

XMS-MAG

Magnetic Arc Oscillator

Product Specification



Magnetic Arc Oscillators

AMET is pleased to provide the following product introduction on our stand-alone model of magnetic arc oscillators. These magnetic arc oscillators are designed to deflect the arc on GTAW (TIG) and PAW (plasma) welding systems. They accomplish this oscillating motion using a magnetic field to move the welding arc in a weaving motion. The magnetic arc oscillator can also be programmed to deflect the arc in a maintained position, typically used in fillet welding.

AMET has a distinct advantage over “conventional” magnetic oscillators on the market with our DSP technology. The AMET oscillator allows the programming and recall of all oscillation parameters during welding, which reduces the Chance of an incorrect parameter being set on the control.

In addition, the XMS-MAG allows the operator the ability to override all Oscillation parameters from the hand pendant.



AMET has designed a compact, single tip, electro-magnetic probe assembly. This probe assembly is an air-cooled device. For welding in high temperature environments, a water-cooling jacket is available.

AMET'S Magnetic Arc Oscillators are currently presented to the market in two models, the X-MAG and XMS-MAG. The X-MAG is designed to mate with AMET XM series of controls. The XMS-MAG is our “Stand-Alone” version, which can be mounted on an existing system and operated independently via a hand pendant. At any time in the future, the XMS-MAG can be integrated with the XM system control.

Purpose/ Applications:

The magnetic arc oscillator is designed to provide precisely controlled weaving motion to the weld head. This type of oscillation motion is typically required for the following welding applications:

1. “Cap” pass on a multi-pass weld
2. Small oscillation motion to improve sidewall tie-in on “deep” groove welds
3. Fillet welds for proper fill and sidewall tie-in
4. Single and dual-arc seam welding for reducing undercut
5. Arc stiffening and direction capability (ideal on tube mills to overcome drag effect with increased tube mill speeds)
6. Joining materials with different thickness

Benefits:

The AMET Oscillator is ideally suited for GTA and PAW arc welding applications as a result of the following features and benefits:

- Programmed oscillation parameters. Eliminates risk of operator setting incorrect oscillation parameters.
- Stirring motion of weld puddle reduces porosity, corrects lack of fusion, and minimizes undercut.
- Easily mounts to most machine-type TIG or Plasma torches.
- Able to override each oscillation parameter during weld.
- Able to adjust “center” or arc position during welding.
- Use on both magnetic and non-magnetic materials.
- Reduces heat affected weld zone .

These benefits and advanced features give AMET oscillators an advantage over other oscillators in the welding market. These oscillators are designed for more precise welding requirements and to meet your requirements, yet affordably priced.

XMS-MAG

AMET'S Stand-Alone magnetic arc welding oscillator uses AMET DSP Technology (digital signal processor) in the control module to program, override, control and change the oscillation as required or requested.

The XMS-MAG includes the operator remote control hand pendant. This pendant allows the operator to set up and control the oscillation from a convenient location.

The XMS-MAG consists of an XM control module, loaded with magnetic arc oscillation software, a single tip probe assembly, an interconnection cable between control and probe, a X-HAND remote hand pendant with cord and the power cord.

The probe includes a mounting bracket for mounting probe to standard machine barrel TIG torches.



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GENERAL SPECIFICATIONS:

Oscillation Amplitude: 0 to 100%, approximately 2 times the arc length up to a maximum of 3/8"

Slew Time: 0 to 3 seconds

Slew Time: adjustable during oscillation

Oscillation Start Delay: 0 to 100 seconds

Oscillation Stop Delay: 0 to 100 seconds

Arc Position: -100% to 100%, where maximum is a 1 to 1 ratio with arc length

Left Dwell Time: 0 to 3 seconds, adjustable

Right Dwell Time: 0 to 3 seconds, adjustable

Arc/Center Position: adjustable at all times

Magnetic Field Strength: 300 gauss at 1 amp

Cooling Requirements: 1 qt/min at 40 PSI

Remote Start: Available

Remote Stop: Available

Control Dimensions & Mounting Specs:

XMS-OSC Module: Please contact AMET for drawing

X-HAND: Please contact AMET for drawing on hand pendant

Power Requirements - 120/220 volts, 1 phase, 50/60 Hz

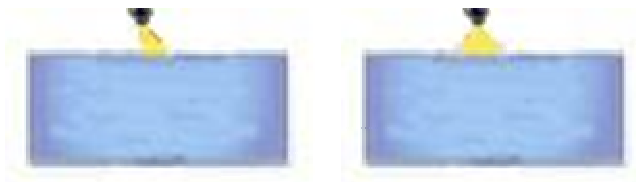
Cable Length – Probe to Control – 15 ft (4.5 m)

Cable Length – Hand Pendant to Control, retractable – 10ft (3M)

Note: Cooling Jacket required on welds with weld current over 150 amps and duty cycle over 40%. Otherwise, magnetic probe can be damaged due to overheating.

Examples of Magnetic Arc Benefits

Tube Mills – overcome drag affect



Multiple Pass Welds – Consistent Sidewall Tie-in



Different Material Thickness – distribute more heat to thicker wall



Fillet Welds – overcome sag in weld bead



Undercut on weld – weaving and sweeping motion help reduce sidewall undercutting

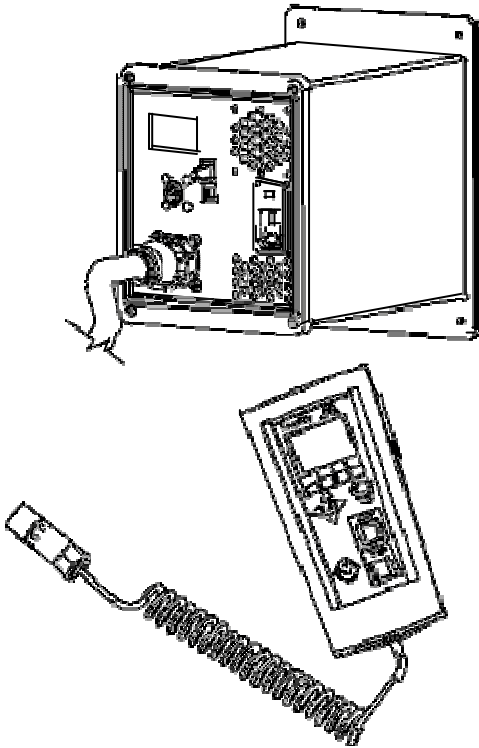
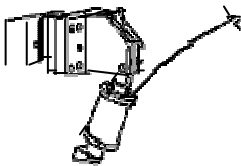


Porosity – weaving motion can stir the weld puddle to help gases escape and contaminants to float to the surface.



Magnetic Oscillator

- Cross Seam Oscillation
- 60 Volt
- Precision Control
- Manual Adjustment
- Fits 3/4" Thru 1 3/8 "
- Torch



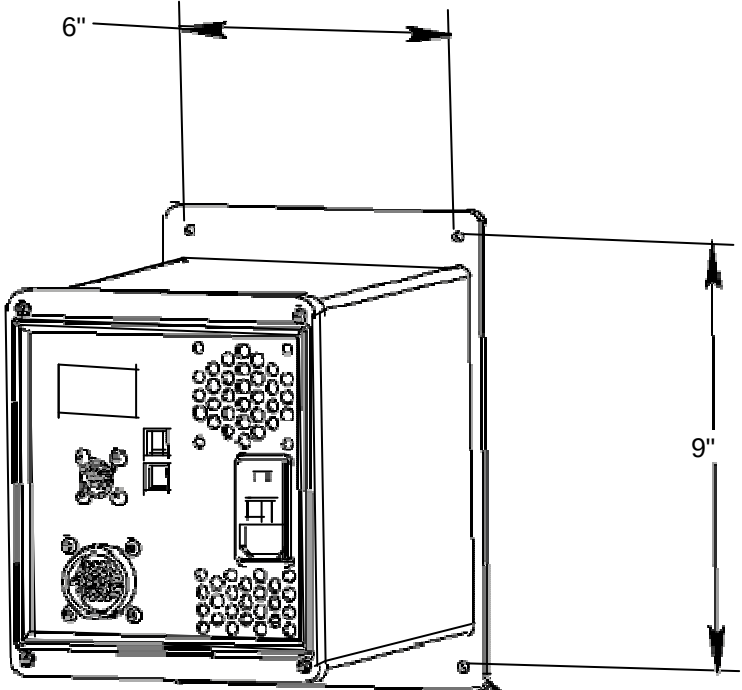
XVC Module

- Programable Arc Voltage Control
- Programable Sensitivity
- Height -10"
- Width - 7"
- Depth -10"

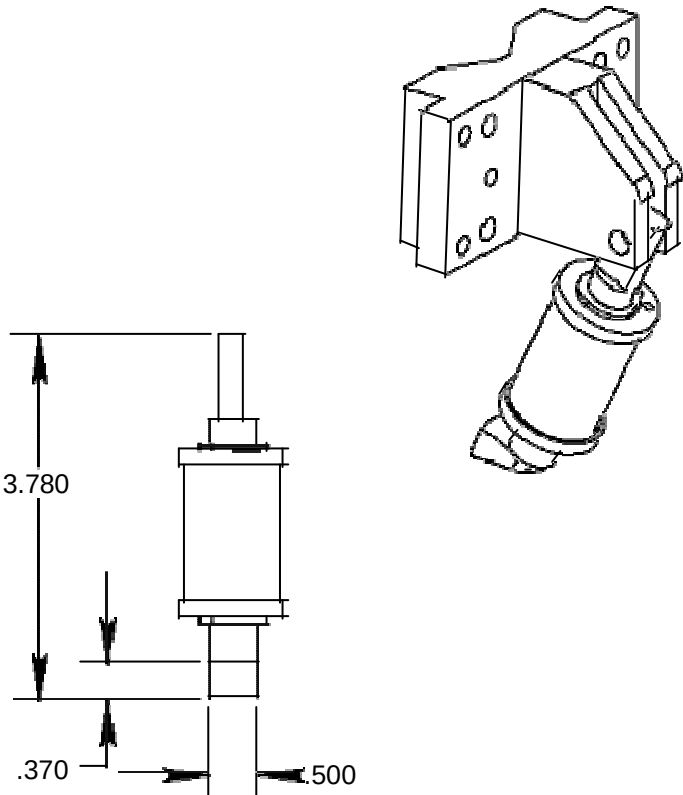
XM Hand Held Controller

- Convenient & Light Programable Pendant
- Height - 8 5/8"
- Width - 4 3/4"
- Depth - 2 1/2"

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Checked By:	Rev Date:					
Orig. Date: 10/10/05					Project: XM Systems	Sheet 1 of 2
					Description: Mag Oscil ator	Dwg Num: MAG-OSC-200



4X Ø.96 Thru
On 6" x 9" Pattern



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