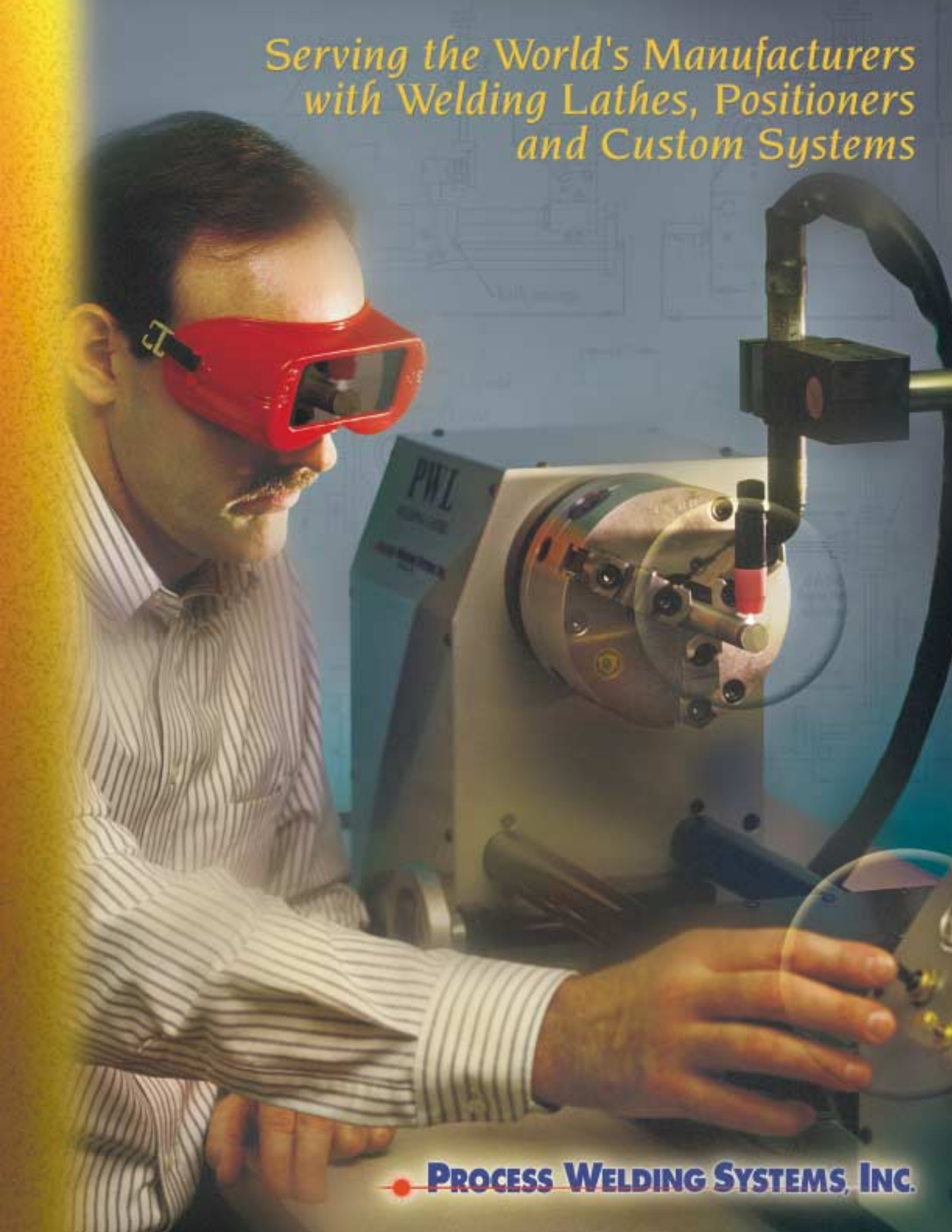


*Serving the World's Manufacturers
with Welding Lathes, Positioners
and Custom Systems*



PROCESS WELDING SYSTEMS, INC.

ALL THE ADAPTABILITY FOR RELIABLY ACCURATE TIG AND PLASMA WELDING SOLUTIONS.

PWL-12-16 WELDING LATHE

Our PWL-12-16 was specially designed for welding a wide range of circumferential parts or components for use in both plasma and TIG welding applications.

This lathe can be used in a standard production environment as well as laboratory settings, which require a versatile welding tool.

Process Welding Systems, Inc.'s SCS-102 Solid State Speed Control is external from the lathe for easy service and calibration and is protected for TIG high-frequency arc starter use.

The PWL-12-16 was specifically engineered for welding and isn't a modified or adapted machine lathe



STANDARD FEATURES

- **Alignment adjustments on head and tail stock**
- **Use in horizontal or vertical welding positions**
- **Pneumatic tail stock and torch retract**
- **Rotation speed from 0.5 to 25 RPM (Custom speeds available on request)**
- **SCS-102 Solid State Speed Control**
- **Torch positioners for versatile torch movement**
- **Three-jaw 6" scroll chuck allows concentricity adjustment - Chuck includes two-piece hardened reversible jaws (special jaws on request)**
- **Handles lock torch carriage and tail stock in place**

Torch in/out switch

Torch block and theta block for backhand/forehand positions

Torch up/down fine adjustment

Torch optional

Rod can be rotated and moved in or out

Moves torch & stand along lathe bed

Fine screw adjustment for torch in/out with cushioned stop

Air slide with 4" stroke. Moves torch in/out for easy part load/unload

Rotate complete torch stand

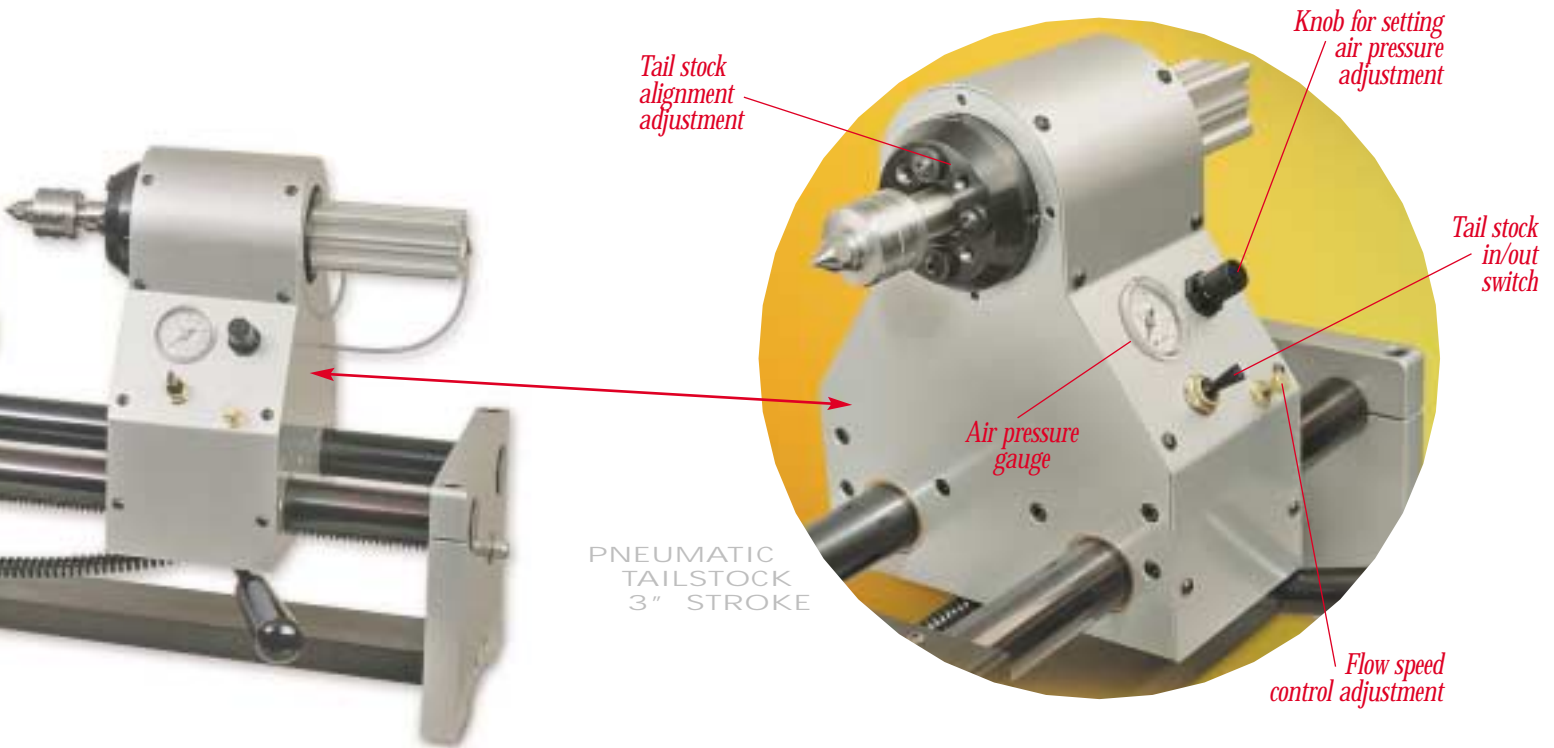
END VIEW OF THE PWL 12-16 WELDING LATHE

WHY SPEND EXTRA MONEY ON SEMI-AUTOMATIC EQUIPMENT?

The PWS TIG and plasma rotary weld lathes, positioners and custom systems were designed to be highly versatile for your individual welding applications.

By interfacing our TIG or plasma power supply and weld controller with the lathe or positioner, manufacturers reduce an operator's skill level needed to produce a quality weld every time.

We meet specific customer goals by engineering arc welding systems that improve the welded part precision, which decreases your production cost while increasing your total output.



HEAD STOCK STANDARD & CUSTOM FEATURES

Our chuck is a 6" three-jaw with reversible hardened jaws. Unique micro-adjustment screws enable concentricity to be centered dead true for accurate rotation of parts for welding.

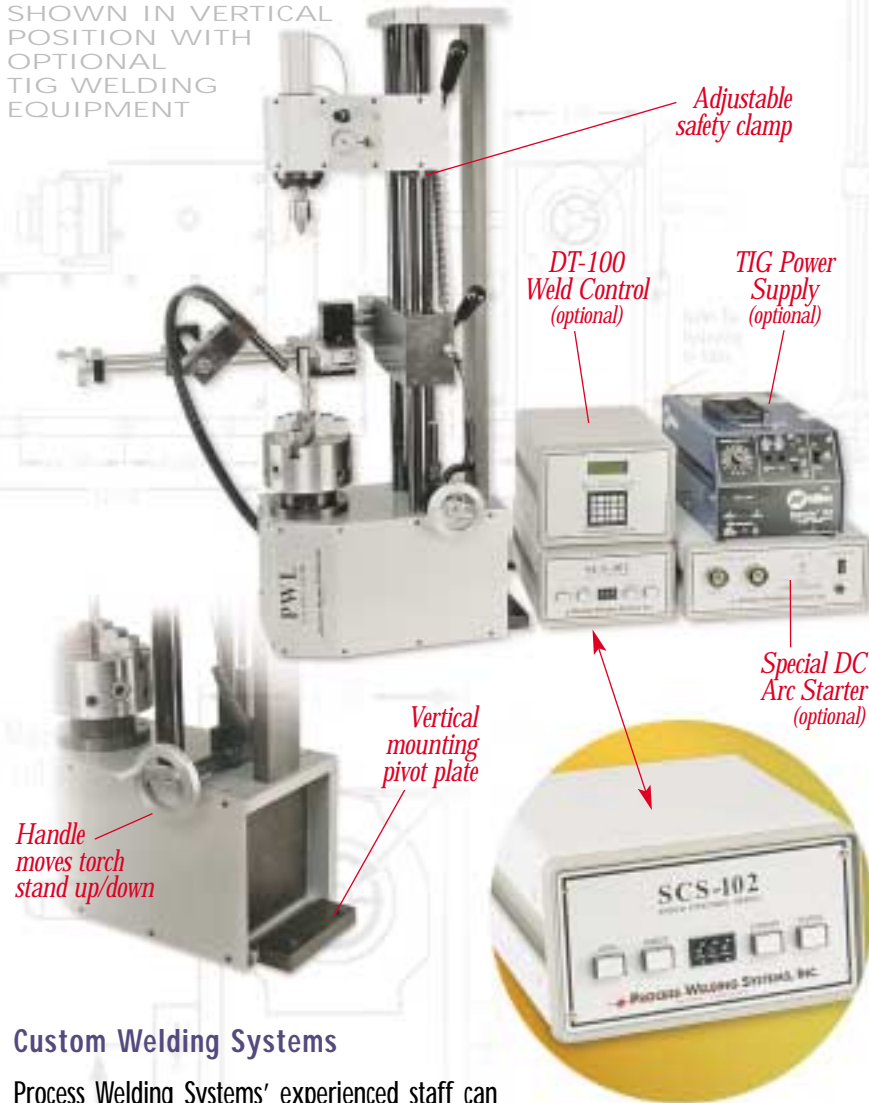
The plate behind the threaded lathe spindle has built-in adjustment screws for head stock alignment. The spindle hole is 1.5" and the spindle threads are 2.250"-8.

Special custom tooling can be adapted to the lathe spindle such as:

- Face plates
- 5C collet chucks
- Air collet closer for 5C collets
- Expanding 5C collets
- 5C step chucks



PWL-12-16 LATHE SHOWN IN VERTICAL POSITION WITH OPTIONAL TIG WELDING EQUIPMENT



DT-100 Weld Control will store up to 100 weld programs, chain programs, can interface with a computer and has three analog programmable outputs.

TIG Power Supply is rated at 120 amps, 100% duty cycle. PWS can add a variety of plasma or TIG power supplies to our DT-100 and create a basic semi-automatic welding system for use with our lathe. Please contact us for information about PWS special welding packages.

DC Arc Starter provides a noise-free start, allowing system compatibility with computerized equipment.

SCS-102 Speed Control can be interfaced with our DT-100 Weld Control to program specific lathe speeds.

- Accuracy: 1.0% of full scale
- Jog with forward and reverse buttons
- Solid state (no electromechanical relays)
- Hardened for use with high-frequency arc starters
- Front panel controls: remote/local/forward/reverse
- Use with DC tachometer gear motor, maximum 24 VDC, 3A closed loop feedback
- LED lighted push buttons
- Power: 120 VAC, -15% to +10%, 50-60 Hz
- Maximum power consumption 150 VA
- Weight: 14 lbs.
- Dimensions: 10.0" W x 6.0" H x 14.5" L



SCS-102 SPEED CONTROL

Custom Welding Systems

Process Welding Systems' experienced staff can conceptualize, design, and manufacture a custom lathe, positioner or complete system to meet your specified welding needs. Our in-house lab will provide you with weld samples, feasibility studies as well as welding assistance.

PWS Can Quote Special Lathes With Features Such as:

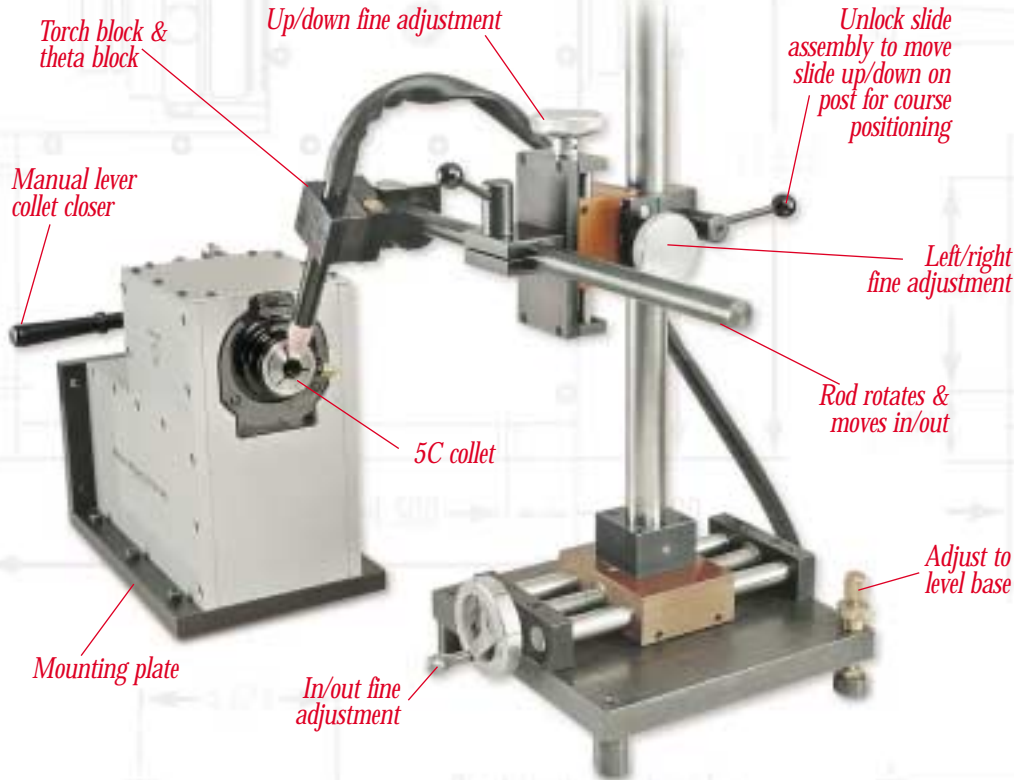
- Dual head stocks
- Extended lathe bed lengths
- Special tooling for the tail stock
- Gas back-up
- Air collet closers
- Special rotation speeds.



CUSTOM EXTENDED LENGTH PWL LATHE

RWP-100 ROTARY WELDING POSITIONER & TS-100 TORCH STAND

HORIZONTAL WELDING POSITION

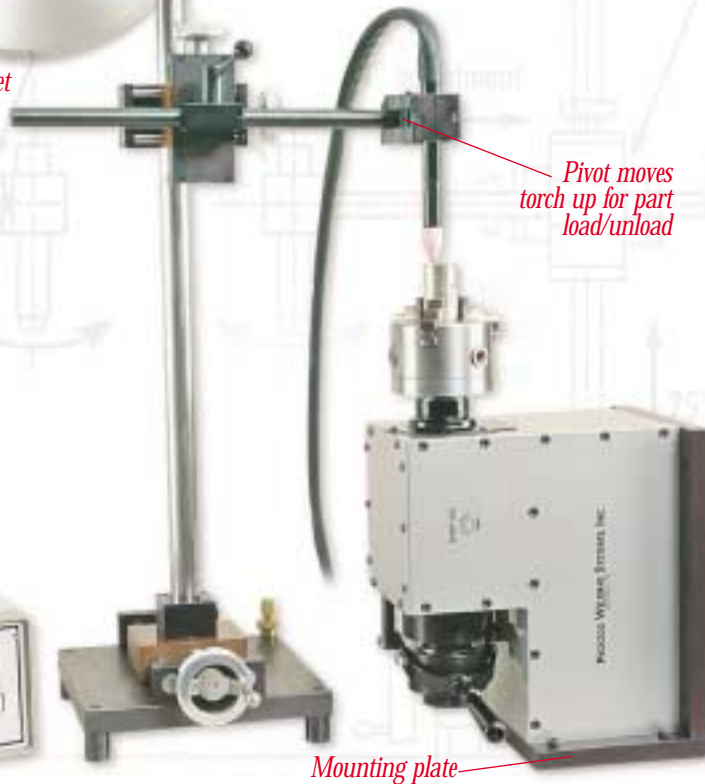


3 jaw 4" collet chuck (optional)



Face plate (optional)

VERTICAL WELDING POSITION



OPTIONAL TOOLING FOR RWP-100

SCS-102 motor control



Our TS-100 torch stand, RWP-100 positioner and SCS-102 speed control are designed to work in unison, providing precise rotational control for circumferential parts welding for both TIG and plasma applications.

The RWP-100 is a modified lathe head stock developed for welding parts which do not require a tail stock for clamping pressure.

RWP-100 STANDARD FEATURES

- SCS-102 Solid State Speed Control
- Manual lever collet closer (Contact PWS for a custom positioner with an air collet closer)
- Standard 0.5 to 25.0 RPM rotation speed (Custom speeds available upon request)
- Carbon ground brush allows welding up to 300 amps
- Mounting table plates for vertical or horizontal weld positions
- 1" 5C collet (Other sizes available upon request)
- 1.100" diameter thru-hole for longer parts or optional gas-back-up devices

TS-100 TORCH STAND FEATURES

- X/Y/Z slides for fine torch position adjustment – X/Y slides with 1.63" of travel – Z axis slides 5.00" travel
- Black anodized aluminum slides with steel adjusting screw mounted in a bearing – Phenolic saddle adjusts with screws instead of gibs – Knobs for manual slide adjustment
- Heavy base plate can stand alone or bolt to table
- Torch block holds up to 1.375" diameter torch
- Theta block positions welding torch at various angles (0-360 degree)
- Torch holder block and theta block mounted on pivot, raises torch up and out of way for easy part loading/unloading

CUSTOM DESIGNED SEMI-AUTOMATED LATHE SYSTEMS

SEMI-AUTOMATED TIG WELDING SYSTEM

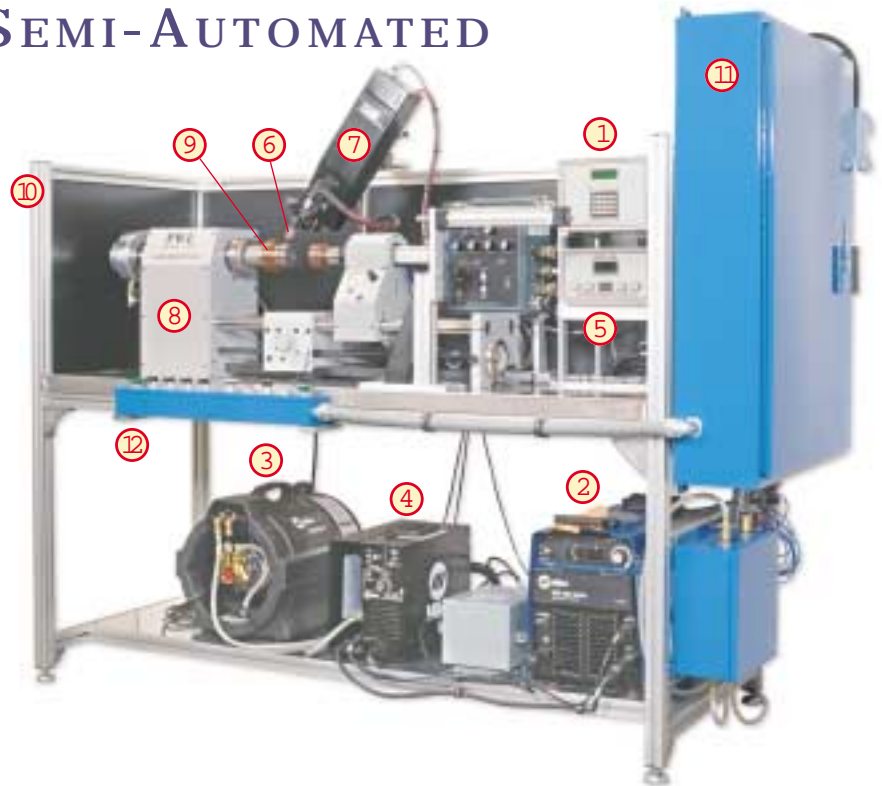
PRE-SHIPMENT SYSTEM RUN OFF AND TRAINING AT PWS

STANDARD EQUIPMENT

- ① DT-100 Weld Control
- ② 300 Amp CC/CV TIG Power Supply
- ③ Closed Loop Water Recirculator
- ④ High Frequency Arc Starter
- ⑤ SCS-102 Speed Control
- ⑥ TIG Torch 250 Amps Water Cooled
- ⑦ AVC & Torch Retract Control

CUSTOM FEATURES

- ⑧ PWL 12-16 Weld Lathe With Air Collet Closer and Expanding Mandrel
- ⑨ Copper Tooling for Locating Welded Part and Chill Clamping
- ⑩ Table With Stainless Steel Top and Protective Safety Enclosure Around Table
- ⑪ PLC (Program Logic Control) for Automatic Weld Cycle and Sequencing
- ⑫ Operator Pendant With Dual Palm Buttons for Operator Safety



SEMI-AUTOMATED WELDING BENEFITS

- Improved Weld Quality: mechanized welding improves repeatability
- Decreased Scrap: automating the manufacturing process decreases error potential
- Control: the arc welding system offers the ability to better control the manufacturing process
- Consistency: an automatically produced machine-weld offers more consistency than less controlled methods

WELD LATHE WITH CNC TORCH DRIVE, PLASMA WELDING EQUIPMENT & MICROSCOPE

STANDARD EQUIPMENT

- ① DT-100 Weld Programmer
- ② Ultima 150 Plasma Power Supply
- ③ MP 5-21 Plasma Machine Torch
- ④ SCS-102 Speed Control

CUSTOM FEATURES

- ⑤ Lathe Includes a Special Ball Screw and Nut for the Torch Drive
- ⑥ CNC Control to Program Indexing of the Torch Stand to Next Weld Position
- ⑦ Rotary Coupling for Gas Back-Up Through the Lathe Spindle
- ⑧ Manual Actuated Air 5C Collet Closer
- ⑨ Stereo Microscope With Weld Lens to Protect Operator's Eyes During Viewing
- ⑩ Custom Table With Locking Wheels



www.psweld.com

615-793-7020

ASK ABOUT OUR WELD LAB FOR EQUIPMENT DEMONSTRATIONS, WELD DEVELOPMENT & TRAINING

Our weld lab helps the potential customer develop specific weld applications. By running tests in our lab, we determine the right weld speed and torch position as well as the most economical weld process, fixture design and weld repeatability.

PWS welding engineers can train customers with hands-on equipment use and discuss the pros and cons of arc welding in manufacturing.

Weld tests are usually a free service as long as the application can easily be set up with our existing equipment and tooling. For more elaborate weld tests, PWS will quote a process assurance to build fixtures and simulate the production. **615-793-7020**

EQUIPMENT AVAILABLE

- DT-100 Programmable Welding Control
- PWL-12-16 Welding Lathe
- RWP-100 Rotary Positioner
- SEAMER for longitudinal welding
- TS-100 Torch Stand
- 3-jaw chucks, 5C collets, collets stops
- Custom copper fixtures and water-cooled tooling
- Manual & machine plasma & TIG torches
- Stereo microscope
- Printer for documenting weld parameters

ARC WELD PROCESSES AVAILABLE

- Microplasma welding—0.1 amp to 50.0 amps
- Micro TIG welding—0.1 amp to 50.0 amps
- TIG welding up to 150.0 amps
- High amp plasma—welding up to 300.0 amps
- Plasma powder feed—1.0 amps to 120.0 amps



Plasma arc form



TIG arc form

WELD APPLICATIONS & INDUSTRIES

Medical Equipment

- Arthroscopic cutters
- Guide wires
- Aspiration tubes
- Radiation implants
- Wires

Aircraft & Aerospace

- Space shuttle hydrogen cooling tubes
- Space station fitting
- Aircraft engine repair

Automotive

- Airbag devices
- Clutch & brake parts
- Relays
- Gas sensors
- Fuel injectors

Instrumentation

- Thermocouples
- Gauges
- Lithium batteries
- Metal bellows

Lighting

- Fluorescent bulbs
- Tungsten filaments

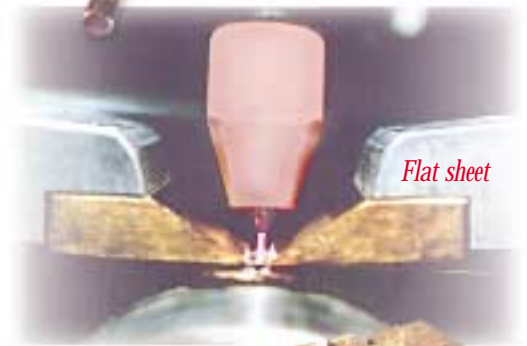
Other Industries

- Nuclear fuel rods
- Mold & die repair
- Tube mills
- Wire belts
- Filters



Hardfacing of wear surfaces

Wire mesh



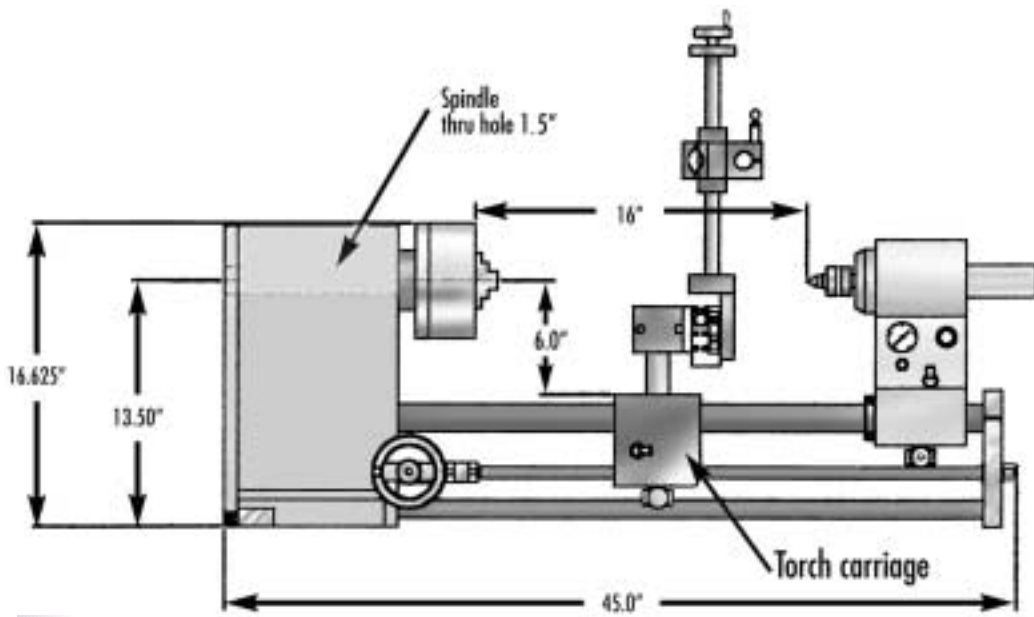
Flat sheet

Tool, die & mold repair



Precision joined elements

Bellows



PWL-12-16 WELDING LATHE

STANDARD PWL-12-16 SPECIFICATIONS

Weight:
230 lbs.

Weld Current Capacity:
300 Amps

Distance Between Centers:
16.0"

Maximum Diameter Part:
12.0"

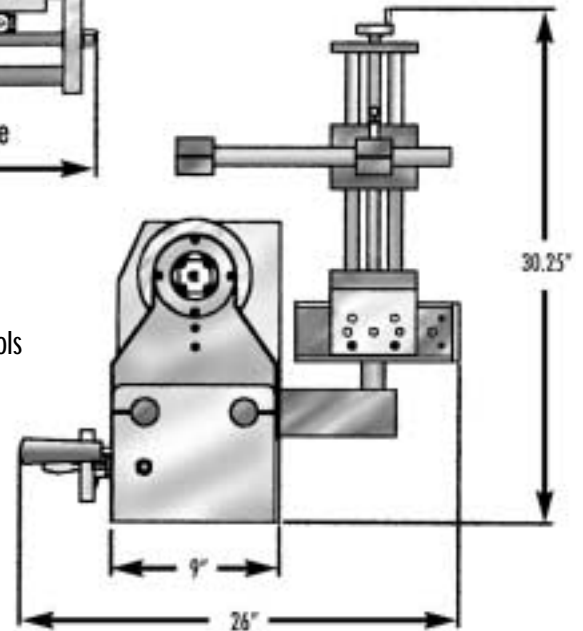
Tail Stock Stroke:
3.0"

Torch Stroke Weld/Retract:
4.0"

Lathe Bed:
1.5" diameter hardened rods

Pneumatics:
Equipped with speed controls

Tooling:
3 jaw 6.0" Set-Tru chuck & live center (special live center points optional)



STANDARD RWP-100 SPECIFICATIONS

Weight:
44 lbs.

Weight Capacity:
Consult factory

Weld Current Capacity:
300 Amps

Speed Range:
0.5 to 25.0 RPM

Spindle Thru Hole:
1.100" Diameter

STANDARD TS-100 SPECIFICATIONS

Weight:
51 lbs.

TS-100 TORCH STAND

RWP-100 POSITIONER

