

THERMAL ARC
Professional

**Digital Perfection
Simply The Best.**

Thermal Arc® PowerMaster®
Synergic Pulse Welding
Equipment including
Tweco® PulseMaster™ and
Tweco PullMaster™ MIG Guns

At the forefront with pulse welding technology

Thermal Arc® continues to be “On the Move” bringing revolutionary new technology to you. The new Thermal Arc PowerMaster SP with SmartMig™, PulseMig™ and TwinPulse® GMAW (MIG) will revolutionize the way you think about welding.

These fully digital microprocessor based machines offer weld control using intelligent pulsing and synergic wave design to give precise, repeatable welds on virtually any weldable material type from thin gauge to plate. Simultaneous micro processor control of the wire feed speed, arc current and voltage ensures clean TIG like finished appearance with GMAW productivity.

Digital Perfection . . . Simply the Best . . .

Simple to use, repeatable results in 320 amp through 500 amp systems. The Thermal Arc PowerMaster SP Range is available in semi automatic and fully integrated automation platforms. Pre-programmed with up to 100 market optimized filler metal and shielding gas combinations with additional capacity for 100 separate user defined programs or jobs. The Thermal Arc PowerMaster SP Range is a whole new class of welding power source. Technology on the Move from Thermal Arc.

At Thermal Arc, we know that you want improved productivity, with welding performance that reduces clean up time and component reworks. As a result we have developed machines with an unbeatable list of standard features including:

- Highly efficient, fast 80 kHz Inverter platform
- JobTool™ 100 independent, user-defined, job save programs
- RobotTool™ A digital advanced automation interface
- TipTronic™ CAN-Bus Digital control platform for remote control capability
- EasyLink™ multi voltage 200 to 500V Single and Three Phase
- SmartLogic™ protection for incorrect input voltage selection
- HDP™ – High Definition Pulse
- HSP™ – High Speed Pulse
- FTT™ – Fresh Tip Treatment
- Up to 100 SmartMig, PulseMig and TwinPulse programs standard
- One Touch Synergic Control, set the material thickness, then start welding
- Lock out facility for guaranteed 100% repeatable performance
- Multi-Process capabilities – GMAW - (Manual MIG); GMAW - (SmartMig), GMAW-P – (PulseMig and TwinPulse), SMAW, GTAW and CAG
- User-friendly controls plus 2-line digital display, enabling easy set-up in all weld modes
- Tweco® PulseMaster™, and PullMaster™ optimized smart gun range
- Push/Pull gun capability
- Easy three steps to welding operation

Set to transform the growing automotive, aluminum/ stainless steel fabrication and repair/maintenance sectors the PowerMaster SP Range is designed to meet the rigorous demands of a wide range of welding applications, including:

- General aluminum and stainless steel fabrication
- Boat building, Shipyards
- Automotive components and repairs
- Railcar manufacturing
- Custom job shops
- Aerospace





Steel



Stainless Steel



Aluminum



MIG Brazing

Intelligence: One Touch Control ... at your fingertips

Selecting a welding machine for a specialized project – or even for general welding requirements – can be a daunting task. You have to take many factors into account, such as running cost, ease of use, and versatility, not to mention machine cost. Always at the forefront of your mind is the awareness that your profitability is based on weld quality, weld repeatability, power consumption, equipment flexibility, workforce flexibility, negligible rework and minimal weld clean up.

Look no further. The PowerMaster SP Range and PowerMaster SP Automation Range deliver all of these attributes, plus MORE!

Our intelligent Synergic - One Touch Control micro processor simultaneously links control of the wire feed speed, arc current and voltage delivering perfect welding parameters for SmartMig (non-pulse) welding, PulseMig and TwinPulse welding over a wide range of different gas/wire/material thickness combinations. Now setting the optimum welding conditions is as simple as selecting the material thickness. Smart technology made simple . . .



Combine our intelligent One Touch Control and digital HDP – (High Definition Pulse) and what do you get? Perfection

- The welding pulse profile is unique to a specific wire / gas combination consisting of pulse height, pulse width, pulse frequency and background power: up to 30 of these parameters are linked via the digital microprocessor to give the correct arc energy.
- This arc energy is then matched to a wire feed speed that gives an acceptable arc length and the best welding conditions for the chosen gas mixture, wire diameter and material type combination.
- The synergic One Touch Control knob adjusts the arc energy over the available current range of the power supply, while maintaining approximately the same arc length. An additional trim knob is also provided to allow the user to tune in the arc length for the particular welding job.
- Pulsed weld current facilitates exact control over the transfer of molten metal droplets across the welding arc.
- As the weld current is pulsed, each droplet is pinched off the end of the wire and projected across the arc into the weld pool. Varying the pulse height, shape and frequency allows the size and time of the transferring droplet to be perfectly controlled.
- The pulsed droplet transfer produces a spray-like arc over a very wide current range, with a smooth, stable weld current producing little or no spatter and an even weld bead shape.

Perfect starts

An amplified power level is applied to the welding arc at the start of the weld bead to ensure arc start defects such as lack of fusion are a thing of the past.



No more spatter

Digital microprocessor control of wire speed, weld current and voltage, in conjunction with SmartMig™ (non-pulse)/ PulseMig programs, ensure precise control and adjustment for the duration of the welding process. This eliminates spatter, and therefore downtime for weld clean up of the workpiece. With its ability to adjust in milliseconds, the synergic PowerMaster SP Range provides clean, spatter-free operation from start to finish, every time.

HDP– Intelligent pulsing

HDP – High Definition Pulse wave design has expertly tailored current pulse parameters to precisely control molten filler metal droplets across the arc to achieve spatter-free welding for the selected gas/wire/material combination. The pulse pinches the droplet off the end of the wire, projects it across the arc and into the weld pool. The program is optimized to vary the pulse height, shape and frequency, thus ensuring that the size and time of the transferring droplet is accurately controlled. This produces a spray-like arc over the entire welding power range.



SPATTER-FREE IGNITION SEQUENCE:

Contact	Ignition	Upslope control	Arc stabilizing	Pulsing begins
0.000 seconds	0.0001 seconds	0.050 seconds	0.200 seconds	0.300 seconds



PULSE PROFILES

Pulse profiles for different materials are created using the in-built software program.



PowerMaster SP: The BENEFITS

Ranging from 320 to 500 amps, each PowerMaster SP is the ultimate fully featured power supply designed for precision high quality MIG welding of steel, aluminum, stainless steel, and other weldable materials. Experience the benefits of choosing Thermal Arc PowerMaster SP:

- Reduction/Elimination of weld spatter reducing clean up time
- HDP - High Definition Pulse, expertly tailored wave design for perfect pulse performance
- HSP - High Speed Pulse, specialized high speed, wave design for maximum productivity
- EasyLink multi voltage 200 to 500V, Single and Three phase versatility
- TipTronic CAN Bus Digital control platform for remote control capability
- Up to 100 optimized SmartMig, PulseMig and TwinPulse programs standard, delivering optimal performance & versatility
- JobTool 100 independent, user-defined, job save programs accessible via Tweco PulseMaster Smart Gun providing digital reproduction of specific procedure parameters delivering maximum productivity
- Lock out facility for guaranteed 100% repeatable performance
- Precise control of welding power, to assure bead shape and root penetration rivaling TIG
- Effortless TIG-like weld appearance up to seven times faster on aluminum and stainless steel with Twin Pulse.
- High energy arc produced, that virtually eliminates the risk of lack of fusion
- Improved arc control for out-of-position welding and more effective welding of thin materials

- Compact fully integrated liquid recirculator for high duty cycle applications (select models)
- SmartLogic software protection for incorrect input voltage
- RobotTool A digital advanced automation interface capability for robotic and fixed automation applications
- FTT - Fresh Tip Treatment, delivering perfect restarts and eliminating down time
- Multi-Process capabilities: GMAW – (Manual MIG); GMAW – (SmartMig), GMAW-P – (PulseMig; TwinPulse), SMAW, GTAW and CAG delivering versatility
- Complete Tweco PulseMaster & PullMaster fully optimized smart gun range
- Push/Pull gun capability
- User friendly One Touch Synergic Control, set the material thickness, then start welding

When compared to conventional MIG equipment PowerMaster SP additionally delivers:

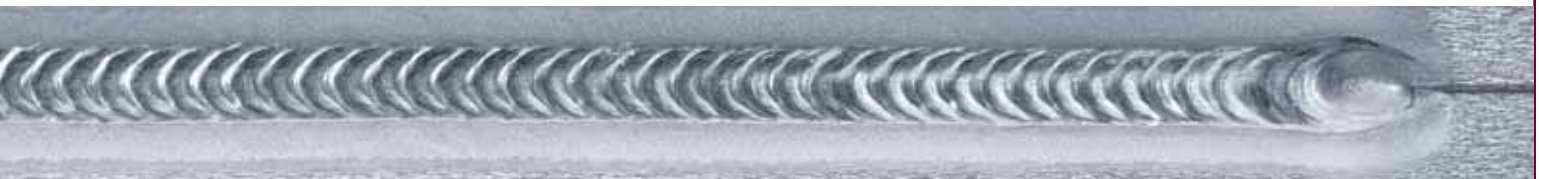
- Superior out-of-position arc transfer delivering smoother, more consistent welding of steel, stainless steel and aluminum
- Superior, deeper weld penetration
- Accurate penetration on sheet-metal
- Superior welding characteristics for hard-facing and high-alloy steels
- The ability to use larger-than-normal diameter wires on thin base material, providing a cost savings on wire and superior feed-ability
- Superior feed-ability with normal push guns reducing the need for push/pull systems

Complete arc-length control

Steady, consistent arc length is crucial for quality weld deposit. Digital arc length control monitors the progress of the weld and detects any deviations within a fraction of a second. Adjustments are made instantaneously ensuring the arc length remains steady for the duration of the welding procedure.

No more end craters!

Automatic reduction of welding energy (down slope) at the completion of the weld eliminates any crater that could potentially cause weld defects. The addition of FTT (Fresh Tip Treatment) ensures a sharp wire end, and a perfect re-start for the next weld sequence.



ARC LENGTH CONTROL EXAMPLES

Constant arc length due to change in stick-out.



Constant arc length due to change in material height.



Leave it to us you don't have to remember – we'll do it for you



Remote control on torch

Welding voltage and wire speed are controlled directly from the Tweco PulseMaster Smart gun ensuring fast and flexible control.



Select your personalized jobs

The JobTool and TipTronic stores and accesses the exact welding parameters for each application in their correct sequence. With just the touch of a button you can call up 100 personalized welding procedures.



Remote control

All welding parameters can be remotely controlled and operated from a distance of 16 feet (5 metres) from the power supply. Ideal for fixed or robotic automation.



Automation ease

Both the PowerMaster 400SP and 500SP Automation are easily connected to automation systems. Simply access stored jobs directly from a pendant or controller to obtain a clear, efficient automation solution.



Robot compatible

Analog or digital interface is set via RobotTool. The internal CAN-Bus can also be docked to common Bus-systems. Robot interface is supported via software and no hardware changes required.



Computer connectable

The range is fully digital for ease of future upgrades and service. Connection to a PC allows the use of JobTool Software to manage welding jobs data and to monitor electronic diagnostics and service status.

The Smart Choice for the future

Expert welding intelligence and experience is designed into all our welding programs to provide the optimal welding solution:

- The pre-requisite for perfect welding is finely tuned pulsing programs. The PowerMaster SP range comes with advanced digital software knowledge as standard, guaranteeing the pulsing performance.
- There are up to 100 pre-programmed wire gas combinations as standard.
- You can save an additional 100 user-define personalized welding procedures.
- Lack of fusion weld defects at the start of the welding seam are history with the exact amount of arc energy delivered to the wire for instant fusion into the base material.
- Absolute perfection in the welding process and 100% reproducibility of any weld result are achieved by the software program and digital microprocessor control.
- The PulseMig mode turns the filler metal into the finest droplets, then projects them across the arc and into the molten weld pool for spatter-free welding. It also offers the best visual welding results, out-of-position capabilities and smaller fillet weld beads when compared to conventional MIG welding.
- The droplet formation, detachment and transition into the molten weld pool takes place in intervals of 100th of a second.
- The arc length is a crucial factor for the best welding result. Digital arc length control keeps the arc length steady at all times. Wire stick-out and distance changes from wire to workpiece are detected within fractions of a second and are adjusted to achieve faultless results.
- Weld defects in the weld crater are eliminated automatically by pulsing the arc energy (down slope), to slowly cool the weld pool.
- TwinPulse is supplied as standard with this range and controls the melting and cooling tasks in the weld pool systematically and separately. It provides an appearance similar to TIG welding, but at a welding speed approximately seven times faster than conventional TIG and is ideal for use with aluminum.

Key Features with all PowerMaster SP Systems

HARDWARE (Standard)

Inverter Design

Heavy duty, highly efficient, environmentally toughened 80KHz design with exceptional dynamic welding performance.

Flow Through Tunnel

Designed to circulate air around components that require cooling and not over critical circuitry. This reduces metallic dust ingress and improves reliability.

Intelligent Heat Sensing Fan

Operates only as needed to cool components & further reduce airborne contaminants from being pulled through the power source.

EasyLink Simple, multi-voltage design from 200 to 500V for maximum flexibility in a single power source.

Remote Control

CAN-Bus ports allow for easy data transfer and provide full function remote control capability.

4 Roll Drive Systems

All wire feeder drive systems are high precision, 4 roll systems manufactured to extremely tight tolerances for optimum feedability of both hard and soft wires.

Heavy Duty Running Gear

All running gear has been developed for manufacturing / production environments, built heavy duty and designed to last.

Tweco Guns and Accessories

Tweco has a full line of PulseMaster & PullMaster standard and Smart Guns with advanced digital controls optimized for the PowerMaster SP range. Gun connections are Tweco No. 4 and return leads are Tweco MPC.

SOFTWARE (Standard)

SmartMig Links the wire feed speed, arc current and voltage to deliver the perfect welding parameters and eliminate the guesswork for achieving optimum performance.

TwinPulse Effortless TIG-Like weld appearance up to seven times faster on aluminum and stainless steel than traditional TIG (GTAW).

HDP High Definition Pulse is expertly tailored, optimized wave designs for perfect, digital microprocessor controlled, pulse performance.

SmartLogic Built in hardware and software protection against accidental incorrect input voltage selection.

JobTool JobTool is a library of 100 independent, user-defined, job save programs. You can save and recall welding procedures from a PulseMaster™ Smart Gun or from the front panel at any time.

FTT Fresh Tip Treatment sharpens the wire at the end of the weld sequence ready for a perfect restart.

TipTronic Recalls up to 100 personalized jobs with perfect repeatability through the push of a button.

Pre Programmed

Up to 100 optimized SmartMig, PulseMig and TwinPulse programs are standard, delivering optimal performance and versatility.

Down Slope (Crater Fill Mode)

The digitally adjustable parameters ramp arc energy down eliminating any craters that could cause defects.

PERFORMANCE (Standard)

Operating Platform How would you like to use the machine? What is your primary parameter? Is it Inches per Minute or Amps? Would you rather just dial up the material thickness and let the machine do the rest? All can be accommodated.

One Touch Control

Delivers at your fingertips the perfect welding parameters by adjusting the total arc energy. Set material thickness then start welding.

Hot Start Ignition

The digitally adjustable start parameters combined with FTT, creep feed speed and an amplified power level applied to the welding arc at the start of the weld bead ensures perfect fusion.

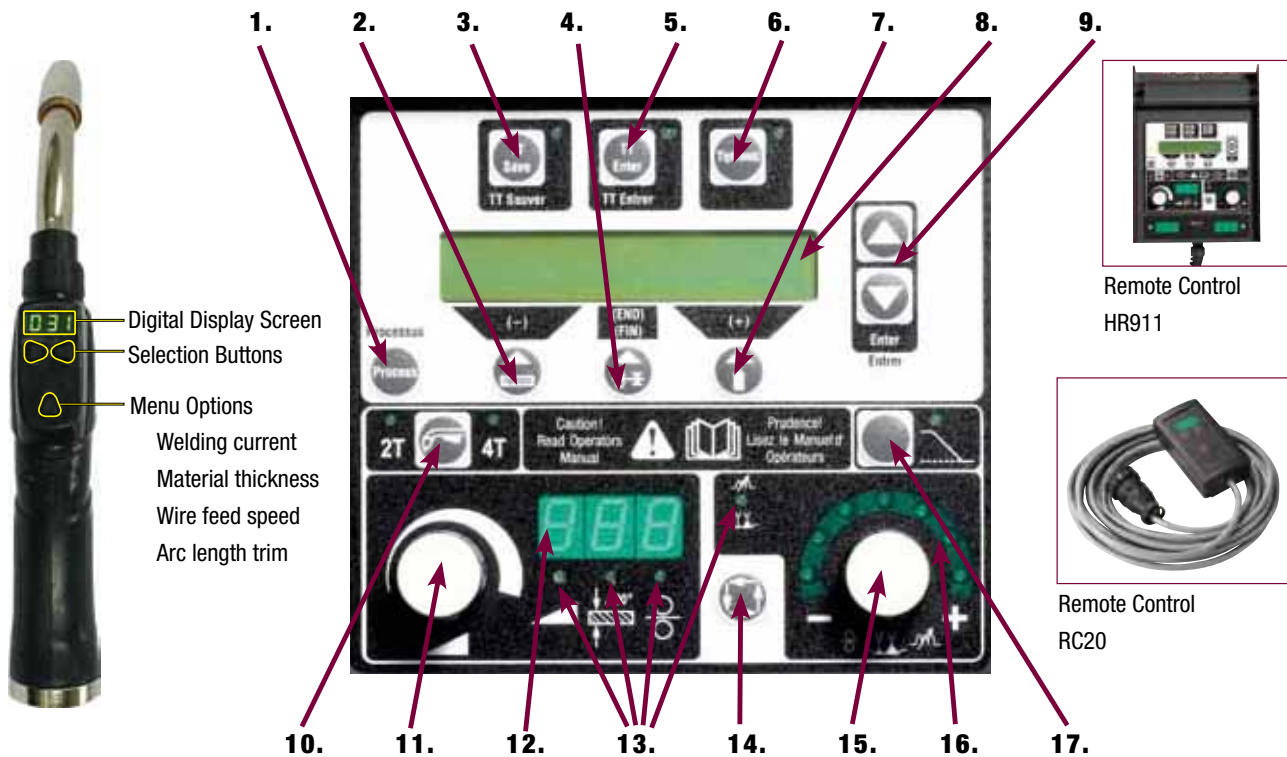
HARDWARE/SOFTWARE (Options)

HSP High Speed Pulse is specialized high speed wave design for maximum productivity.

Push/Pull Gun Capability

"Plug and Play" interface.

Key Control



1. 'Process' control switches between welding processes
2. 'Material' control selects the wire material type
3. 'TT Save' control saves the user-defined welding jobs
4. 'Welding wire diameter' control selects the wire diameter
5. 'TT Enter' control acknowledges the saved welding job
6. Tiptronic' control switches the TipTronic™ process on or off
7. 'Gas type' control selects the gas mix for welding
8. Multi-function display shows all selected parameters and messages
9. Arrow controls provide access to the secondary welding parameters
10. '2 Stroke (2T)/4 Stroke (4T)' selects 2T and 4T (Latch) operation or sets Spot Welding Mode when holding the 2T/4T button for 2 seconds
11. 'Smart Power' control knob sets welding current or material thickness or wire speed
12. 'Digital multi-function' display shows the primary parameters such as welding current, material thickness (in .001"), wire feed speed (inches/min) or arc length trim
13. 'Primary parameter' indicator shows which primary parameter is currently displayed on the multi-function display
14. 'Primary parameter' control selects between welding current, material thickness, wire feed speed and arc length, as indicated on the digital multi-function display
15. 'Arc length' control knob adjusts the arc length iSmartMig™, PulseMig, TwinPulse process
16. 'Arc length' LED indication shows the degree of the trim selected in SmartMig, PulseMig, TwinPulse process
17. 'Downslope' control selects downslope function

Wire Gas Combinations

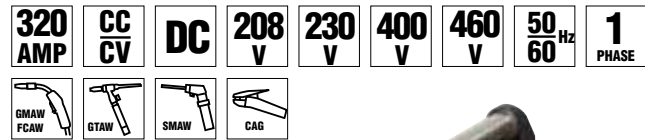
Material Name	Shield Gas	Wire Size	320SP		400SP		500SP	
			Synergic Smart MIG	Pulse & Twin Pulse	Synergic Smart MIG	Pulse & Twin Pulse	Synergic Smart MIG	Pulse & Twin Pulse
Mild Steel ER70-S6	75Ar/ 25C02	.030" (0.8mm)	✓					
		.035" (0.9mm)	✓		✓		✓	
		.045" (1.1mm)	✓		✓		✓	
		.052" (1.4mm)			✓		✓	
	90Ar/ 10C02 or 92Ar/ 8C02	.030" (0.8mm)	✓	✓	✓	✓	✓	✓
		.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
		.052" (1.4mm)			✓	✓	✓	✓
Flux Cored E71-T1	75Ar/ 25C02	.045" (1.1mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)	✓	✓	✓	✓	✓	✓
Flux Cored E70C-6M	75Ar/ 25C02	.045" (1.1mm)	✓		✓		✓	
		.052" (1.4mm)			✓		✓	
		.062" (1.6mm)			✓		✓	
Stainless Steel 308-309	81Ar/ 18He/ 1C02	.030" (0.8mm)	✓	✓	✓	✓	✓	✓
		.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
	98Ar/ 2C02	.030" (0.8mm)	✓	✓	✓	✓	✓	✓
		.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
Stainless Steel 316	81Ar/ 18He/ 1C02	.030" (0.8mm)	✓	✓	✓	✓	✓	✓
		.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
	98Ar/ 2C02	.030" (0.8mm)	✓	✓	✓	✓	✓	✓
		.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
Aluminum 4043	Argon	.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
		.047" (1.2mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)			✓	✓	✓	✓
	75Ar/ 25He	.047" (1.2mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)			✓	✓	✓	✓
Aluminum 5356	Argon	.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
		.047" (1.2mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)	✓	✓	✓	✓	✓	✓
	75Ar/ 25He	.047" (1.2mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)			✓	✓	✓	✓
Aluminum 5183	Argon	.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓
		.047" (1.2mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)	✓	✓	✓	✓	✓	✓
	75Ar/ 25He	.045" (1.1mm)	✓	✓	✓	✓	✓	✓
		.047" (1.2mm)	✓	✓	✓	✓	✓	✓
		.062" (1.6mm)			✓	✓	✓	✓
					✓	✓	✓	✓
Silicon Bronze	Argon	.035" (0.9mm)	✓	✓	✓	✓	✓	✓
		.045" (1.1mm)	✓	✓	✓	✓	✓	✓

PowerMaster 320SP

The PowerMaster 320SP is in a league of its own as a state of the art, fully featured, fully integrated, portable, digital PulseMig and TwinPulse power supply.

Complete with 320 amp maximum output, a 4-roll wire feed system, 33 / 44lb spool capacity and a weight of only 77lb enables a high degree of portability. This system is the ideal choice for a variety of welding applications including:

- General fabrication of aluminum and stainless steel
- Aluminum boat fabrication or repair
- Stainless steel tank and pipe fabrication
- Maintenance repair
- Automotive repair
- Technical schools
- Applications requiring stringent welding procedure adherence



PowerMaster 320 Specifications Welding DC-GMAW

Output range	5-320 Amps, 14.3-30 Volt (1 Phase)
Rated output @ Duty Cycle at 104°F	320A at 30V @ 40% Duty Cycle (1 Phase)
Output @ 100% duty cycle	250 Amp at 26.5V (1 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
Wire diameter range	
Mild steel	.023"-.045" (0.6-1.2mm)
Stainless steel	.023"-.045" (0.6-1.2mm)
Aluminum	.030"-.3/64" (0.8-1.2mm)
Flux cored*	.030"-.045" (0.8-1.2mm)
Fitted feed rolls suit solid MIG wires (V groove)	.035"-.045" (0.9-1.2mm)

*For flux cored wire applications, only DC+ flux cored wires can be used with this model.

PowerMaster 320 Specifications Welding DC-SMAW

Output range	10-300 Amps, 20.4-32 Volt (1 Phase)
Rated output @ Duty Cycle at 104°F	300A at 32V @ 40% Duty Cycle (1 Phase)
Output @ 100% duty cycle	230 Amp at 29.2V (1 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
SMAW electrode range	3/32"-1/4" (2.4-6.4mm)
CAG Carbon arc gouging electrode	1/8"-1/4" (3.2-6.4mm)

Dimensions, Weight & Warranty

Power source dimensions (HxWxD)
29.3" x 13.4" x 19.6" (745 x 340 x 498 mm)

Weight
77.1 lb (35 kg)

Warranty Period
5 Years*

* Limited warranty, refer to warranty schedule.

Primary Power

Primary Voltage	Primary Current	Primary kVA
208V/1 phase	69.5 Amp	14.5 kVA
230V/1 phase	57.5 Amp	13.2 kVA
400V/1 phase	37.5 Amp	15.0 kVA
460V/1 phase	32.0 Amp	14.7 kVA
Primary Frequency		
50/60 Hz		
Approvals		
CSA		

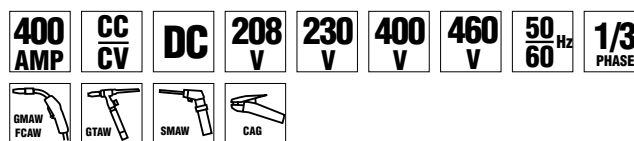
Features



PowerMaster 400SP Integrated: The accomplished all-rounder

The PowerMaster 400SP has a maximum output of 400 amps and is available in two configurations, as a fully integrated version or a separate remote feeder system. The integrated variant has a 4-roll wire drive system and is supplied standard with running gear. This is the ideal digital SmartMig, PulseMig and TwinPulse power supply to run push/pull systems for production welding with 3/64" aluminum wires, typical applications include:

- General fabrication or aluminum, stainless steel
- Aluminum boat fabrication
- Wine tanks
- Automotive components
- Machinery, including construction machinery
- Pipe welding
- Custom job shops
- Maintenance repairs
- Stainless steel tank and pipe fabrication
- Applications requiring stringent welding procedure adherence



PowerMaster 400SP Integrated Specifications WELDING DC – GMAW	
Output range	5-400 Amps, 14.3-34 Volt (1,3 Phase)
Rated output @ Duty Cycle at 104°F	400A at 34V @ 50% Duty Cycle (1,3 Phase)
Output @ 100% duty cycle	320 Amp at 30.0V (1,3 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
Wire diameter range	
Mild steel	.023"-1/16" (0.6-1.6mm)
Stainless steel	.023"-1/16" (0.6-1.6mm)
Aluminum	.030"-1/16" (0.8-1.6mm)
Flux cored*	.030"-1/16" (0.8-1.6mm)
Fitted feed rolls suit solid MIG wires (V groove)	.035"-.045" (0.9-1.2mm)

*For flux cored wire applications, only DC+ flux cored wires can be used with this model.

PowerMaster 400SP Integrated Specifications WELDING DC – SMAW	
Output range	10-380 Amps, 20.4-32 Volt (1,3 Phase)
Rated output @ Duty Cycle at 104°F	380A at 35.2V @ 50% Duty Cycle (1,3 Phase)
Output @ 100% duty cycle	300 Amp at 32V (1,3 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
SMAW electrode range	3/32"-1/4" (2.4-6.4mm)
CAG Carbon arc gouging electrode	1/8"-5/16" (3.2-8.0mm)

Dimensions, Weight & Warranty

Power source dimensions (HxWxD)
43.9"x17.5"x33.7" (1116x445x855mm)

Weight
215lb (97.3kg)

Warranty Period
5 Years*

* Limited warranty, refer to warranty schedule.

Primary Power

Primary Voltage	Primary Current	Primary kVA
208V/1 phase	92.0 Amp	19.1kVA
230V/1 phase	85.2 Amp	19.6kVA
400V/1 phase	49.5 Amp	19.8kVA
460V/1 phase	42.7 Amp	19.6kVA
208V/3 phase	46.1 Amp	17kVA
230V/3 phase	41.0 Amp	16kVA
400V/3 phase	24.0 Amp	17kVA
460V/3 phase	21.4 Amp	17kVA
Primary Frequency		
50/60 Hz		
Approvals		
CSA		

Features



Heavy duty 4 roll precision drive system



Rubber cover protects secondary controls



Digital amp and volt meters with preview and actual values displayed



User friendly control panel



Up to 100 wire gas combinations



Simple 3 steps to welding set-up chart



Socket connection used for remote power control with the remote control RC20



EasyLink multi-voltage 200 to 500V 1/3 phase with SmartLogic™



CAN-Bus connection to a PC for JobTool to manage welding jobs and diagnostics



Tough handles protect the front control panel



Tweco MPC Connections



Tweco No. 4 gun connection

PowerMaster 400SP Remote: The accomplished all-rounder

The PowerMaster 400SP Remote has a maximum output of 400 amps and is supplied with a fully integrated liquid cooling system and up to 32 ft of interconnection cable. This is also the ideal digital PulseMig and TwinPulse power supply to run push/pull gun systems for production welding with 3/64" aluminum wires, typical applications include:

- General fabrication or aluminum, stainless steel
- Aluminum boat fabrication
- Wine tanks
- Automotive components
- Machinery, including construction machinery
- Pipe welding
- Custom job shops
- Maintenance repairs
- Stainless steel tank and pipe fabrication
- Applications requiring stringent welding procedure adherence



PowerMaster 400SP Remote Specifications WELDING DC – GMAW	
Output range	5-400 Amps, 14.3-34 Volt (1,3 Phase)
Rated output @ Duty Cycle at 104°F	400A at 34V @ 50% Duty Cycle (1,3 Phase)
Output @ 100% duty cycle	320 Amp at 30.0V (1,3 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
Wire diameter range	
Mild steel	.023"-1/16" (0.6-1.6mm)
Stainless steel	.023"-1/16" (0.6-1.6mm)
Aluminum	.030"-1/16" (0.8-1.6mm)
Flux cored	.030"-1/16" (0.8-1.6mm)
Fitted feed rolls suit solid MIG wires (V groove)	.035"-.045" (0.9-1.2mm)

PowerMaster 400SP Remote Specifications WELDING DC – SMAW	
Output range	10-380 Amps, 20.4-35.2 Volt (1,3 Phase)
Rated output @ Duty Cycle at 104°F	380A at 35.2V @ 50% Duty Cycle (1,3 Phase)
Output @ 100% duty cycle	300 Amp at 32V (1,3 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
SMAW electrode range	3/32"-1/4" (2.4-6.4mm)
CAG Carbon arc gouging electrode	1/8"-5/16" (3.2-8.0mm)

Dimensions, Weight & Warranty

Power source dimensions (HxWxD)
43.9"x17.5"x33.7" (1116x445x855mm)

Weight
201lb (91.3kg)

Warranty Period
5 Years*

* Limited warranty, refer to warranty schedule.

Primary Power

Primary Voltage	Primary Current	Primary kVA
208V/1 phase	92.0 Amp	19.1kVA
230V/1 phase	85.2 Amp	19.6kVA
400V/1 phase	49.5 Amp	19.8kVA
460V/1 phase	42.7 Amp	19.6kVA
208V/3 phase	46.1 Amp	17kVA
230V/3 phase	41.0 Amp	16kVA
400V/3 phase	24.0 Amp	17kVA
460V/3 phase	21.4 Amp	17kVA
Primary Frequency		
50/60 Hz		
Approvals		
CSA		

Features



Up to 100 wire gas combinations



Rubber cover protects secondary controls



Digital amp and volt meters with preview and actual values displayed



User friendly control panel



Gun holder



Simple 3 steps to welding set-up chart



Heavy duty 4 roll precision drive system



Tough handles protect the front control panel



Tough handles protect the front control panel



Tweco No. 4 gun connection



EasyLink multi-voltage 200 to 500V 1/3 phase with SmartLogic



Optional swivel (Pivot) base which locks the wirefeeder onto the top of the power supply



Cable gland to suit customer supplied input cord



Multi pin socket for communications between the power supply and SP4000 wirefeeder



Tweco MPC Connections



Cylinder rack provides easy loading for one cylinder

PowerMaster 500SP: The logical heavy-duty choice

The PowerMaster 500SP Remote with a separate 4-roll wire feeder system has a maximum output of 500 amps and is supplied with a fully integrated liquid cooling system and up to 32 ft of interconnection cable. This is the ideal digital PulseMig and TwinPulse power supply for heavy-duty, high duty-cycle, high-quality welding applications running push or push/pull gun systems for production welding with 1/16" aluminum wires, typical applications include:

- General fabrication or aluminum, stainless steel
- Aluminum boat fabrication
- Wine tanks
- Automotive components
- Construction machinery
- Pipe welding
- Custom job shops
- Maintenance repairs
- Mining
- Stainless steel tank and pipe fabrication
- Applications requiring stringent welding procedure adherence



PowerMaster 500SP Specifications WELDING DC – GMAW

Output range	5-500 Amps, 14.3-39 Volt (3 Phase) 5-400 Amps, 14.3-34 Volt (1 Phase)
Rated output @ Duty Cycle at 104°F	500A at 39V @ 60% Duty Cycle (3 Phase) 400A at 34V @ 50% Duty Cycle (1 Phase)
Output @ 100% duty cycle	400 Amp at 34.0V (3 Phase) 320 Amp at 30.0V (1 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
Wire diameter range	
Mild steel	.023"-1/16" (0.6-1.6mm)
Stainless steel	.023"-1/16" (0.6-1.6mm)
Aluminum	.030"-1/16" (0.8-1.6mm)
Flux cored	.030"-1/16" (0.8-1.6mm)
Fitted feed rolls suit solid MIG wires (V groove)	.035"-.045" (0.9-1.2mm)

Dimensions, Weight & Warranty

Power source dimensions (HxWxD)

43.9"x17.5"x33.7" (1116x445x855mm)

Weight

222lb (108.8kg)

Warranty Period

5 Years*

* Limited warranty, refer to warranty schedule.

PowerMaster 500SP Specifications WELDING DC – SMAW

Output range	10-480 Amps, 20.4-39.2 Volt (3 Phase) 10-380 Amps, 20.4-35.2 Volt (1 Phase)
Rated output @ Duty Cycle at 104°F	480A at 39.2V @ 60% Duty Cycle (3 Phase) 380A at 35.2V @ 50% Duty Cycle (1 Phase)
Output @ 100% duty cycle	380 Amp at 35.2V (3 Phase) 300 Amp at 32.0V (1 Phase)
Average OCV	90V DC
Voltage/Amperage control	Infinitely variable
SMAW electrode range	3/32"-1/4" (2.4-6.4mm)
CAG Carbon arc gouging electrode	1/8"-5/16" (3.2-9.5mm)

Primary Power

Primary Voltage	Primary Current	Primary kVA
208V/1 phase	92.0 Amp	19.1kVA
230V/1 phase	85.2 Amp	19.6kVA
400V/1 phase	49.5 Amp	19.8kVA
460V/1 phase	42.7 Amp	19.6kVA
208V/3 phase	66.0 Amp	24kVA
230V/3 phase	58.9 Amp	23kVA
400V/3 phase	33.5 Amp	23kVA
460V/3 phase	29.6 Amp	24kVA
Primary Frequency		
50/60 Hz		
Approvals		
CSA		

Features



Up to 100 wire gas combinations



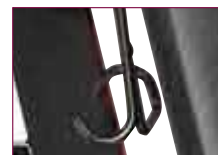
Rubber cover protects secondary controls



User friendly control panel



Digital amp and volt meters with preview and actual values displayed



Gun holder



Up to 100 wire gas combinations



Heavy duty 4 roll precision drive system



Heavy duty 4 roll precision drive system



Tough handles protect the front control panel



Tweco MPC Connections



Tough handles protect the front control panel



Tweco No. 4 gun connection



Multi pin socket for communications between the power supply and SP4000 wirefeeder



EasyLink multi-voltage 200 to 500V 1/3 phase with SmartLogic



Cable gland to suit customer supplied input cord



PowerMaster 400SP Automation:

The PowerMaster 400SP Automation has a maximum output of 400 amps and is supplied with a fully integrated liquid cooling system. This is also the ideal digital PulseMig and TwinPulse power supply to run push/pull gun systems for production welding with 3/64 aluminum wires, typical applications include:

- General fabrication or aluminum, stainless steel
- Aluminum boat fabrication
- Wine tanks
- Automotive components
- Machinery, including construction machinery
- Pipe welding
- Custom job shops
- Maintenance repairs
- Stainless steel tank and pipe fabrication
- Applications requiring stringent welding procedure adherence

PowerMaster 400SP Automation Specifications WELDING DC – GMAW	
Output range	5-400 Amps, 14.3-34 Volt (1,3 Phase)
Rated output @ Duty Cycle at 104°F	400A at 34V @ 50% Duty Cycle (1,3 Phase)
Output @ 100% duty cycle	320 Amp at 30.0V (1,3 Phase)
Maximum OCV	90V DC
Voltage/Amperage control	Infinitely variable
Wire diameter range Mild steel Stainless steel Aluminum Flux cored	.023"-1/16" (0.6-1.6mm) .023"-1/16" (0.6-1.6mm) .030"-1/16" (0.8-1.6mm) .030"-1/16" (0.8-1.6mm)
Fitted feed rolls suit solid MIG wires (V groove)	.035"-.045" (0.9-1.2mm)
Warranty Period	5 Years*

* Limited warranty, refer to warranty schedule.

Primary Power

Primary Voltage	Primary Current
208V/1 phase	92.0 Amp
230V/1 phase	85.2 Amp
400V/1 phase	49.5 Amp
460V/1 phase	42.7 Amp
208V/3 phase	46.1Amp
230V/3 phase	41.0Amp
400V/3 phase	24.0Amp
460V/3 phase	21.4Amp
Primary Frequency	
50/60 Hz	
Approvals	
CSA	



PowerMaster 500SP Automation:

The PowerMaster 500SP Automation with a separate 4-roll wire feeder system has a maximum output of 500 amps and is supplied with a fully integrated liquid cooling system. This is the ideal digital PulseMig and TwinPulse power supply for heavy-duty, high duty-cycle, high-quality welding applications running push or push/pull gun systems for production welding with 1/16 aluminum wires, typical applications include:

- General fabrication or aluminum, stainless steel
- Aluminum boat fabrication
- Wine tanks
- Automotive components
- Construction machinery
- Pipe welding
- Custom job shops
- Maintenance repairs
- Mining
- Stainless steel tank and pipe fabrication
- Applications requiring stringent welding procedure adherence

PowerMaster 500SP Automation Specifications WELDING DC – GMAW

Output range	5-500 Amps, 14.3-39 Volt (3 Phase) 5-400 Amps, 14.3-34 Volt (1 Phase)
Rated output @ Duty Cycle at 104°F	500A at 39V @ 60% Duty Cycle (3 Phase) 400A at 34V @ 50% Duty Cycle (1 Phase)
Output @ 100% duty cycle	400 Amp at 34.0V (3 Phase) 320 Amp at 30.0V (1 Phase)
Maximum OCV	90V DC
Voltage/Amperage control	Infinitely variable
Wire diameter range Mild steel Stainless steel Aluminum Flux cored	.023"-1/16" (0.6-1.6mm) .023"-1/16" (0.6-1.6mm) .030"-1/16" (0.8-1.6mm) .030"-1/16" (0.8-1.6mm)
Fitted feed rolls suit solid MIG wires (V groove)	.035"-.045" (0.9-1.2mm)
Warranty Period	5 Years*

* Limited warranty, refer to warranty schedule.

Primary Power

Primary Voltage	Primary Current
208V/1 phase	92.0 Amp
230V/1 phase	85.2 Amp
400V/1 phase	49.5 Amp
460V/1 phase	42.7 Amp
208V/3 phase	62.5 Amp
230V/3 phase	56.2 Amp
400V/3 phase	32.0 Amp
460V/3 phase	28.5 Amp
Primary Frequency	
50/60 Hz	
Approvals	
CSA	



Transform your business today.

Contact your Thermal Arc District Manager to discuss the system that best suits your individual needs, or to arrange a demonstration that will show you just why Thermal Arc is the only choice.



It's your choice

Thermal Arc's PowerMaster SP is the definitive, digital microprocessor controlled, multi-process, PulseMig and TwinPulse power source range. With a market leading collection of features, standard in every model, Thermal Arc offers you the ultimate in high performance welding systems:

- Perfectly tailored SmartMig, PulseMig and Twinpulse performance optimized for the US and Canadian markets
- Perfect digitally repeatable welding performance
- Effortless TIG-like weld appearance up to seven times faster on aluminum and stainless steel with TwinPulse
- One Touch Control - set the material thickness, then start welding
- Optimized arc starting and crater fill modes
- Programmable capabilities to store specific user defined jobs
- Microprocessor control of wire speed, current and voltage - adjusts in milliseconds
- Virtual elimination of fusion defects
- Digital arc length control
- Reduction/Elimination of weld spatter



Ordering details

PowerMaster 320SP Gas Cooled SmartMig, PulseMig & TwinPulse Equipment



Description	Part No.	Features
PowerMaster 320SP Compact	W1000102	Power source only – gas cooled
PowerMaster 320SP Standard PulseMaster Gun Package	W1000104	320A power source – gas cooled Tweco PulseMaster MIG gun 12 ft (3.6 m), heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, 12 ft (3.6 m) 2/0 work lead with clamp, Victor gas regulator/flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 320SP Smart PulseMaster Gun Package	W1000105	320A power source – gas cooled Tweco PulseMaster Smart MIG gun 12 ft (3.6 m), heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, 12 ft (3.6 m) 2/0 work lead with clamp, Victor gas regulator/flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 320SP Python® Push/Pull Gun Package	W1000106	320A power source – gas cooled Python Push/Pull MIG gun 25 ft (7.6 m), interface kit, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, 12 ft (3.6 m) 2/0 work lead with clamp, Victor gas regulator/flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 320SP 33' Standard PullMaster Push/Pull Gun Package	W1000107	320A power source - gas cooled Tweco PullMaster standard push/pull MIG gun 33 ft (10.1m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 320SP 50' Standard PullMaster Push/Pull Gun Package	W1000108	320A power source - gas cooled Tweco PullMaster standard push/pull MIG gun 50 ft (15.2 m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 320SP 33' Smart PullMaster Push/Pull Gun Package	W1000109	320A power source - gas cooled Tweco PullMaster smart push/pull MIG gun 33 ft (10.1m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 320SP 50' Smart PullMaster Push/Pull Gun Package	W1000110	320A power source - gas cooled Tweco PullMaster smart push/pull MIG gun 50 ft (15.2 m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.

PowerMaster 400SP Gas Cooled SmartMig, PulseMig & TwinPulse Equipment


Description	Part No.	Features
PowerMaster 400SP Compact	W1000304	Power source only – gas cooled
PowerMaster 400SP Standard PulseMaster Gun Package	W1000305	400A power source – gas cooled Tweco PulseMaster MIG gun 12 ft (3.6 m), heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter, 6 ft (1.8 m) gas hose, wheels & single cylinder rack.
PowerMaster 400SP Smart PulseMaster Gun Package	W1000306	400A power source – gas cooled Tweco PulseMaster Smart MIG gun 12 ft (3.6 m), heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter, 6 ft (1.8 m) gas hose, wheels & single cylinder rack.
PowerMaster 400SP Python Push/Pull Gun Package	W1000307	400A power source – gas cooled Python Push/Pull MIG gun 25 ft (7.6 m), interface kit, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter, 6 ft (1.8 m) gas hose, wheels & single cylinder rack.
PowerMaster 400SP 33' Standard PullMaster Push/Pull Gun Package	W1000308	400A power source - gas cooled Tweco PullMaster standard push/pull MIG gun 33 ft (10.1m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 400SP 50' Standard PullMaster Push/Pull Gun Package	W1000309	400A power source - gas cooled Tweco PullMaster standard push/pull MIG gun 50 ft (15.2 m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 400SP 33' Smart PullMaster Push/Pull Gun Package	W1000310	400A power source - gas cooled Tweco PullMaster smart push/pull MIG gun 33 ft (10.1m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.
PowerMaster 400SP 50' Smart PullMaster Push/Pull Gun Package	W1000311	400A power source - gas cooled Tweco PullMaster smart push/pull MIG gun 50 ft (15.2 m), push/pull interface kit, heavy duty 4-roll wire feed system, .035"-.045" (0.9-1.2 mm) V groove drive rolls fitted, 12 ft (3.6m) 2/0 work lead with clamp, Victor gas regulator / flowmeter, 6 ft (1.8 m) gas hose.

PowerMaster 400SP Liquid Cooled SmartMig, PulseMig & TwinPulse Equipment



Description	Part No.	Features
PowerMaster 400SP Remote	W1000202	Power source only – liquid cooled
PowerMaster 400SP Remote Standard PulseMaster Gun Package	W1000204	400A power source – liquid cooled Tweco PulseMaster MIG gun 12 ft (3.6 m), SP4000W wirefeeder, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, pivot mount for wirefeeder, 3 ft (1 m) inter-connection cables, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter.
PowerMaster 400SP Remote Smart PulseMaster Gun Package	W1000205	400A power source - liquid cooled Tweco PulseMaster™ Smart MIG gun 12 ft (3.6 m), SP4000W wirefeeder, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, pivot mount for wirefeeder, 3 ft (1 m) inter-connecting cables, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter.
PowerMaster 400SP Remote Python Push/Pull Gun Package	W1000206	400A power source - liquid cooled Python Push/Pull MIG gun 25 ft (7.6 m), interface kit, SP4000W wirefeeder, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, pivot mount for wirefeeder, 3 ft (1 m) inter-connecting cables, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter.

PowerMaster 500SP Liquid Cooled SmartMig, PulseMIG, TwinPulse Equipment


Description	Part No.	Features
PowerMaster 500SP Remote	W1000502	Power source only – integrated liquid cooler
PowerMaster 500SP Remote Standard PulseMaster Gun Package	W1000504	500A power source - liquid cooled Tweco PulseMaster MIG gun 12 ft (3.6 m), SP4000W wirefeeder, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, pivot mount for wirefeeder, 3 ft (1 m) inter-connection cables, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter.
PowerMaster 500SP Remote Smart PulseMaster Gun Package	W1000505	500A power source - liquid cooled Tweco PulseMaster Smart MIG gun 12 ft (3.6 m), SP4000W wirefeeder, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, pivot mount for wirefeeder, 3 ft (1 m) inter-connecting cables, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter.
PowerMaster 500SP Remote Python Push/Pull Gun Package	W1000506	500A power source - liquid cooled Python Push/Pull MIG gun 25 ft (7.6 m), interface kit, SP4000W wirefeeder, heavy duty 4-roll wire feed system, .035"-.045" V groove drive rolls fitted, pivot mount for wirefeeder, 3 ft (1 m) inter-connecting cables, 12 ft (3.6 m) 3/0 work lead with clamp, Victor gas regulator/flowmeter.

Automation Liquid Cooled Synergic Pulse Equipment


Description	Part No.	Features
PowerMaster 400SP Robotic Package	W1000402	400A power source – integrated liquid cooler, remote control pendant HR911, 42 pin robot interface cable
PowerMaster 500SP Robotic Package	W1000602	500A power source – integrated liquid cooler remote control pendant HR911, 42 pin robot interface cable

Accessories


Description	Part No.	Features
Wirefeeder SP4000R	W3000302	Suits 400SP/500SP Robotic
3 ft (1 m) Inter-connection Assembly	W4000603	Suits 400SP/500SP, liquid or air cooled MIG gun setups
16 ft (5 m) Inter-connection Assembly	W4000604	Suits 400SP/500SP, liquid or air cooled MIG gun setups
32 ft (10 m) Inter-connection Assembly	W4000605	Suits 400SP/500SP, liquid or air cooled MIG gun setups

Ordering details

Accessories

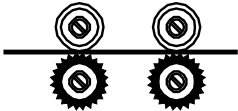
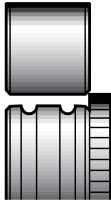

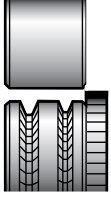


Description	Part No.	Features
SP4000W Wirefeeder	W3000202	Suits 400SP/500SP, liquid or air cooled MIG guns
Wirefeeder SP4000R	W3000302	Suits 400SP/500SP Robotic
3 ft (1 m) Inter-connection Assembly	W4000603	Suits 400SP/500SP, liquid or air cooled MIG gun setups
16 ft (5 m) Inter-connection Assembly	W4000604	Suits 400SP/500SP, liquid or air cooled MIG gun setups
32 ft (10 m) Inter-connection Assembly	W4000605	Suits 400SP/500SP, liquid or air cooled MIG gun setups
Remote Control RC20, Pocket Pendant	W4000000	Suits 320SP. Hand pendant provides remote weld power control plus TipTronic with a 19ft (6m) cable that connects to the 10 pin control socket.
Remote Control HR911, Pendant	W4000101	Suits 320SP/400SP/500SP, full control panel. Replicates the control panel plus digital volt and amp meters. All welding controls including JobTool and TipTronic are accessible from this remote control. This remote control has a 16ft (5m) cable that connects to the 4 pin CAN-bus socket.
Mobile Cart with Cylinder Rack	W4000300	Suits 320SP. Designed for the 320SP with a storage self and single cylinder rack provide easy loading of a full size gas cylinder.
Pivot Mount for SP4000W	W4001000	Suits 400SP/500SP. The pivot mount that secures a SP4000W wirefeeder and permits the wirefeeder to rotate 270 degrees on top of the power supply.
MIG/TIG Coolant 1 Quart (1L)	W4001402	Suits 400SP/500SP
MIG/TIG Coolant 5 Quart (5L)	W4001400	Suits 400SP/500SP
MIG/TIG Coolant 5 Gal (20L)	W4001401	Suits 400SP/500SP
Work Lead 12 ft (3.6 m)	90940	Heavy duty 2/0 welding cable with 500 Amp work clamp with copper jaws and 2-MPC-1 Male MPC connector
MPC Connector	2-MPC-1	Tweco MPC style male plug (pkg. 2 ea.) Cable capacity 1/0, 2/0, 3/0 AWG
	4-MPC-1	Tweco MPC style male plug (pkg. 2 ea.) Cable capacity 3/0 or 4/0 AWG
Push/pull Interface Kit	W4010300	Suits 320SP/400SP/SP4000W to Python® push/pull gun
JobTool Software	W4010400	Suits 320SP/400SP/500SP and includes cables with hardware interface and software

Python Guns

Description	Part No.	Features
Python Gun 25 ft Air Cooled	W4011302	Gun assembly with 25 ft cable, 225A @ 60%, .047" (1.2mm) Tip, configured for Aluminum welding
Python Gun 25 ft Liquid Cooled	W4011306	Gun assembly with 25 ft cable, 450A @ 60%, .047" (1.2mm) Tip, configured for Aluminum welding

Drive Roll Kits – 4 Rolls

Description	Style 1	Style 2	Style 3
			
Provides less wire friction in the MIG torch due to the straightening effect of the feed rolls system			
Top Drive Roll	Flat	Flat	Flat
Bottom Drive Roll	Double 'U'	Double 'V'	Double Knurled 'V'
Wire Type	Aluminum (Soft) Wire	Solid (Hard) Wire	Flux Cored Wire
Wire Size			
.023", .030" / 0.6, 0.8mm		W6000500	
.035" / 0.9mm		W6000501	
.035", .045" / 0.9, 1.2mm		W6000502	
.045" / 1.2mm		W6000503	
.052", 1/16" / 1.4, 1.6mm		W6000504	
.030", .035" / 0.8, 0.9mm			W6000505
.045" – .052", 1/16" / 1.2 – 1.4, 1.6mm			W6000507
.030", .035" / 0.8, 0.9mm	W6000508		
.035", 3/64" / 0.9, 1.2mm	W6000509		
3/64", 1/16" / 1.2, 1.6mm	W6000510		

NOTE: 1. Kit W6000502 is supplied as standard. 2. Drive roll kits include: two drive rolls; input, output & centre guides.

Tweco PulseMaster and PullMaster Mig Guns

Master welding performance by using PullMaster™ and PulseMaster series MIG guns. It's more than a feeling, it's visual. Use the on-the-fly, one-touch control with the smart digital display and get TIG-like weld appearance on aluminum and stainless steel. One-touch digital control lets you adjust the primary parameters, such as welding current, material thickness, wire feed speed, or arc length trim. By using the twin-pulse mode, get the perfect weld you have been searching for, but never found, until now...

Why choose the PullMaster and PulseMaster MIG Gun series combined with the PowerMaster SP series over conventional MIG equipment?

- Exceptional out-of-position welding for steel, stainless steel and aluminum
- Effortless TIG-like weld appearance on aluminum and stainless steel with TwinPulse
- Deeper weld penetration
- Accurate penetration on sheet metal
- Superior welding characteristics on hardfacing and high-alloy steels
- The ability to use larger-than-normal diameter wires on thin base material, providing a cost saving on wire and superior feedability
- Pulse transfer in the vertical up position giving smoother welds, better control and deeper penetration
- Improved edge wetting in synergic pulse mode



What does the PulseMaster series offer?

- Heavy duty design for industrial applications
- Advanced digital display (smart gun only)
- Supports Tweco & Euro-Kwik style connections
- Custom cable length to fit your needs (12 & 15 ft.)
- Ergonomic style handle for the US and Global market
- Premium Cablehoz™ assembly
- Impact-resistant handle and trigger design
- Able to weld with up to .062" wire



Tweco PulseMaster
Smart MIG Gun
with digital display

Tweco PulseMaster
Standard MIG Gun



Digital Display Screen

Selection Buttons

Menu Options

Welding current
Material thickness
Wire feed speed
Arc length trim

What does the PullMaster series offer?

- Heavy duty design for industrial applications
- Advanced digital display (smart gun only)
- Supports Tweco & Euro-Kwik style connections
- Custom cable lengths to fit your needs (33 & 50 ft.)
- Pistol grip designed handle
- Premium Cablehoz assembly
- Knucklehead flexible conductor tube available
- Able to weld with up to .062" wire



Tweco PullMaster
Smart MIG Gun
with digital display

Tweco PullMaster
Standard MIG Gun

Air-Cooled PulseMaster Guns



Part No	Stock No.	Cable Length	Rating (AMP/ Duty Cycle)	Connection
PMA312-3545	1038-1150	12 ft. (4M)	350 @ 80%	Tweco
PMA315-3545	1038-1155	15 ft. (5M)		
PMA412-3545	1041-1500	12 ft. (4M)	450 @ 80%	
PMA415-3545	1041-1501	15 ft. (5M)		
PMA312X-3545	1038-1151	12 ft. (4M)	350 @ 80%	Euro
PMA315X-3545	1038-1156	15 ft. (5M)		
PMA412X-3545	1041-1505	12 ft. (4M)	450 @ 80%	
PMA415X-3545	1041-1506	15 ft. (5M)		

Air-Cooled PulseMaster Smart Guns with Advanced Digital Controls



Part No.	Stock No.	Cable Length	Rating (AMP/ Duty Cycle)	Connection
PMAS312-3545	1038-1152	12 ft. (4M)	350 @ 80%	Tweco
PMAS315-3545	1038-1157	15 ft. (5M)		
PMAS412-3545	1041-1510	12 ft. (4M)	450 @ 80%	
PMAS415-3545	1041-1511	15 ft. (5M)		
PMAS312X-3545	1038-1153	12 ft. (4M)	350 @ 80%	Euro
PMAS315X-3545	1038-1158	15 ft. (5M)		
PMAS412X-3545	1041-1515	12 ft. (4M)	450 @ 80%	
PMAS415X-3545	1041-1516	15 ft. (5M)		

Water-Cooled PulseMaster Guns



Part No	Stock No.	Cable Length	Rating (AMP/ Duty Cycle)	Connection
PMW412-3545	1042-1500	12 ft. (4M)	400 @ 100%	Tweco
PMW415-3545	1042-1501	15 ft. (5M)		
PMW512-3545	1042-1525	12 ft. (4M)	500 @ 100%	
PMW515-3545	1052-1526	15 ft. (5M)		
PMW412X-3545	1042-1505	12 ft. (4M)	400 @ 100%	Euro
PMW415X-3545	1042-1506	15 ft. (5M)		
PMW512X-3545	1042-1530	12 ft. (4M)	500 @ 100%	
PMW515X-3545	1042-1531	15 ft. (5M)		

Water-Cooled PulseMaster Guns with Advanced Digital Controls



Part No.	Stock No.	Cable Length	Rating (AMP/ Duty Cycle)	Connection
PMWS412-3545	1042-1510	12 ft. (4M)	400 @ 100%	Tweco
PMWS415-3545	1042-1511	15 ft. (5M)		
PMWS512-3545	1042-1535	12 ft. (4M)	500 @ 100%	
PMWS515-3545	1042-1536	15 ft. (5M)		
PMWS512X-3545	1042-1540	12 ft. (4M)	500 @ 100%	Euro
PMWS515X-3545	1042-1541	15 ft. (5M)		
PMWS412X-3545	1042-1515	12 ft. (4M)	400 @ 100%	
PMWS415X-3545	1042-1516	15 ft. (5M)		

Standard PullMaster Guns



Part No.	Stock No.	Cable Length	Rating (AMP/ Duty Cycle)	Connection
PMP3333545	1027-1401	33 ft. (10,1M)	300A @ 80%	Tweco
PMP3503545	1027-1402	50 ft. (15,2M)		
PMPX3333545	1027-1404	33 ft. (10,1M)	300A @ 80%	Euro
PMPX3503545	1027-1405	50 ft. (15,2M)		

PullMaster Smart Guns with Advanced Digital Controls



Part No.	Stock No.	Cable Length	Rating (AMP/ Duty Cycle)	Connection
PMPS3333545	1027-1407	33 ft. (10,1M)	300A @ 80%	Tweco
PMPS3503545	1027-1408	50 ft. (15,2M)		
PMPSX3333545	1027-1410	33 ft. (10,1M)	300A @ 80%	Euro
PMPSX3503545	1027-1411	50 ft. (15,2M)		

PulseMaster & PullMaster Standard Contact Tips

Part No.	Stock No.	Tip ID	Wire Size
16PS-30	1160-1543	0.038" (0,9mm)	.030" (0,8mm)
16PS-35	1160-1535	0.044" (1,1mm)	.035" (0,9mm)
16PS-40	1160-1536	0.048" (1,22mm)	.040" (1,0mm)
16PS-45	1160-1537	0.054" (1,37mm)	.045" (1,2mm)
16APS-364	1160-1538	0.063" (1,6mm)	.047" (1,2mm)
16PS-116	1160-1539	0.073" (1,8mm)	.062" (1,6mm)
16PS-52	1160-1541	0.058" (1,5mm)	.052" (1,3mm)
16APS-116	1160-1540	0.082" (2,1mm)	.062" (1,6mm)

PulseMaster Conductor Tubes

Part No.	Stock No.	Description
PMA64EL-45	1642-1130	45° Rigid Conductor Tube (Air-Cooled)
PMW64-45	1644-2925	45° Rigid Conductor Tube (Water-Cooled)
PMA64EL-45LR	1642-1131	45° Long Reach Rigid Conductor Tube (Air-Cooled)
PMA64SFLX-360	1642-1132	Knucklehead™ Flexible Conductor Tube

PullMaster Conductor Tubes

Part No.	Stock No.	Description
PMP64EL-180	1642-1140	180° Rigid Conductor Tube (Standard)
PMP64EL-30	1642-1141	30° Rigid Conductor Tube
PMP64SFLX-360	1642-1142	Knucklehead™ Flexible Conductor Tube

PulseMaster Steel Series Wire Conduits

Part No.	Stock No.	Length	Wire Size
44-3545-15	1440-1103	15' (5M)	.035" (0,9mm) - .045" (1,2mm)
44-116-15	1440-1113	15' (5M)	.052" (1,3mm) - .062" (1,6mm)

PulseMaster Aluminum/Stainless Series Wire Conduits

Part No.	Stock No.	Length	Wire Size
44PTF-3545-12	1440-1930	12' (4M)	.035" (0,9mm) - .045" (1,2mm)
44PTF-3545-15	1440-1931	15' (5M)	
44PTF-116-12	1440-1932	12' (4M)	.052" (1,3mm) - .062" (1,6mm)
44PTF-116-15	1440-1933	15' (5M)	
44JT-3545	1644-1088	N/A	Max. .045" (1,2mm)
44JT-116	1644-1086		Max. .062" (1,6mm)

PullMaster Aluminum/Stainless Series Wire Conduits

Part No.	Stock No.	Length	Wire Size
PMP44-116-33	1441-1125	33' (10M)	3/64" (1,2mm) - 1/16" (1,6mm) Aluminum
PMP44-116-50	1441-1126	50' (15M)	
PMP44-3545-33	1441-1127	33' (10M)	.035 (0,9mm) - .045" (1,1mm) Aluminum
PMP44-3545-50	1441-1128	50' (15M)	
PMPS44-116-33	1411-1129	33' (10M)	3/64" (1,2mm) - 1/16" (1,6mm) Steel Wire
PMPS44-116-50	1441-1130	50' (15M)	
PMPS44-3545-33	1441-1131	33' (10M)	.035" (0,9mm) - .045" (1,1mm) Steel Wire
PMPS44-3545-50	1441-1132	50' (15M)	
PMP-44FLX-116	1644-1095	N/A	Teflon Jump Liner for Flex Tubes
PMP-44PTF-116	1644-1096		Teflon Jump Liner for Rigid Tubes
PMP-44-116	1644-1097		Bronze Jump Liner for Steel Wire And Rigid Tubes

PulseMaster & PullMaster Air-Cooled Nozzles

Part No.	Stock No.	Tip Relationship	Nozzle ID in (mm)	OD in (mm)
PMA24-50F	1260-1710	Flush	1/2 (12,5)	0.875 (22,2)
PMA24-50	1260-1711	Recessed 0.156" (3,9 mm)		
PMA24-62F	1260-1712	Flush	5/8 (16)	
PMA24-62	1260-1713	Recessed 0.156" (3,9 mm)		
PMA24H-62	1260-1720	Recessed 0.156" (3,9 mm)		0.870 (22,1)
PMA24-75F	1260-1714	Flush	3/4 (19)	0.875 (22,2)
PMA24-75	1260-1715	Recessed 0.156" (3,9 mm)		
PMA24H-75	1260-1721	Recessed 0.156" (3,9 mm)		0.970 (24,6)

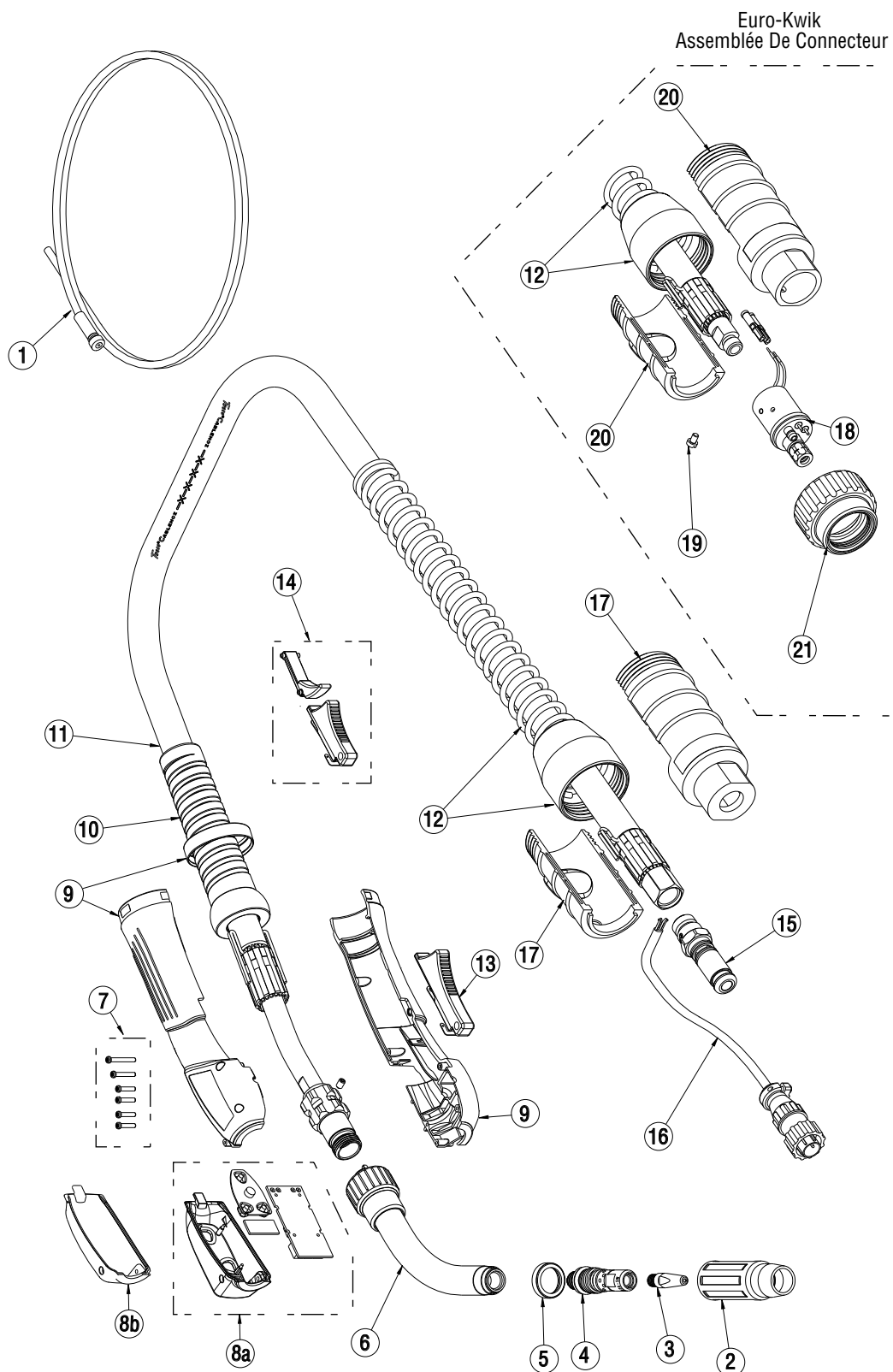
PulseMaster Water-Cooled Nozzles

Part No.	Stock No.	Tip Relationship	Nozzle ID in (mm)	OD in (mm)
PMW24-50F	1260-1735	Flush	1/2 (12,5)	1.0 (25,4)
PMW24-50	1260-1736	Recessed 0.156" (3,9 mm)		
PMW24-62F	1260-1737	Flush	5/8 (16)	
PMW24-62	1260-1738	Recessed 0.156" (3,9 mm)		
PMW24-75F	1260-1739	Flush	3/4 (19)	
PMW24-75	1260-1740	Recessed 0.156" (3,9 mm)		

Bronze Jump Liners

Part No.	Stock No.	Wire Size	Length
44JT-3545	1644-1088	Max. .045" (1,2mm)	Jump liner to be used with Teflon Liners
44JT-116	1644-1086	Max. .062" (1,6mm)	

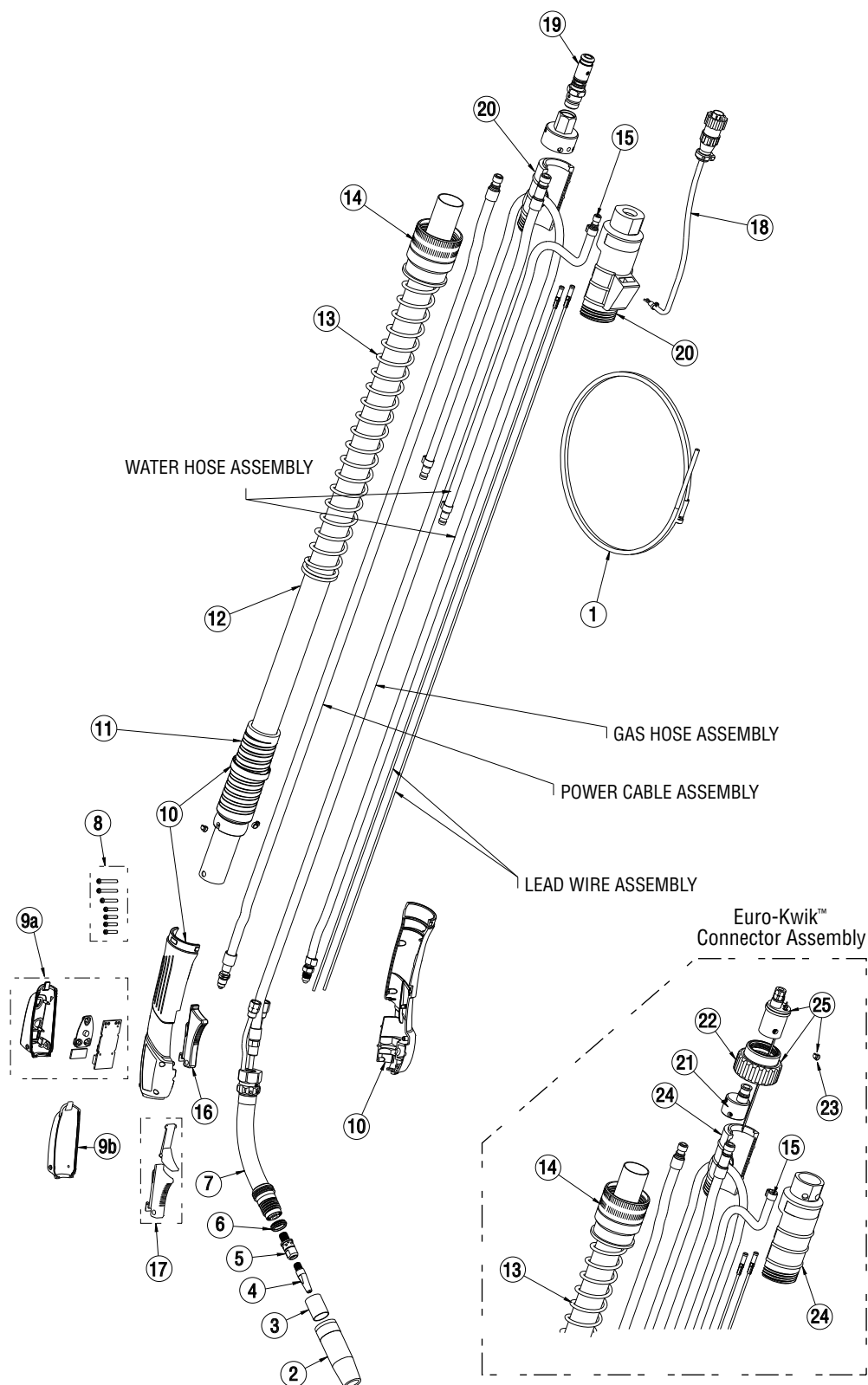
Tweco PulseMaster Replacement Parts (Air-Cooled)



Item No.	Part No.	Stock No	Description
1	See Page 32		Conduit
2	See Page 33		Nozzle
3	See Page 31		Contact Tip
4	PMA5416S	1543-1106	Gas Diffuser used w/ 16PS Series Contact Tips
5	66J-3	1660-1836	Nozzle Insulator
6	See Page 32		Conductor Tube
7	PMHSK	2060-2705	Handle Screws w/ T9 Star Head (12mm, 16mm, & 20mm LG)
8a*	PM84-PCB-HK	2060-2706	Handle Housing w/ Smart Control Assembly
8b	PM84-H	2060-2707	Handle Housing (Blank)
9	PM84	2060-2708	Large Handle Assembly w/ Retaining Ring
9	PM83	2060-2715	Small Handle Assembly w/ Retaining Ring
10	PMA-SPS	2060-2709	Front Cable Support
11a	PM400-12	2060-2703	350 amp 12 ft. Cablehoz Assembly
11b	PM400-15	2060-2704	350 amp 15 ft. Cablehoz Assembly
11c	PM400X-12	2060-2718	350 amp 12 ft. Cablehoz Assembly (Euro)
11d	PM400X-15	2060-2719	350 amp 15 ft. Cablehoz Assembly (Euro)
11e	PM500-12	2060-2710	450 amp 12 ft. Cablehoz Assembly
11f	PM500-15	2060-2711	450 amp 15 ft. Cablehoz Assembly
11g	PM500X-12	2060-2716	450 amp 12 ft. Cablehoz Assembly (Euro)
11h	PM500X-15	2060-2717	450 amp 15 ft. Cablehoz Assembly (Euro)
12	235RSSR	2060-2035	Rear Cable Support
13	PM94	2060-2712	Trigger
14	PM94X	2060-2713	Trigger & Guard Assembly
15	350-174H	2035-2110	Heavy Duty Connector Plug Assembly
16	WM354M	2030-2075	Control Wire Plug
17	PM6RC	2060-2714	Rear Case
18	174EX-1	2040-2276	Euro-Kwik Rear Connector
19	4M-S	2011-2004	Screw (Euro Rear Connector)
20	X6RC	2060-2006	Rear Case and Strain Relief (Euro)
21	174X-2	2040-2177	Connector Nut (Euro)

* On Smart Guns Only

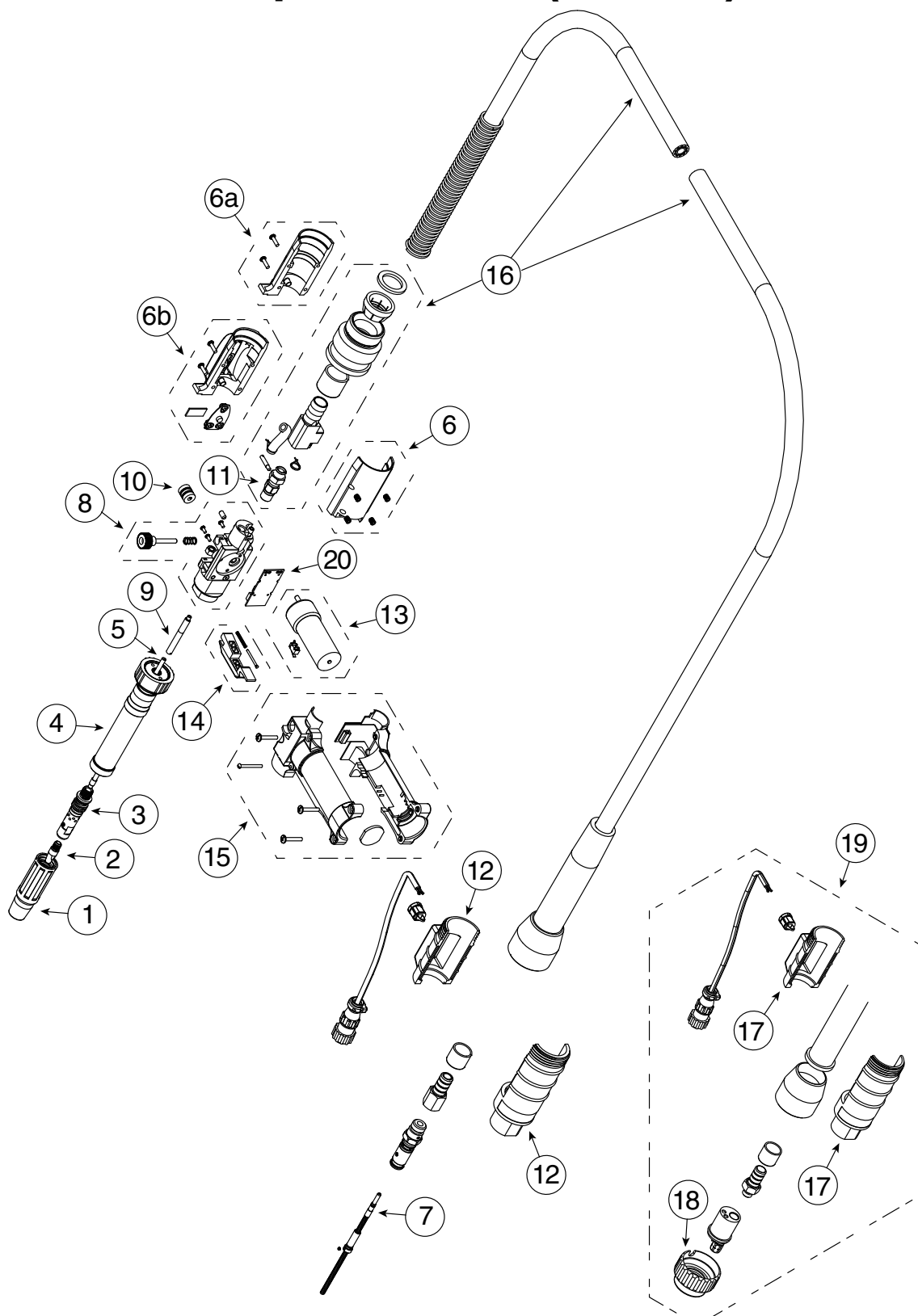
Tweco PulseMaster Replacement Parts (Water-Cooled)



Item No.	Part No.	Stock No	Description
1	See Page 32		Conduit Assembly
2	See Page 33		Nozzle
3	WC23-1	1230-1084	Nozzle Insulator
4	See Page 31		Contact Tip
5	PMW5516	1550-1105	Gas Diffuser used w/16P & 16PS Series Contact Tips
6	PMW64-3	1644-2900	Pressure Ring
7	See Page 32		Conductor Tube
8	PMHSK	2060-2705	Handle Screws w/ T9 Star Head (12mm, 16mm, & 20mm LG)
9a*	PM84-PCB-HK	2060-2706	Handle Housing w/ Smart Control Assembly
9b	PM84-H	2060-2707	Handle Housing (Blank)
10	PM84	2060-2708	Large Handle Assembly w/ Retaining Ring
	PM83	2060-2715	Small Handle Assembly w/ Retaining Ring
11	PMW-SPS	2060-2720	Front Cable Support
12a	PMW512	2060-2721	12 ft. Cable and Hose Assembly
12b	PMW515	2060-2722	15 ft. Cable and Hose Assembly
13	QR-SPR	3045-1177	Strain Relief Spring
14	QR-RC	3045-1238	Strain Relief Cap
15	PMW603-WH	2060-2723	Water Hose Assembly
16	PM94	2060-2712	Trigger
17	PM94X	2060-2713	Trigger & Guard Assembly
18	WM354-M	2030-2075	Control Wire Plug
19	350-174H	2035-2110	Heavy Duty Connector Plug Assembly
20	PMW6RC	2060-2724	Rear Case
21	WC174XB	2044-2182	Euro-Kwik Water-Cooled Rear Block
22	174X-2	2040-2177	Euro-Kwik Connector Nut
23	4M-S	2011-2004	Screw (Euro Rear Connector)
24	X6RC	2060-2006	Rear Case and Strain Relief (Euro)
25	WC174X	2044-2181	Euro-Kwik Connector Assembly

* On Smart Guns Only

Tweco PullMaster Replacement Parts (Air-Cooled)



Item No.	Part No.	Stock No	Description
1	See Page 33		Nozzle
2	See Page 31		Contact Tip
3	PMA54-16S	1543-1106	Diffuser
4	See Page 32		Conductor Tube
5	PMP-44FLX-116	1644-1095	Teflon Jump Liner f/flex Tube
	PMP-44PTF-116	1644-1096	Teflon Jump Liner f/rigid Tubes
	PMP-44-116	1644-1097	Bronze Jump Liner For Steel Wires (Rigid Tubes)
6a	EPG186	2031-2046	Support Assy Front (Std)
6b	PMPS186	2060-2725	Support Assy Front (Including Smart Cover, Pcb Membrane, Lens & Lower Support)
7	PMP44-116-33	1441-1125	33' Conduit Assy (3/64" - 1/16" / 1,2mm - 1,6mm Wire)
	PMP44-116-50	1441-1126	50' Conduit Assy (3/64"-1/16" / 1,2mm - 1,6mm Wire)
	PMP44-3545-33	1441-1127	33' Conduit Assy (.035" - .045" / 0,9mm - 1,1mm Wire)
	PMP44-3545-50	1441-1128	50' Conduit Assy (.035" - .045" / 0,9mm - 1,1mm Wire)
	PMPS44-116-33	1441-1129	33' Conduit Assy (3/64" - 1/16" / 1,2mm - 1,6mm Steel Wire)
	PMPS44-116-50	1441-1130	50' Conduit Assy (3/64" - 1/16" / 1,2mm - 1,6mm Steel Wire)
	PMPS44-3545-33	1441-1131	33' Conduit Assy (.035" - .045" / 0,9mm - 1,1mm Steel Wire)
8	PMP103	2060-1726	Head Block Assy
	SPG103-1	2060-1727	Pressure Arm Assy
NS	SPG103-8	2060-1728	Idler Bearing Assy
	PMPS-106TA	2060-1729	Front Wire Guide Assy (Aluminum)
9	PMP-106TA	2060-1730	Front Wire Guide Assy (Steel)
10	EPG103-2-0.8	2031-2091	Drive Roll (.030" / 0,8mm Wire)
	EPG103-2-0.9	2031-2077	Drive Roll (.035" / 0,9mm Wire)
	EPG103-2-1.0	2031-2023	Drive Roll (.040" / 1,0mm Wire)
	EPG103-2-1.2	2031-2003	Drive Roll (3/64" / 1,2mm Wire)
	EPG103-2-1.6	2031-2022	Drive Roll (1/16" / 1,6mm Wire)
	EPG103-2-1.6V	2031-2134	Drive Roll V-Groove (1/16" / 1,6mm Steel Wire)
	EPG103-2-1.2V	2031-2135	Drive Roll V-Groove (3/64" / 1,2mm Steel Wire)
11	EPG103-2-0.9V	2031-2136	Drive Roll V-Groove (.035" / 0,9mm Steel Wire)
	SPG-RWG	2031-2137	Power Cable Connector Assy
NS	EPG86-2	2031-2013	Handle Cover Assy
12	PMP-T6RC	2060-2731	Rear Case Assy
13	PMP-M24	2060-2732	Motor Assy (24v)
14	SPG-96TL	2060-2733	Trigger Lever
15	SPG86	2060-2734	Handle Assy
16	PMP300-33	2060-2750	Cablehoz Assembly 33' (10m) Standard
	PMP300-50	2060-2751	Cablehoz Assembly 50' (15m) Standard
	PMP300X-33	2060-2752	Cablehoz Assembly 33' (10m) Standard (Euro-Kwik)
	PMP300X-50	2060-2753	Cablehoz Assembly 50' (15m) Standard (Euro-Kwik)
17	PMP-X6RC	2060-2736	Rear Case Assy (Euro-Kwik)
18	174X-2	2040-2177	Euro-Kwik Nut
19	EPG171-1T	2031-2044	Euro-Kwik Rear Assy
NS	BG-53N04	2031-2088	Hose Clamp Package Of 5
	EPG-HW	2031-2090	Hex Key
	PMP-PV	2060-2737	Poppet Valve Assembly
20	PM85-PCB	2060-2738	Replacement Pcb
NS	EPG354T	2031-2084	Tweco Control Wire
	EPG354M	2031-2086	Miller Control Wire
	EPG354L	2031-2085	Lincoln Control Wire
	PMP354T	2031-2145	Epg-Cr2 Jumper Wire
	EPG174MH	2040-2164	Miller Connector Plug
	EPG174LH	2040-2162	Lincoln Connector Plug
	EPGHK1	2031-2090	Gas Hook Up Kit

NS= Not Shown

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