



ARC MACHINES, INC.

The widest range of orbital welding equipment in the world

MODEL 77 PIPE / FUSION WELD HEADS

The Model 77 (M-77) Series of three Weld Heads are designed to complement our existing range of Model 95 weld heads and bridge the capabilities between the Model 95 and Model 15 weld heads for applications on thin-wall pipe and tube sections. The M-77 provides an alternative "wire feed" type of weld head where a programmable AVC and Oscillator is not required.

Each M-77 consists of a modular front-end (torch) assembly and a rotor assembly. The modular construction of the M-77 weld heads allows the use of one front-end assembly and one or more rotor assemblies allowing welding operations to be economically performed over a wide range of pipe and tube sizes.



The M-77 modular front-end (torch) assembly can be mounted to any of the rotor assemblies in the M-77 series and contains:

- A manual arc length control with 0.7 inches (17.8 mm) of torch height control.
- A manual cross-seam adjustment with 1.0 inches (25.4 mm) movement.
- A 250 Amp water cooled torch with an integral gas lens.
- A vertical wire feed alignment
- A cross-seam wire feed alignment.
- A 100 IPM (250 cm/min) programmable wire feeder with a 2 lb. (1 kg) integral wire spool holder.
- Sufficient adjustments to position the torch on a variation of pipe diameters using any of the rotating ring assemblies in the series.

Note: All welding controls such as arc length, cross-seam, and wire manipulators are accessible and adjustable without tools by an operator wearing gloves.

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AMI is an ISO Certified Company

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The M-77 rotor assemblies are economical and highly durable systems that accurately rotate the welding torch around the pipe under programmable motor control. Each of the rotor assemblies can be adjusted to accommodate a number of pipe and tube sizes within its size range by using selected spacer feet. The M-77 weld heads can be mounted to a pipe in seconds. These assemblies are available in the following sizes:

M77-8625 for pipe/tube O.D. sizes from 3 inches (76mm) to 8.625 inches (220 mm)

M77-12750 for pipe/tube O.D. sizes from 6 inches (152mm) to 12.750 inches (324 mm)

M77-20000 for pipe/tube O.D. sizes from 12 inches (305mm) to 20 inches (508 mm)

These weld heads are designed to be used in conjunction with an AMI power supply/controller such as the M-227, M-307 or M-415. However, the M-77 weld head without wire feed can be operated using a Model 207 power supply with a Model 95-to-207 adapter for fusion welding applications.

Onboard wire feeder:

Regulation	IPM or mm/min. using 5 VDC Tachometer feedback
Minimum Wire Feed Speed	5 IPM (13 cm/min.)
Maximum Wire Feed Speed	100 IPM (2,5 m/min.)
Standard Wire Size	0.035" (0,9 mm)
Optional Wire Size	0.030" (0,8 mm)
Optional Wire Size	0.045" (1,2 mm)
Standard Roller Type	Smooth "V" groove
Optional Roller Type	Gripping "U" groove
Onboard Spool Capacity	4" Standard 2 lb. spool (100mm diameter, 1kg)

Manual Arc Length Control:

Maximum stroke 0.70" (18 mm)

Manual Torch Cross Seam Adjustment:

Maximum Stroke 1.00" (25,4 mm)

Torch Functions and Ranges:

Current Rating	250 Amps 100% duty cycle
Standard Electrode Size	0.093" (2,4 mm)
Optional Electrode Size	0.125" (3,2 mm)
Gas Cup Standard	HW20 No.8
Gas Cup Optional	HW27
Gas Lens Standard	HW20
Gas Lens Optional	HW27
Collet Type conventional	0.093" (2,4mm)
Collet Type conventional	0.125" (3,2mm) (Optional)
Back cap Standard	Conventional short
In/Out Tilt (cross-seam)	+/- 15°
Lead/Lag Torch Adjust	+/- 10°
Wire Entry Angle	20-35° (without bracket changes)
Wire Cross Seam	Adjust +/- 0.125" (+/- 3,2 mm)
Wire to Electrode (vertical)	+/- 0.125" (+/- 3,2 mm)

Travel/Rotation:

Motorized series.	
Minimum Surface Travel Speed	0.5 IPM (13 mm/min.)
Maximum Surface Travel Speed	10 IPM (254 mm/min.)

Miscellaneous:

Cable length = 10 ft (3m)
Extension cables available



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