# Programmable Shape Machine
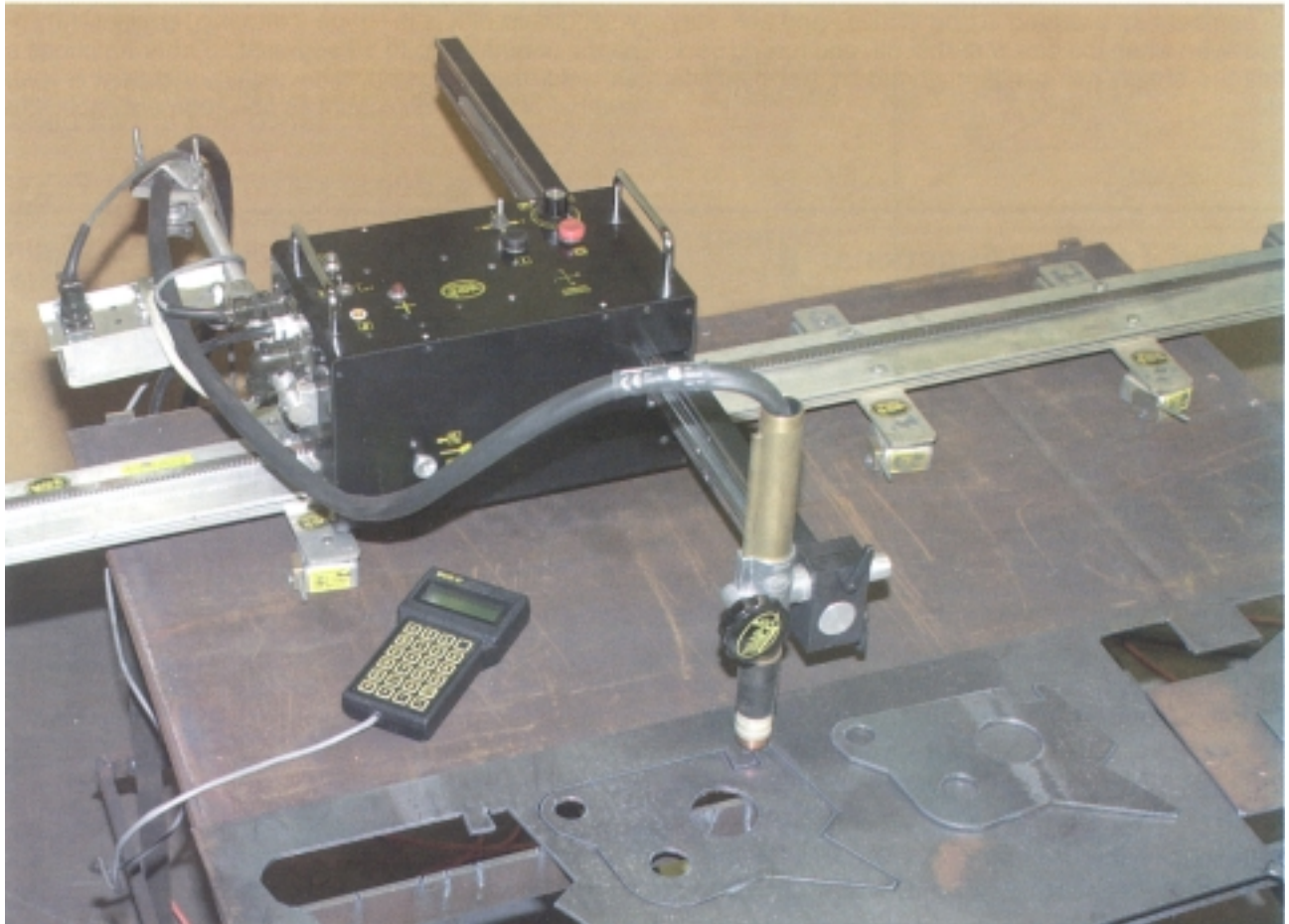
## Burn Virtually Any Shape, Weld Any Pattern, Quickly And Easily, In Any Position…



The BUG-6150 Programmable Shape Machine is an easy to use 2-axis machine which you can program to run any contour or pattern for both welding or cutting applications. A handheld terminal supplied with the machine is used to program the required shape and operation sequence. Other functions besides moves can be programmed, such as repeats, starts, stops, delays, and rapid traverse. 10 programs can be stored in machine memory at any one time.

An optional computer software program is available, for any IBM compatible computer. With this program you can select pre-programmed shapes or create your own custom shapes, and store any number of them on disk. Selected shapes can then be downloaded to the machine as needed.

The Programmable Shape Machine is compact and lightweight and can be easily carried throughout your facility. It is held in position with either powerful permanent magnets or vacuum cups, depending on the work material. This enables you to take the machine to the work, which will help reduce your material handling.

*PATENTS WORLDWIDE*

# BUG-O SYSTEMS
### A DIVISION OF WELD TOOLING CORPORATION

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# PROGRAMMABLE SHAPE MACHINE

The Programmable Shape Machine is a two-axis machine that runs on a track and carries a torch on a motorized cross-arm. It can be used for flame or plasma cutting, or welding, of a variety of shapes which are programmed and stored in memory.

The machine has storage capacity in memory for 10 different programmed shapes. At any time, one of these shape numbers is selected to be active, and will stay selected even when the power is shut off, and turned back on, until the shape number is changed by the machine operator.

All programming is done with the handheld terminal provided. The terminal can be plugged into the connector on the rear of the machine or unplugged at any time. The terminal is not needed to run the machine once programmed.

Shapes and patterns are built up using segments. To do this, select the type of segment you want and determine what quadrant it is in – type it into the terminal. Any given shape can have up to 50 segments. Other functions such as weld/oxygen, on/off, time delay, or repeat a shape a number of times, also count as one segment each, if used.

## Handheld Terminal Functions:

**The programming operation is selected by pressing keys A, B, C, D, or E.**

**A: ALL SEGMENTS;** data entry for new shape consists of total number of segments and data for each segment.

**B: PROGRAM SEGMENT;** press **B** on terminal to re-program a single segment. This is useful if there is an error in data for just one segment, so that the whole shape does not have to be re-entered.

**C: CHANGE SHAPE NUMBER;** press **C** on terminal to change the current shape number. The program switches to the new number in memory, and to whatever shape is stored there.

**D: DISPLAY SHAPE DATA;** press **D** to display the data for the current shape. The terminal display shows a total number of segments, and data for each segment one by one each time you press enter.

**E: END OF SEGMENT SLOWDOWN;** press **E** to set value of deceleration for the shape, when the machine approaches the end of each segment. This is useful when the shape has sharp corners to prevent overshoot. **99** is maximum slowdown, **0** is no slowdown.
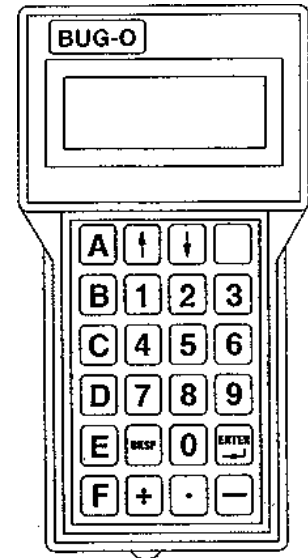
**The different types of segments that can be loaded into the machine are as follows:**

| | | Clockwise Partial Arcs | |
|---|---|---|---|
| **Clockwise 90** |  | **Clockwise Partial Arcs** |  |
| **Counter Clockwise 90** |  | **Counter Clockwise Partial Arcs** |  |
| **X or Y Axis** |  | **Inclined Lines** |  |

**Other functions besides the moves shown above are:**
**Weld Contact/Solenoid On/Off, Pause, Delay, Repeat another shape, Full ellipse, and Rapid Traverse.**

# PROGRAMMABLE SHAPE MACHINE

## Operation:

The machine is in the reference start position, when first plugged in.

There are 3 options (the handheld terminal is not needed for the first two):

1.  **MOVE:** To change the home position, push the STOP/PAUSE button, move the machine manually to the required position using the joy stick, and push the reset button.

2.  **RUN:** Push the START/RUN button to cut/weld a shape.

3.  **PROGRAM:** The programming operation requires the use of the handheld terminal.



STOP/PAUSE

SPEED

MANUAL/ JOG/MOVE

START/RUN

RESET

QUADRANT NUMBERS
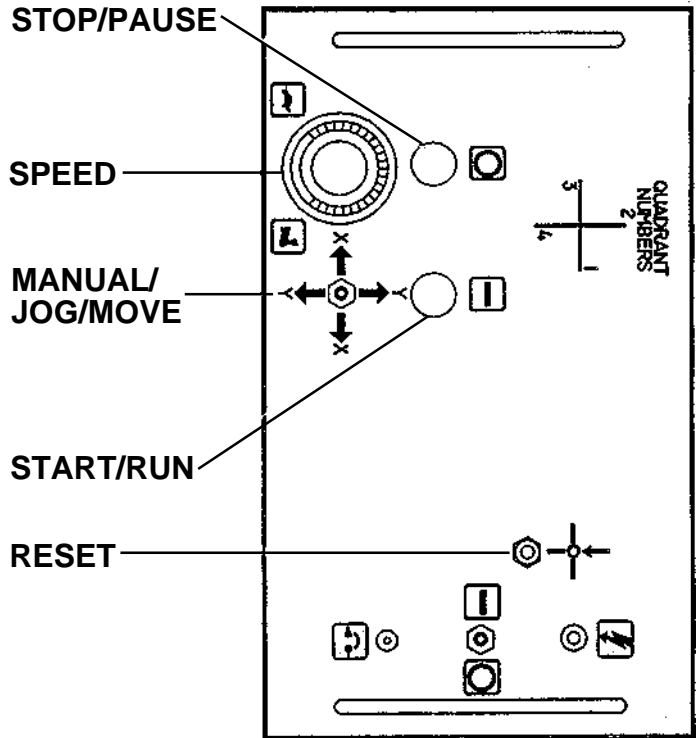
## Technical Data:

| Power Requirements: | | |
|---|---|---|
| | BUG-6150 | 120VAC/50-60/1 |
| | BUG-6152 | 240VAC/50-60/1 |
| | BUG-6154 | 42VAC/50-60/1 |

**Travel Speed:** 2.5-50 ipm (63-1250 mm/min)

**Cross Travel:** 24" (610 mm)

**Max. Segment Dimension:** 72" (1800 mm) Within Limits of Travel

**Min. Increment Dimension:** .01" (0.1 mm)

**Delay Increment:** .01 seconds

**Net Weight Of Drive Unit:** 37 lbs. (17 kg)

**Dimensions Of Drive Unit:** 15.0"L x 8.25"W x 10.0"H (381 mm x 210 mm x 255 mm)

### Bug-6125 Computer Software Program

A computer program designed for use with the Programmable Shape Machine is now available. This program has been designed to be used with any IBM compatible computer. There are several advantages in using this particular program.

First, you can store any programs you have for the Programmable Shape Machine on disk. Through the use of a connecting cable that comes as a part of the package, up to 10 of these programs can be loaded into the machine at any time.

Second, several types of shapes are loaded into the program so you can do circles, rectangles, squares, rounded rectangles, obrounds and ellipses simply by entering the X and Y dimensions. Custom shapes can be done as well.

Third, you can preview the shape you're working on, on screen, which will enable you to make sure that the correct shape will be made before you weld or cut. This also eliminates the need to have the machine go through a dry run before you actually do the job.

This package comes with a complete set of step-by-step instructions – making it both easy to learn and use.
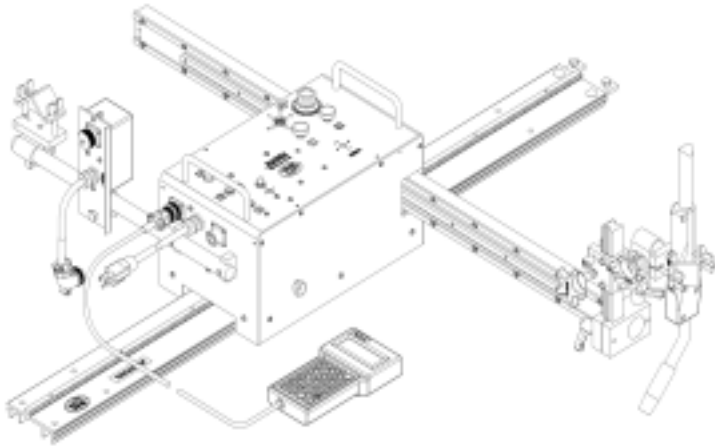
# PROGRAMMABLE SHAPE MACHINE
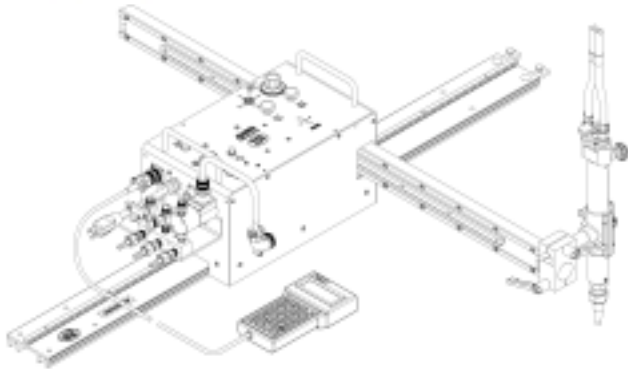
| | |
|---|---|
| **BUG-6200** | **PROGRAMMABLE SHAPE OXY-FUEL CUTTING KIT** 120VAC/50-60/1 |
| **Includes:** | |
| 1 BUG-6150 | Programmable Shape Machine and Handheld Terminal 2.5-50 ipm (63-1250 mm/min) |
| 1 BUG-6090 | Q.A. Manifold w/Solenoid 120 VAC |
| 1 BUG-6155 | Cutting Group |
| **BUG-6202** | **PROGRAMMABLE SHAPE CUTTING KIT** 240VAC/50-60/1 |
| **BUG-6204** | **PROGRAMMABLE SHAPE CUTTING KIT** 42VAC/50-60/1 |

| | |
|---|---|
| **BUG-6201** | **PROGRAMMABLE SHAPE WELDING KIT** 120VAC/50-60/1 |
| **Includes:** | |
| 1 BUG-6150 | Programmable Shape Machine and Handheld Terminal 2.5-50 ipm (63-1250 mm/min) |
| 1 BUG-6080 | Relay Box w/Cable Anchor [To Control Arc On/Off] |
| 1 BUG-6145 | Welding Group |
| **BUG-6203** | **PROGRAMMABLE SHAPE WELDING KIT** 240VAC/50-60/1 |
| **BUG-6205** | **PROGRAMMABLE SHAPE WELDING KIT** 42VAC/50-60/1 |

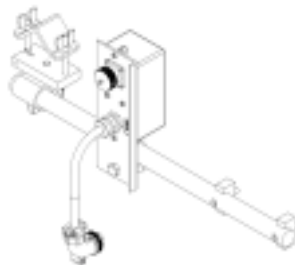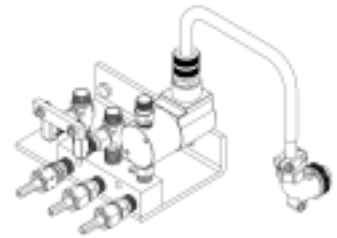| | |
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| **BUG-6210** | **PROGRAMMABLE SHAPE PLASMA CUTTING KIT** 120VAC/50-60/1 |
| **Includes:** | |
| 1 BUG-6150-E | Programmable Shape Machine and Handheld Terminal. 4-80 ipm (100-2000 mm/min) |
| 1 BUG-6080 | Relay Box w/Cable Anchor (To control arc on/off) |
| 1 BUG-6155 | Cutting Group |
| **BUG-6152** | **PROGRAMMABLE SHAPE MACHINE** 240VAC/50-60/1 |
| **BUG-6154** | **PROGRAMMABLE SHAPE MACHINE** 42VAC/50-60/1 |
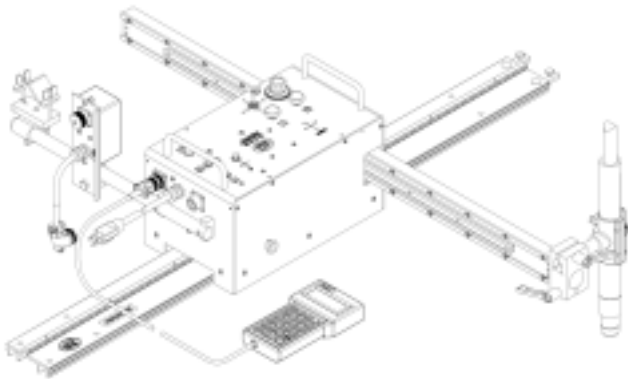
**\*Rail is not included with kits.**
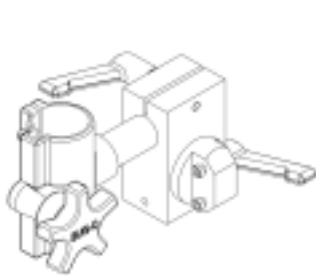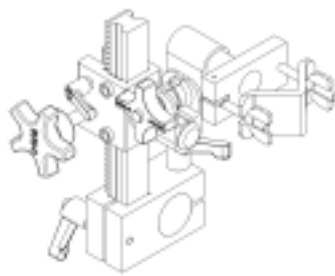
**BUG-6155 Cutting Group**     **BUG-6145 Welding Group**     **BUG-6080 Relay Box w/Cable Anchor**     **BUG-6090 Cutting Solenoid Accessory 120VAC**