut by the release of Hydrogen from the secondary water. This reducing atmosphere significantly reduces oxidation on the cut face surface. WMS is recommended up to 5/8" (15.9mm) @ 150A and up to 1" (25.4mm) @ 300A.

Ar-H<sub>2</sub> / N<sub>2</sub> is recommended for non-ferrous cutting above 1" (25.4mm).

#### WMS Benefits

- Lowest Operating Costs
- Dross Free Cutting from Gauge to 1"
- Oxide Free Cut Face Surface
- Wide "Parameter Window"



# MERLIN<sup>®</sup> 6000

**Specifications** (subject to change without notice)

|   |   |
|---|---|
| <b>Rated Output</b>                     | 150A @ 140VDC, 300A @ 140VDC  |
| <b>Input Amps @ Rated Output</b>        | 208-230/380-460/500-575V, 3 Phase, 98-34 Amps   |
| <b>Duty Cycle</b><br>(@ 104° F / 40° C) | 100% @ 150A @ 140VDC,<br>100% @ 300A @ 140VDC   |
| <b>MAX OCV</b>                          | 360 VDC   |
| <b>Plasma Choices</b>                   | Air, N2, Ar-H2 (H35) or O2  |
| <b>Plasma Pressure / Flow</b>           | 75-100 psi (5.2 - 6.9 bar)<br>45-85 scfh (21-40 lpm)                                    |
| <b>Secondary Choices</b>                | Air, N2, H2O, Other (user defined)  |
| <b>Secondary Gas Pressure / Flow</b>    | 15-80 psi (1.0 - 5.5 bar)<br>15-400 scfh (7.1 - 189 lpm)                                |
| <b>Secondary Water</b>                  | Tap Water (softener may be required)  |
| <b>Secondary Water Pressure / Flow</b>  | 50 psi (3.5 bar)<br>3-9 gph (13-40 lph)   |
| <b>Weight</b>                           | 678lbs. (308kg)   |
| <b>Dimensions</b>                       | 43.38" (1.10m) H x 28.5" (0.72m) W x<br>43.75" (1.11m) D (Fully Assembled Power Supply) |
| <b>Warranty</b>                         | Two Years Power Supply & One Year Torch   |

**MERLIN<sup>®</sup> 6000 Automated Systems include:**

One or two 150A Power Supplies, Machine Torch and Leads, Water Mist Secondary Control, Remote Arc Starter, Remote Current Control, Interconnecting Cables and Leads, Torch Spare Parts Kit, Ground Cable

**For complete ordering information contact your local Thermal Dynamics Automation Distributor.**

**DISTRIBUTED BY:**

## Cutting Speed Chart

|                                     |                            |                       |                       |                       |                      |
|-------------------------------------|----------------------------|-----------------------|-----------------------|-----------------------|----------------------|
| <b>Torch Model</b>                  | Maximizer <sup>™</sup> 300 |                       |                       |                       |                      |
| <b>Production (Pierce Capacity)</b> | 3/4" (19.1mm)<br>@ 150A    | 1" (25.4mm)<br>@ 300A |                       |                       |                      |
| <b>Material</b>                     | <b>Thickness [inches]</b>  | <b>Speed [IPM]</b>    | <b>Current [Amps]</b> | <b>Thickness [mm]</b> | <b>Speed [m/min]</b> |
| <b>Mild Steel</b>                   |                            |                       |                       |                       |                      |
| Air/Air                             | 16 ga.                     | 350                   | 50                    | 1.6                   | 8.89                 |
|                                     | 10 ga.                     | 165                   | 50                    | 3.2                   | 4.19                 |
|                                     | 10 ga.                     | 250                   | 100                   | 3.2                   | 6.35                 |
|                                     | 1/4                        | 120                   | 100                   | 6.4                   | 3.04                 |
|                                     | 1/4                        | 125                   | 150                   | 6.4                   | 3.17                 |
|                                     | 3/8                        | 100                   | 150                   | 9.5                   | 2.54                 |
|                                     | 1/2                        | 80                    | 150                   | 12.7                  | 2.03                 |
|                                     | 3/4                        | 45                    | 150                   | 19.1                  | 1.14                 |
|                                     | 3/8                        | 140                   | 225                   | 9.5                   | 3.55                 |
|                                     | 1/2                        | 100                   | 225                   | 12.7                  | 2.54                 |
|                                     | 3/4                        | 55                    | 225                   | 19.1                  | 1.39                 |
|                                     | 1/2                        | 135                   | 300                   | 12.7                  | 3.42                 |
|                                     | 3/4                        | 70                    | 300                   | 19.1                  | 1.78                 |
|                                     | 1                          | 50                    | 300                   | 25.4                  | 1.27                 |
| <b>Stainless Steel</b>              |                            |                       |                       |                       |                      |
| N2/H2O                              | 1/4                        | 80                    | 100                   | 6.4                   | 2.03                 |
|                                     | 1/2                        | 35                    | 100                   | 12.7                  | 0.89                 |
|                                     | 5/8                        | 30                    | 150                   | 15.9                  | 0.76                 |
|                                     | 3/4                        | 35                    | 225                   | 19.1                  | 0.89                 |
| Air/Air                             | 1                          | 35                    | 300                   | 25.4                  | 0.89                 |
|                                     | 16 ga.                     | 250                   | 50                    | 1.6                   | 6.35                 |
|                                     | 10 ga.                     | 200                   | 100                   | 3.2                   | 5.08                 |
|                                     | 1/4                        | 100                   | 100                   | 6.4                   | 2.54                 |
| H35/Nitrogen                        | 1/2                        | 30                    | 100                   | 12.7                  | 0.76                 |
|                                     | 1/2                        | 40                    | 150                   | 12.7                  | 1.02                 |
|                                     | 3/4                        | 40                    | 300                   | 19.1                  | 1.02                 |
|                                     | 1                          | 30                    | 300                   | 25.4                  | 1.02                 |
| <b>Aluminum</b>                     |                            |                       |                       |                       |                      |
| N2/H2O                              | 1/4                        | 80                    | 100                   | 6.4                   | 2.03                 |
|                                     | 3/8                        | 50                    | 100                   | 9.5                   | 1.27                 |
|                                     | 1/2                        | 25                    | 100                   | 12.7                  | 0.64                 |
|                                     | 5/8                        | 40                    | 150                   | 15.9                  | 1.02                 |
|                                     | 3/4                        | 60                    | 225                   | 19.1                  | 1.52                 |
|                                     | 1                          | 50                    | 300                   | 25.4                  | 1.27                 |
| Air/Air                             | 16 ga.                     | 300                   | 50                    | 1.6                   | 7.62                 |
|                                     | 10 ga.                     | 100                   | 50                    | 3.2                   | 2.54                 |
|                                     | 1/4                        | 100                   | 100                   | 6.4                   | 2.54                 |
|                                     | H35/Nitrogen               | 1/2                   | 35                    | 100                   | 12.7                 |
|                                     | 1/2                        | 45                    | 150                   | 12.7                  | 1.14                 |
|                                     | 3/4                        | 80                    | 300                   | 19.1                  | 2.03                 |
|                                     | 1                          | 50                    | 300                   | 25.4                  | 1.27                 |

Look for the  mark on your plasma consumable parts.



**ISO 9001 Certified**

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