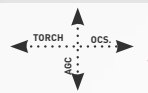
T HEAD
419

MAGNATECH

TORCH OSCILLATION WEAVE
Width, speed, and endpoint "dwell" independently programmable. Torch "cross seam" steering electronically controlled using remote pendant. Pulsed current automatically synchronized with torch oscillation.

FILLER WIRE SPOOL
Use standard 1 kg (2 lbs) spools.

HEADMOUNTED WIRE FEEDER
Accommodates range of wire diameters.



3-AXIS POSITION ADJUSTMENT FOR FILLER WIRE NOZZLE
Multiple adjustments provide precise positioning of filler wire entry into weld puddle.

WATERCOOLED TORCH

WELD HEAD MOUNTING/ROTATION
Guide rings* attach head to pipe.

*Guide rings come with a one year warranty

419 T HEAD

ORBITAL WELD HEAD FOR MULTIPASS GTAW PIPE WELDING

The Magnatech T model weld head is designed to make pipe-to-pipe and pipe-to-fitting welds. It is "full function" – with the capability of reproducing all the motions of a skilled manual welder. The T Head is used for larger diameter/ heavy wall applications, requiring the precise weld process control of gas tungsten arc welding. Interchangeable guide rings provide mounting on the pipe, and allow the T Head to cover a broad size range. The T model weld head improves productivity by increasing duty cycle and reducing repair rates.

Features

- Full function Capability (Torch Rotation, Filler Wire Feed, Electronic Arc Gap Control, Electronic Oscillation)
- Broad size range
- Guide Rings available for standard Pipe sizes
- Water-Cooled Torch uses standard Expendables
- Tool Kit standard

Narrow Gap Bevel Geometry
shown on 25 mm (1") wall pipe

Guide Rings Mount Head on Pipe

Options

- Extension cables
- Single or dual wire feeder configurations
- Video Arc Monitoring. Various configurations allow remote operation.

T HEAD 419

Applications

- Fossil Power Plant Construction/Maintenance
- Steam Generation Equipment Fabrication
- Nuclear Power Plant Construction/Maintenance
- Chemical Facility Construction/Maintenance
- Shipyard Construction
- Gas Transmission Pipelines
- Process Piping

Features

GUIDE RINGS ALLOW USE ON PREHEATED PIPE

Mounting the head on an oversize guide ring with adaptor feet allows use on CrMo and other alloys requiring preheat. The adaptor feet create an air space and prevent heat damage to the head.

Adaptors

Adaptor Feet Attach Here

Three types of Adaptors can be simply screwed to each of the standard square tubes which are mounted on the Guide Ring.

- 25 mm (1") Adaptor Square tube
- 50 mm (2") Adaptor Square tube
- 3-12 mm (.13-.5") Adaptor Solid Bar (Magnatech can provide these in any dimension)

FLX-TRACK™

In addition to welding pipe, the T Head is also used for ID and OD welding on larger tanks, vessels, and ductwork.

- Flexible track allows mounting on complex curved surfaces
- Standard 2.3m (7.5') Track sections bolt together for longer lengths
- Magnetic or Vacuum attachment

419 T HEAD

Specifications

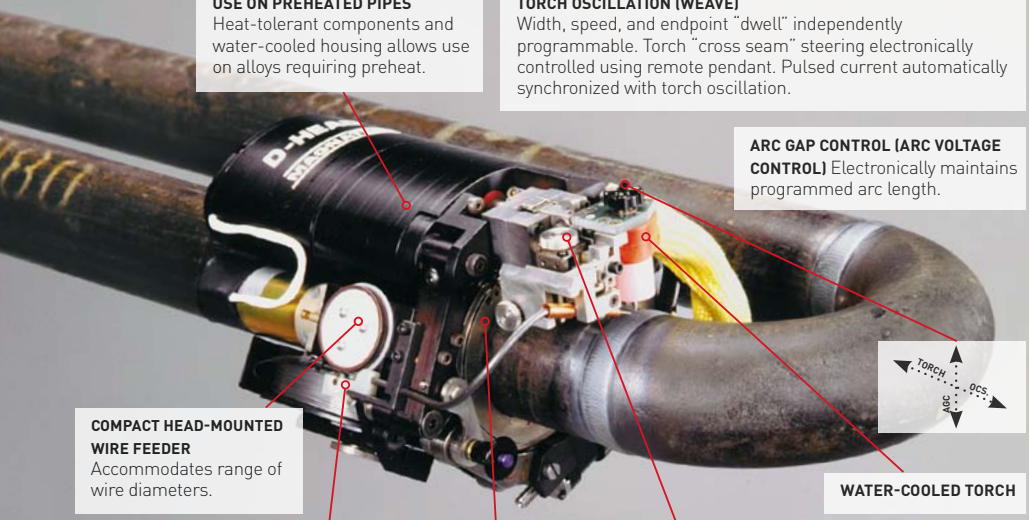
Application	Multi-pass orbital GTAW pipe-to-pipe, pipe-to-fitting	
Cable length	7.6 m (25') standard. Extension cables available	
Pipe (tube) size range	168 – 1524 mm (6 - 60") and larger	
Filler wire module	Wire size	Wire size: 0.8, 0.9, 1.0, 1.2 mm (.030", .035", .040", .045")
	Max. speed capability	2540 mm/min. (100 IPM)
	Spool size	1 kg (2 lbs) standard
Oscillation module	Max. oscillation stroke amplitude	16 mm (0.6725")
	Max. oscillation speed	1520 mm/min. (60 IPM)
	Oscillation dwell	0 – 1 second
	Cross seam adjustment	± 6.4 mm (0.25") fine adjustment ± 38 mm (1.5") course adjustment
Arc gap control module	13 mm (0.5") stroke. Additional mechanical adjustment allows welding heavier wall pipe	
Torch propulsion module	250 mm/min. (10 IPM) maximum rotation speed	
Water-cooled torch	300 A continuous	
Torch adjustment capability	Torch lead/lag adjustment	± 15 degrees (manual)
	Torch tilt adjustment	± 10 degrees (manual)
Power supply compatibility	Pipemaster 515, Pipemaster 516	

Dimensions/weights

Weight	11.8 kg (26 lbs.) Single wire feeder without wire spool 13.4 kg (29.5 lbs.) Dual wire feeders without wire spools
Axial clearance	Torch C/L to Rear Extremity: 4950 mm (19.5") Torch C/L to Front Extremity: 290 mm (1.1")
Radial clearance	250 mm (9.8")

D HEAD
420

MAGNATECH



USE ON PREHEATED PIPES
Heat-tolerant components and water-cooled housing allows use on alloys requiring preheat.

TORCH OSCILLATION (WEAVE)
Width, speed, and endpoint "dwell" independently programmable. Torch "cross seam" steering electronically controlled using remote pendant. Pulsed current automatically synchronized with torch oscillation.

ARC GAP CONTROL (ARC VOLTAGE CONTROL) Electronically maintains programmed arc length.

COMPACT HEAD-MOUNTED WIRE FEEDER
Accommodates range of wire diameters.

WATER-COOLED TORCH

FILLER WIRE SPOOL
Use standard 1kg (2 lbs) spools, or special 0.5 kg (1 lbs) low profile spool to reduce radial profile.

3-AXIS POSITION ADJUSTMENT FOR FILLER WIRE NOZZLE
Multiple adjustments provide precise positioning of filler wire entry into weld puddle.

WELD HEAD MOUNTING/ROTATION
Metal guide rings attach head to pipe. Positive sprocket drive system guarantees uniform rotation speed.

420 D HEAD

ORBITAL WELD HEAD FOR MULTIPASS GTAW PIPE WELDING

The Magnatech D Weld Head is designed to make pipe-to-pipe and pipe-to-fitting welds. It is "full function" – with the capability of reproducing all the motions of a skilled welder. The D Weld Head is used for applications with radial and axial clearance constraints. Interchangeable guide rings provide mounting on the pipe, and allow the D Weld Head to cover a broad size range: 1" - 14". The D Weld Head improves productivity by increasing duty cycle, reducing repair rates, and producing welds of consistent quality.

Features

- Full function Capability (Torch Rotation, Filler Wire Feed, Electronic Arc Gap Control, Electronic Oscillation)
- Broad size range
- Guide Rings available for standard Tube/Pipe sizes
- Waterproof Carry Case/Tool Kit standard
- Water-Cooled Torch uses standard Expendables

Guide Rings Mount Head on Pipe. Available for all nominal pipe sizes 48 mm – 356 mm (11/2" – 14") and Tube sizes 44 mm – 127 mm (1.75" – 5" O.D.)

Applications

- Fossil Power Plant Construction/Maintenance
- Steam Generation Equipment Fabrication
- Nuclear Power Plant Construction/Maintenance
- Chemical/Petrochemical Facility Construction Maintenance
- Shipyard Construction
- Gas Transmission Pipelines
- Process Piping

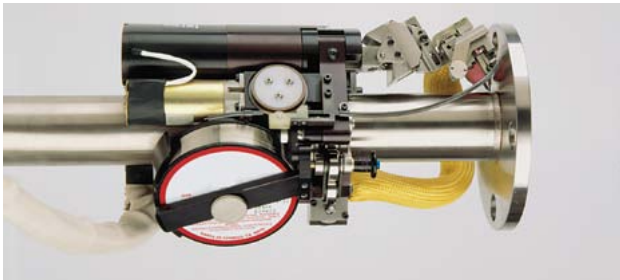
D HEAD 420

Options

SOCKET WELD KIT allows torch to be angled 45° (does not angle AVC motion).

EXTENSION CABLES

TILT AVC (Adjustable) allows torch to be pivoted up to 60° for socket/fillet welds. Maintains arc length correction motion along tungsten electrode axis.



GUIDE RING ADAPTOR KITS allow Guide Rings to be used on smaller pipe sizes. Use with oversized Guide Rings on preheated pipe to prevent heat damage.

VIDEO ARC MONITORING. Various configurations allow remote operation.

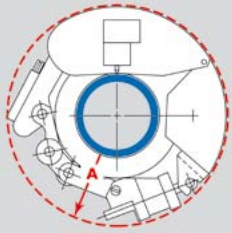
LOW PROFILE SPOOL KIT reduces radial profile of D Weld Head to 50mm (2"); Low Profile Wire Spool 0.5kg (1lb.) required.

420 D HEAD

Specifications

Application	Multi-pass orbital GTAW pipe-to-pipe, pipe-to-fitting	
Cable length	7.6 m (25') standard. Extension cables available	
Pipe (tube) size range	25 – 356 mm (1 – 14")	
Filler wire module	Wire size	0.8, 0.9, 1.0 mm (0.03", 0.035", 0.040")
	Max. speed capability	2540 mm/min. (100 IPM)
	Spool size	1 kg (2 lbs) std; 0.5 kg (1 lbs) low profile
Oscillation module	Max. oscillation stroke amplitude	16 mm (0.6725")
	Max. oscillation speed	1520 mm/min. (60 IPM)
	Oscillation dwell	0 – 1 second
	Cross seam adjustment	± 6.4 mm (0.25")
Arc gap control module	13 mm (0.5") stroke. Additional mechanical adjustment allows welding heavier wall pipe	
Torch propulsion module	250 mm (10 IPM) maximum rotation speed	
Water-cooled torch	200 A continuous capability	
Torch adjustment capability	Torch lead/lag adjustment	± 15 degrees (manual)
	Torch tilt adjustment	± 10 degrees (manual)
Power supply compatibility	Pipemaster 515, Pipemaster 516	

Dimensions/weights



Weight	3.6 kg (8 lbs.)
Axial Clearance	Torch C/L to Rear Extremity: 220 mm (8.51")
	Torch C/L to Front Extremity: 10 mm (0.41")
"A" Radial Clearance Requirement for Pipe 44.45mm (1.75") and larger	64 mm (2.5") with Standard Spool* 51 mm (2.0") with Low Profile Spool*

* For pipe/tube OD's less than 44.45mm (1.75"), Radial Clearance Requirement increases with decreasing diameter. Contact Factory.

QUICKCLAMP
432 433

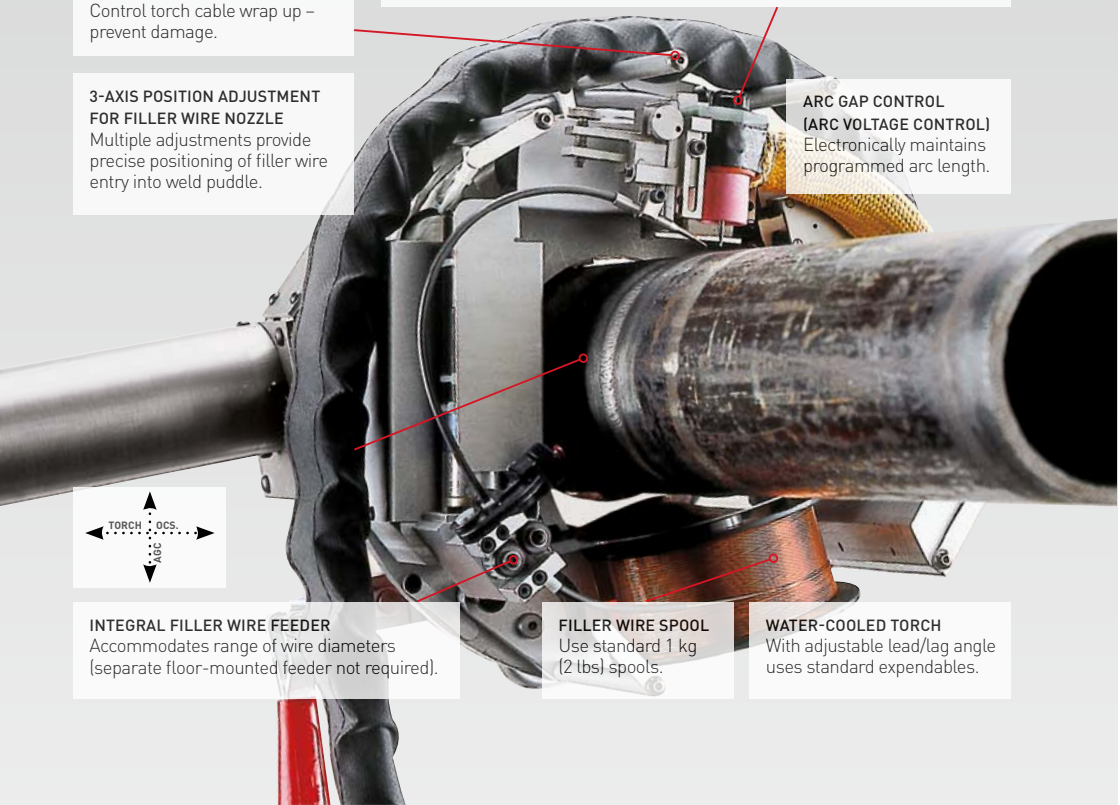
MAGNATECH

TORCH OSCILLATION (WEAVE)
Width, speed, and endpoint "dwell" independently programmable. Torch "cross seam" steering electronically controlled using remote pendant. Pulsed current automatically synchronized with torch oscillation.

CABLE GUIDES
Control torch cable wrap up – prevent damage.

3-AXIS POSITION ADJUSTMENT FOR FILLER WIRE NOZZLE
Multiple adjustments provide precise positioning of filler wire entry into weld puddle.

ARC GAP CONTROL (ARC VOLTAGE CONTROL)
Electronically maintains programmed arc length.



INTEGRAL FILLER WIRE FEEDER
Accommodates range of wire diameters (separate floor-mounted feeder not required).

FILLER WIRE SPOOL
Use standard 1 kg (2 lbs) spools.

WATER-COOLED TORCH
With adjustable lead/lag angle uses standard expendables.

432 433 QUICKCLAMP

ORBITAL WELD HEADS FOR MULTI-PASS GTAW PIPE WELDING

The Magnatech Quickclamp weld heads are designed to make pipe-to-pipe and pipe-to-fitting welds. They are "full function" – with the capability of reproducing all the precise motions of a skilled welder. A continuously adjustable clamp eliminates the need to interchange components when changing pipe sizes. Simply slip the head over the pipe and clamp with a toggle lever. The Quickclamp heads improve productivity by increasing duty cycle, reducing repair rates, and producing welds of consistent quality.

Features

- Multipass welding of tubes/pipes in all gravity positions
- Use economical standard 1 kg (2 lb.) wire spools
- Push button clutch for rapid cable unwind
- Heat tolerant steel bearings and chain drive
- Waterproof Carry Case/Tool Kit standard
- Socket Welding Kit and Tilt AVC option for angled torchapplications
- Water-Cooled Torch uses standard expendables

Options

- Extension cables

TILT-AVC standard. Allows the torch to be pivoted for socket/fillet welding applications, maintaining the arc length correction motion along the tungsten electrode axis (tilt-torch bracket also provided standard).

HEAD mounts entirely on one side of the joint, allowing use for pipe-to-fitting welds.

PIVOTING SPOOL MOUNT
Unique design maintains tension on wire, prevents bending (not required on Model 433)

NARROW AXIAL PROFILE

QUICKCLAMP 432 433

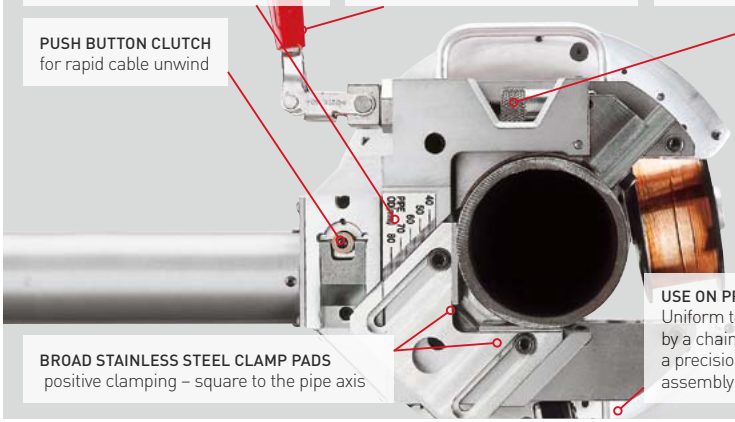
Features

ENGRAVED SCALE allows precise clamp adjustment for pipe O.D. (metric or inch)

TOGGLE LEVER can be repositioned for right/left hand operation

MICROMETER FINE ADJUSTMENT on Clamp provides rapid adjustment for O.D. variation

PUSH BUTTON CLUTCH for rapid cable unwind



USE ON PREHEATED PIPES Uniform torch rotation is ensured by a chain and sprocket drive using a precision stainless steel bearing assembly that is immune to heat.

BROAD STAINLESS STEEL CLAMP PADS positive clamping – square to the pipe axis

Applications

- Fossil Power Plant Construction/Maintenance
- Steam Generation Equipment Fabrication
- Nuclear Power Plant Construction/Maintenance
- Shipyard Construction
- Fabrication Shops
- Chemical/Petrochemical Facility Construction and Maintenance
- Process Piping

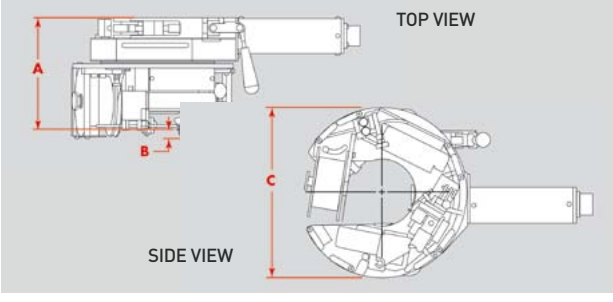
432 433 QUICKCLAMP

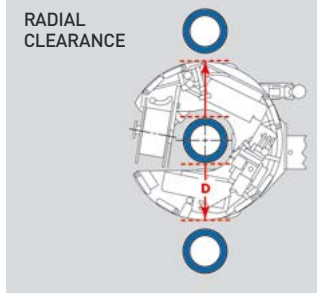
Specifications

	QUICKCLAMP MODEL 432	QUICKCLAMP MODEL 433
Application	Multi-pass orbital GTAW pipe-to-pipe, pipe-to-fitting	
Pipe (tube) OD size range	25 – 89 mm (1.0" – 3.5")	60 – 168 mm (2.375" – 6.625")
Filler wire module	Wire size: 0.8, 0.9, 1.0 mm (.030, .035, .040") Max. speed capability: 2540 mm/min. (100 IPM)	
Oscillation module	Max. oscillation stroke amplitude: 16 mm (0.625") Max. oscillation speed: 1520 mm/min. (60 IPM) Oscillation dwell: 0 – 1 second Cross seam adjustment: ± 6.4 mm (± 0.25")	
Arc gap control module	13 mm (0.5") stroke. Additional mechanical adjustment allows welding heavier wall pipe	
Torch propulsion module	0.1 – 1.8 rpm	0.05 – 0.9 rpm
Water-cooled torch	200 A continuous	
Torch adjustment capability	Torch lead/lag adjustment: ± 15 degrees (manual) Torch tilt adjustment: ± 10 degrees (manual)	
Cable length	7.6 m (25') standard. Extension cables available	
Power supply compatibility	Pipemaster 515, Pipemaster 516	

Dimensions/weights

	QUICKCLAMP MODEL 432	433
Weight	5.9 kg (13.0 lb.)	8.1 kg (17.8 lb.)
Axial Clearance (Torch Centerline to Rear Extremity) (A)	158 mm (6.24")	158 mm (6.24")
Axial Clearance (Torch Centerline to Front Extremity) (B)	10 mm (0.41")	10 mm (0.41")
Width (C)	241 mm (9.50")	321 mm (12.63")
Radial Clearance Requirement (D)	241 mm (9.50") - Pipe OD ÷ 2 = Radial Clearance	321 mm (12.63") - Pipe OD ÷ 2 = Radial Clearance





PIPEMASTER 515

PROGRAMMABLE POWER SOURCE FOR ORBITAL WELD HEADS

The latest generation of Pipemaster power sources is the result of a new direction in power source design. The Pipemaster 515 brings the benefits of digital technology to the orbital welding customer: unparalleled accuracy, repeatability, and reliability. The new model is half the size and weight of previous models. Digital technology forever eliminates the need for periodic weld head calibration – motor speeds and response characteristics remain accurate and stable regardless of wear, and weld heads can be interchanged without time-consuming calibration.

- Unique auto-programming for multi-pass welding
- Easy to program
- Rugged design

MAGNATECH
AUTOMATIC PIPE WELDING SOLUTIONS

PIPEMASTER 515

FEATURES

- Multi-pass welding of pipes/tubes/tubesheets
- Full function capability (torch rotation, filler wire feed, electronic arc gap control, electronic oscillation)
- Operates all models of Magnatech weld heads (GTAW process)
- 200 amp output
- Autoranging input eliminates all internal modifications
- Up to 100 levels per program (time-based programs)
- Stores 100 weld programs internally
- AutoProgram automatically generates procedures
- Programming and operation guided by simple prompts
- Teach mode allows rapid program development
- Programmable "override limits" provide supervisory control
- Weld parameter monitoring/out-of-limits reporting for QA/QC purpose
- Transfer programs and QC data to PC using standard USB flash drive
- AutoTack automatically generates tack weld programs
- Large color LCD display
- Stainless steel case
- Help files provide immediate information/assistance
- Password protection of key functions
- Waterproof pendant with 7.6 m (25') cable
- Auto rewind feature unwraps cable at weld completion
- All weld head functions capable of synchronization with pulsed current output
- Selectable position or time-based programming
- Integral switch prevents welding without torch gas flow
- Integral printer
- Detachable coolant recirculator with integral flow switch protection
- Meets applicable NEMA, CE, CSA standards

SPECIFICATIONS

Application	For use with all Magnatech weld head models (GTAW process), welding lathes, and dedicated weld systems
Functions controlled	Weld current output/current pulsing, weld head rotation, weld head wire feed speed, electronic arc voltage control, electronic torch oscillation, electronic torch cross-seam adjustment
Output power	0 – 200 amps
Input power requirements (rated load)	230 VAC, 1 Ø, 5.0 KVA, 50/60 Hz
Internal memory capacity	100 weld programs
Units of measurement	Metric and Inch (selectable)
Program transfer	Solid state digital media (USB flash drive,
Language selection	English, Spanish, German, French, others
Settable override limits	Individually scalable overrides on each function 0 – 100%
Maximum open circuit voltage	80 V
Water and gas flow switches	Standard. Prevent damage to equipment and workpiece
Data recording/printout	Operator ID, weld ID number, program number, material, OD, wall thickness, date, time, weld head model, project, drawing, programmed parameters, user notes
QC-parameter monitoring/ recording/printout	Records actual parameters and deviations from preprogrammed limits
Arc start type	High voltage impulse
Operating/storage temperature	Operating: -18 to 50° C (0 to 120° F) Storage: -25 to 60° C (-20 to 140° F)
Humidity	To 98% RH (non-condensing)

MAGNATECH
AUTOMATIC PIPE WELDING SOLUTIONS

MAGNATECH LLC USA
6 Kripes Road, P.O. Box 260, East Granby, CT 06026-0260 **P** (+1) 860 653-2573 **F** (+1) 860 653 0486
info@magnatechllc.com
www.magnatechllc.com

W-101 07/18

PIPEMASTER
516

MAGNATECH

516 PIPEMASTER

PROGRAMMABLE CONTROLLER FOR ORBITAL WELD HEADS

The latest generation of Pipemaster controllers are the result of a new direction in power source design. The Pipemaster 516 brings the benefits of digital technology to the orbital welding customer: unparalleled accuracy, repeatability, and reliability. Digital technology forever eliminates the need for periodic weld head calibration – motor speeds and response characteristics remain accurate and stable regardless of wear, and weld heads can be interchanged without time-consuming calibration.

Features

- Multi-pass welding of pipes/tubes/tubesheets
- Full function capability (torch rotation, filler wire feed, electronic arc gap control, electronic oscillation)
- Operates all models of Magnatech weld heads (GTAW process)
- Current programming and pulsing controlled by Pipemaster controller – not the power supply
- Amperage output determined by power source selection
- Autoranging power input eliminates all internal modifications
- Up to 100 levels per program (time-based programs)
- Stores 100 weld programs internally
- AutoProgram automatically generates procedures
- Programming and operation guided by simple prompts
- Teach mode allows rapid program development
- Programmable "override limits" provide supervisory control
- Weld parameter monitoring/out-of-limits reporting for QA/QC purposes
- Transfer programs and QC data to PC using USB flash drive/memory key
- AutoTack automatically generates tack weld programs
- Large color LCD pendant display
- Stainless steel case
- Help files provide immediate information/ assistance
- Password protection of key functions
- Waterproof pendant with 7.6 m (25') cable
- Auto rewind feature unwraps cable at weld completion
- All weld head functions capable of synchronization with pulsed current output
- Selectable position or time-based programming
- Integral switch prevents welding without torch gas flow
- Bluetooth printer option
- Detachable coolant recirculator with integral flow switch protection
- Meets applicable NEMA, CE, CSA standards

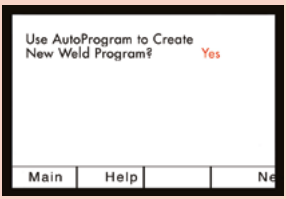
PIPEMASTER 516

AUTOPROGRAM

Programming is simple and intuitive by manual entry or new AutoProgram which self-generates procedures.

Startup display

Automatically create a new weld program



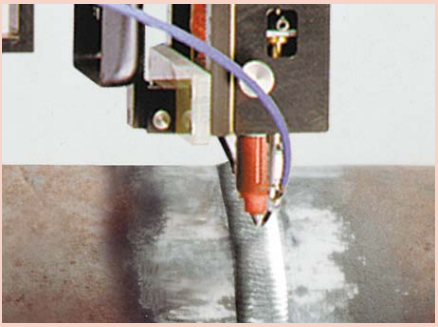
Simply fill in the blanks

Options

- Detachable coolant recirculator mounts beneath
- Controller with integral flow switch protection
- Cart with bottle rack
- Extension cables
- Rugged storage/shipping case
- Freestanding Bluetooth printer
- Data-logging system for Amps, Volts, Travel Speed, Wire Speed, and Gas Flow (available for certain weld Head models only)

REMOTE PENDANT

This handheld control is used to both program and remotely operate the controller. Designed to withstand hard use, the pendant incorporates a completely sealed, waterproof silicone rubber panel keypad, impervious to grinding debris and weld spatter. The color LCD display is protected by a tempered glass shield The intuitive switch layout allows the welder to make program override corrections without lifting his hood. A gasketed storage box for the Pendant is located behind a hinged panel on the front of the Controller.



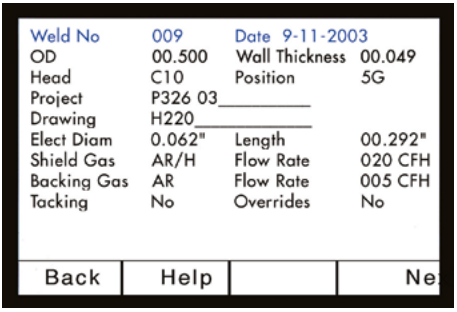
For a perfect weld, every time

SIMPLIFIED PROGRAMMING

Specifying the weld Head to be used from a "dropdown" menu automatically selects the preferred programming mode – position or time. Time-based programming is generally preferred for weld Heads making simple fusion welds. Multipass pipe weld Heads are operated using position-based programming, eliminating calculations to determine when parameter changes must be made. A sensor in the weld Head provides position information. All welding parameters may be changed at each level.

WELD MONITORING/QC

Additional documentation and notes can be added to weld programs and QC records, providing traceability to individual drawings, projects, and customers.



COOLANT RECIRCULATOR

Detachable coolant recirculator mounts beneath the controller with integral flow switch protection.

TEACH MODE

Teach Mode speeds program development. Approximate parameter values are entered (or an existing program copied).
A test weld is then made in Teach Mode. Changes made during welding are temporarily stored and can be "saved" as a new weld program.

SEALED MODULE

All critical electronics are mounted in a completely sealed (IP-65) slide-out module.

PROGRAMMABLE OVERRIDES PROVIDE SUPERVISORY CONTROL

The welder may override programmed parameters but only within preset limits. Password protected override limits are set for each parameter (0–100% of programmed value).

PIPEMASTER 516

Specifications

Application	For use with many Magnatech weld head models (GTAW process), welding lathes, and dedicated weld systems
Functions controlled	Weld current output/current pulsing, weld head rotation, weld head wire feed speed, electronic arc voltage
Output power	0 – 200 amps
Input power requirements (rated load)	115/480 VAC, 1 or 3 Ø, 4.0 KVA, 50/60 Hz autoranging (no modifications necessary)
Internal memory capacity	100 weld programs
Units of measurement	Metric and Inch (selectable)
Program transfer	Solid state digital media (USB flash drive/memory key)
Language selection	English, Spanish, German, French, others
Settable override limits	Individually scalable overrides on each function 0 – 100%
Water and gas flow switches	Standard. Prevent damage to equipment and workpiece
Data recording/printout	Operator ID, weld ID number, program number, material, OD, wall thickness, date, time, weld head model, project, drawing, programmed parameters, user notes
QC-parameter monitoring/ recording/printout	Records actual parameters and deviations from preprogrammed limits
Arc start type	High voltage impulse
Operating/storage temperature	Operating: -18 to 50° C (0 to 120° F) Storage: -25 to 60° C (-20 to 140° F)
Humidity To 98% RH (non-condensing)	To 98% RH (non-condensing)

Dimensions/weights

	MODEL 515 POWER SOURCE	MODEL 905 CIRCULATOR
Length	48 cm (19")	48 cm (19")
Width	35 cm (14")	35 cm (14")
Height	43 cm (17")	27 cm (11")
Weight	41 Kgs (91 Lbs)	15 Kgs (34 Lbs)
Weight - Model 515	35 Kgs (77 Lbs)*	15 Kgs (34 Lbs)*

*115/230 VAC Input Model


MAGNATECH
16.00"
(406.4mm)
MAGNATECH