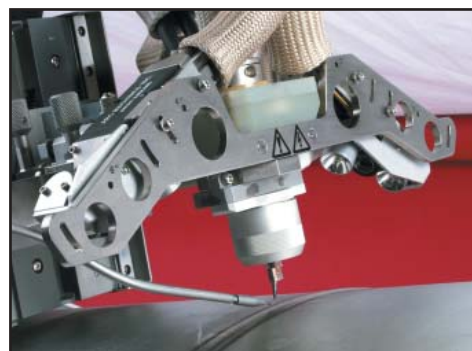
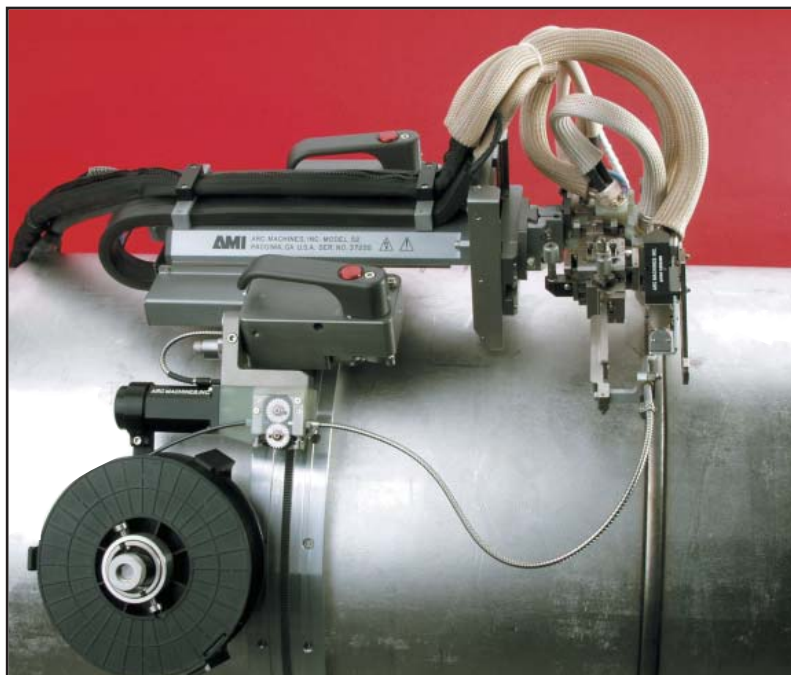


## MODEL 52 HEAVY-DUTY PRECISION ORBITAL WELD HEAD



- Heavy-duty construction. Engineered and designed for heavy industrial and harsh field applications for high-deposition circumferential and flat welding
- On-board wire feed mechanics, single or dual wire feed system, up to 30-lb. spools
- Digital encoder feedback on all functions
- Water-cooled main housing
- Ideal for large-diameter, heavy-wall GTAW applications
- Exclusive, zero-backlash gear drive (no friction drives) for positive, consistent travel speeds (uphill or downhill) in all positions
- Extremely quick mount / dismount
- Cross-seam steering
- Synchronized torch oscillation, AVC, rotation and wire feed (AVC/OSC 4" Standard)
- Compatible with the Model 415 Power Supply
- Compatible with many AMI torch assemblies, including video-equipped torches

### **ARC MACHINES, INC.**

AMI is an ISO Certified Company

**[www.arcmachines.com](http://www.arcmachines.com)**

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## MODEL 52 HEAVY-DUTY PRECISION WELD HEAD

The Model 52 (M52) is intended for all-position, automated welding of pipe, plate or fittings using the Cold or Hot Wire Feed GTAW (TIG) process. It is a rugged, precision tool with minimal radial clearance for welding of all pipe sizes from 8-inch pipe up to an unlimited size, including flat plate. It is intended for field or heavy duty shop use in the nuclear, shipbuilding, chemical, petrochemical and construction industries where weld quality requirements are stringent and the use of the GTAW process is beneficial. The M52 is a "full function" welding head, meaning that it provides all functions necessary for true automated welding including Arc Rotation, Arc Voltage Control (AVC) for arc gap control, Wire Feed (weld filler) and Torch Oscillation (weave). The M52 also features range expandability of most of these functions as well as providing other standard features that are options on most other weld heads.

The M52 weld head provides a durable, extremely versatile, heavy-duty platform for using a variety of torch options. These torch options range from a "standard" head using a single-entry torch and a single wire feeder to more complex torches for Narrow Groove Welding, Remote Welding with vision and Hot Wire Welding. It can be ordered or retrofitted with numerous application-specific accessories customizing the head for a user's needs. Several torches are listed below; other options are available as standard products or AMI will custom-design to meet the customer's needs.

The M52 weld head and torch are just two of the elements required for an automated pipe welding system. Precision guide rings, providing positive, gear-driven traction, one of several AMI power supplies, and other options comprise a complete system suitable for high-quality orbital pipe welding of a wide range of applications with excellent productivity. Please contact Arc Machines Sales department for recommendations.

### Model 52 "P" Torch

The "P" torch is only one of numerous torches designed for use with AMI's remote welding video vision systems. It incorporates direct-view optics and color video cameras to show both the leading and trailing sides of the weld puddle. These optic assemblies are combined with remote-controlled dual wire manipulators to allow welding in both directions and to remotely observe the weld puddle. AMI's patented arc light filtration, along with miniature video cameras allows for a very small and compact package with a minimum amount of cabling. It is recommended for any application requiring remote vision, such as high-radiation areas or where direct observation of the weld process by operators is limited. Some torches require the use of a second wire feeder on the Model 52 weld head and require video-related accessories.

#### Offers:

- A video system for remote operation and observation of the weld zone from leading and trailing directions
- Excellent display of filler wire position and entry point
- Addition of filler wire while welding in either direction
- Remote-controlled motorized wire feed nozzle manipulators
- Wire size range: 0.020" - 0.045" (0.030" - 0.035" recommended)
- Torch: Water-cooled 300 amp
- Type HW 20, 17 or 27 gas lenses and gas cups are available
- Heavy-wall thickness option available

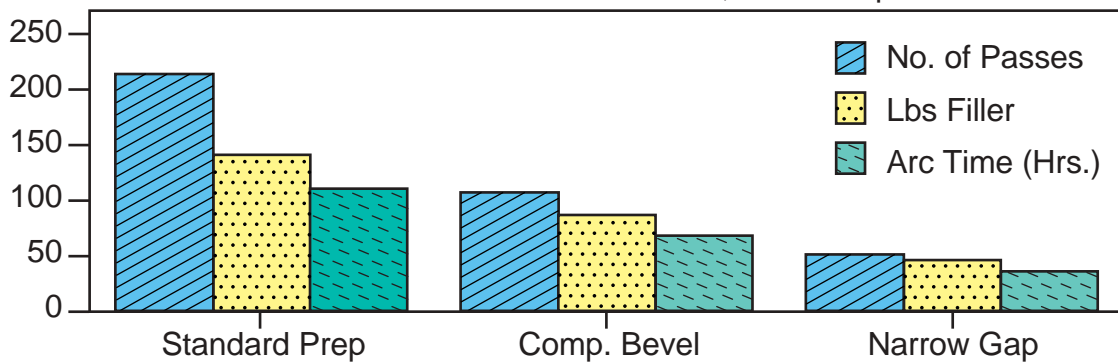


# MODEL 52 HEAVY-DUTY PRECISION WELD HEAD

## Narrow-Gap Torch

The Arc Machines type NGT-B narrow-gap torch was designed to promote positive fusion of weld-joint side walls in heavy-wall pipe and vessel welds, with less heat input and quicker weld times than conventional narrow gap equipment now being used. This torch uses a rotating tungsten, which provides mechanical manipulation of the arc and wire feed within the groove. The integral gas cup provides direct gas shielding of the tungsten and the weld metal. This combination, in conjunction with the rotating electrode and narrow preps, allows deposition rates that are higher than conventional cold-wire GTAW. Current weld preps being used are approximately 1/2" wide, in the root area, with a 3 to 9 degree included angle for welds up to 12" thick. The clean, compact torch design simplifies process operation so that no special training is required for operators familiar with AMI orbital pipe welding equipment.

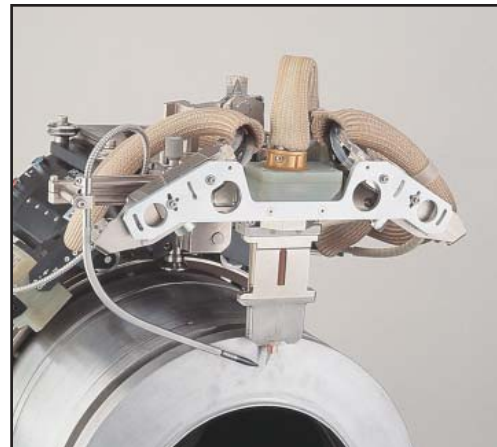
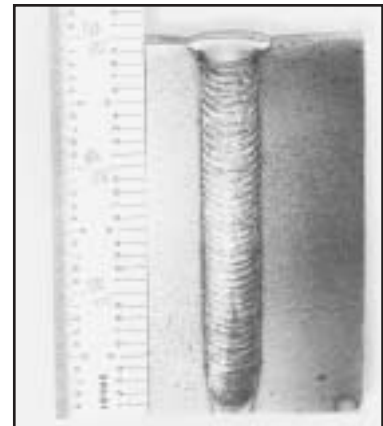
Narrow Groove Data: 30" OD, 4" Wall Pipe



Consult Arc Machines, Inc. for applications assistance

### Offers:

- Standard accessories included to weld up to 6" wall thicknesses
- Excellent remote visibility. Equipped with 2 video cameras
- Torch set-up in 2" increments to minimize radial clearance
- Reduces weld time
- Reduces heat input
- Reduces component distortion
- Wire size range: 0.030" - 0.045"
- Torch: Water-cooled, 350 amp
- Optional 0.375" wide gas cups for special applications
- Actual weld groove (joint prep) depends on the type of material being joined, component geometry and restraint



# MODEL 52 OPTIONS

10 or 40-IPM Travel (rotation) Motors: For applications requiring more torque or faster travel.

300-IPM Wire Feed Motors: For use with special-application torches.

Oscillator Cross-seam Stroke: 4" standard range increases available in 2" increments up to 16" total.

AVC Travel: 4" standard range increase or decrease in 2" increments available.

Right-Angle Drive: Allows the weld head to be mounted perpendicular to the pipe instead of parallel to it. Used for short radius elbows or tight axial clearance in conjunction with AVC/OSC interchange.

Guide Rings: Standard, flat, ID and special guide rings are available. The M52 can be mounted on new M52 style guide rings or M15 style guide rings.

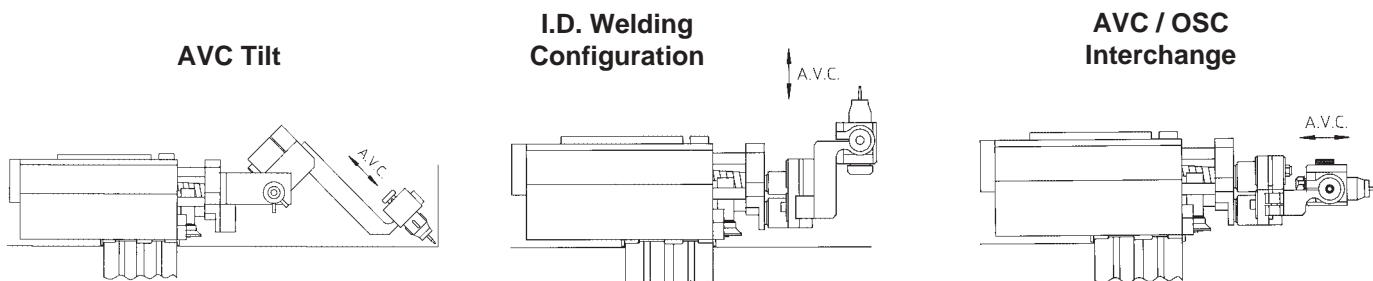
52-CW Wire Feeder and Spool Holder: Additional (second) wire feeder. Allows welding in both directions of head travel; the power supply automatically selects proper wire feeder as a function of rotation direction.

Wire Spool Holders: 10-lb. (8") wire spool holders are standard. Optional are holders for 4" (2-lb.) or 12" (30-lb.) wire spools.

Gas Cup / Gas Lens / Wire Manipulator Extender: This multi-part option allows most torches to be used to weld pipe up to 5" wall thickness.

The special-function configurations shown below can be set-up via software, dependant upon torch type, using the M415 power supply.

## Special-Function Configurations



## Technical Data

Process:	GTAW	Torch Oscillation	
Torch AVC Stroke:	4" standard (position encoder)	Amplitude, max.:	4" standard (up to 16" optional)
Travel Speed:	0.2 to 20 IPM (position encoder)	Wire Manipulator: (Manual Adj.)	Vertical, horizontal and angular
Wire Feed Speed:	5 to 200 IPM	Filler Wire:	Size: 0.020" - 0.045"
Torch:	Water-cooled, 300 ADC 100% duty cycle (typical)	Wire Spool Size:	10-lb., 8" spool (standard)
Torch Adjustments:	Torch specific	Radial Clearance Range:	Depends on pipe diameter, Torch type and configuration 6.56" minimum
Tungsten Size:	3/32, 1/8 or 5/32 (torch specific)	Axial Clearance: Range:	Depends on torch type and options; 15.75" minimum
Torch Cross-seam Steering Range:	4" standard (position encoder)	Outline Drawing:	40520001
Max. Wall Thickness:	Depends on torch type, Options and accessories		

**ARC MACHINES, INC.**