

Product Information

MODEL CWP Precision Lathes

- 3 Models
- Precision Manufactured
- Wide Range of Accessories
- High Accuracy Rotation
- Range of Bed Lengths
- For all Arc Welding Processes

Introduction

The Jetline range of precision lathes is designed and built to provide superior accuracy and performance for even the most demanding application.

Many competitive models of precision lathes are manufactured using a standard machining center lathe which is modified for welding purposes. This type of approach limits the capabilities of the lathe and does not produce the ideal product for demanding welding applications. To overcome this problem, Jetline designed a precision welding lathe which is custom manufactured from the base up. While still providing the accuracy demanded of this type of lathe, the unit also has other important features. These include the following:

- ▶ The facility to use multiple welding heads on the same lathe.
- ▶ The ability to carry heavy loads.
- ▶ Multiple choice of bed lengths with extra-long beds available to order.
- ▶ Special head and tailstock configurations.

Three models are available varying in load carrying capacity, from the smallest at 100 lbs (45 kg) to the largest at 500 lbs (225 kg). The standard feature for all models is the rotational and linear accuracy. All models feature precision hardened and ground lathe beds, headstock and tailstock spindles.



Description

Base

All Jetline precision lathes are based upon the same concept to assure precision with strength. Each lathe's design incorporates an anodized, extruded aluminum base. This extrusion holds two precisely parallel, hardened and ground roundways. The roundways form a track on which the headstock is mounted and on which the tailstock and torch mounting carriage move. To assure rigidity, the extruded aluminum section is mounted to a rectangular, structural steel tube with mounting pads.

Headstock

The headstock is fabricated from a solid housing of aluminum. This is machined to accurately fit on the roundways, to which it is secured. The headstock housing is accurately bored to accept the precision ground headstock spindle. The spindle has a through-hole and rotates in the headstock housing on pre-loaded, tapered roller bearings. The bearings are designed to provide smooth, precise rotation and, because they are pre-loaded, also have the ability to carry the welding current. A stud is provided on the headstock housing to connect the welding ground cable.

The headstock spindle is driven through a tensioned timing belt by a high-quality DC servo motor fitted with a tach-generator. The unique 9640 microprocessor drive control uses menu-driven software to permit the setting of rotational speed and the delays for the starting and stopping of travel. The control indicates speed before and during welding, if the diameter of the part is entered, the indicated speed will be surface speed. Speed holding accuracy of the standard model is $\pm 1\%$ of the rated speed. The spindle is fitted with a mounting flange to permit the use of a self-centering chuck, a collet holder or a faceplate.

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Tailstock

The tailstock rides on the base using four recirculating ball bearings. They provide smooth, accurate movement along the precision ground roundways on the bed of the lathe. A lever is provided to lock the tailstock carriage when it is in its desired position. The tailstock spindle extends to clamp the part for welding; extension is achieved using an air cylinder with adjustable flow valves to control the speed of movement of the spindle. Clamping pressure is adjustable; activation of the spindle movement is by a manual air valve.

The tailstock spindle has a Morse taper bore to accommodate a range of accessories. This can be used to hold a live center, a faceplate, or custom designed tooling.

Torch Mounting

The torch mounting carriage features the same construction as that for the tailstock and moves along the bed with the same type of bearings. It has a locking device to secure it in position for welding. A torch mounting bracket sits on the carriage; manual fore/aft positioning adjustment is provided. The bracket carries a 4501A vee-style torch holder mounted on two 1016A precision slides for cross-seam and torch height adjustment. The bracket also includes tilt adjustment with a protractor scale for accuracy and consistency.

Optional Items

A wide range of optional items are available to enhance the lathe. They include:

Lathe bed lengths longer than standard. Contact the factory for more information.

Self-centering, 3-jaw chuck for the headstock.

Faceplate, with tooling slots, can be supplied for the headstock or tailstock.

Live center to be fitted to the tailstock.

Pneumatic torch lift to move the torch away from the part for loading and unloading.

Tilting base to tilt the lathe axis through 90° from horizontal to vertical.

Precision motor drive for applications requiring high accuracy rotation.

Computer or Microprocessor Sequence Controllers, Arc Length Controls, Wire Feeders, and Oscillators provide completely integrated welding systems for all arc welding processes. Jetline is a specialist in the manufacture of arc welding controls and can produce a custom solution for all your applications.

Jetline Precision Lathes have a unique design. Matched with Jetline's unequalled range of controls, they can be customized for any circumferential arc welding application.

The unique design of Jetline's precision lathe system is the ability for any lathe to accommodate multiple torch mounting carriages. This is especially beneficial where it is desired to weld two joints simultaneously. At your request, Jetline can produce custom designs with multiple headstocks and tailstocks on a common bed. This feature allows work cells to be designed and built where welding can take place on one side of the system while unloading and loading takes place on the other side.



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Application Stories

Problem:

A leading manufacturer of automotive air bags had a need to produce one million cylinders per year. Each cylinder consisted of a body, a base, and a head. They were welded using two circumferential welds.

Solution:

Jetline supplied two CWP5 precision lathes custom-designed for the application. Each lathe included a standard base and headstock. The tailstock was manufactured with a through-hole similar to that in the headstock. This permitted both the head and tailstock to be water cooled to remove the heat generated by the two welding torches.

The system was fitted with automatic loading and unloading facilities. The operator placed the three parts in a loading cradle and signaled the system to indicate that the parts were in position for loading. This operation took place while the previous part was being welded. After the welds were complete, the system, controlled by a combination PLC/Microprocessor controller, automatically opened and allowed the part to roll away to a cooling station. The loading cradle was then automatically indexed into position and located the new assembly between the head and tailstock where it was clamped. Two plasma welding torches were then lowered into position to carry out the two welds simultaneously.

The complete loading, welding, and unloading operation was totally hands-free. This allowed the operator to service two lathes to provide a continuous welding operation with maximum throughput and with high quality and consistency.

Problem:

A medical equipment manufacturer needed to produce consistent, high quality stainless steel welded bellows. As these parts were to be used for medical applications, consistent welding results were the number one priority. Accountability was also an important requirement.

Solution:

Jetline supplied a precision lathe controlled by a Jetstar Computer Controller. As the material thickness was only 0.002" (0.05 mm), precision rotation and speed holding was critical. Fitted with a high precision servo motor, and operating under the closed-loop control of the Jetstar Computer Controller, the rotation speed was regulated within $\pm 0.1\%$ of the set value.

Not only was weld consistency achieved, it was also documented using the Jetstar computer's data acquisition capability. Each part was supplied with its own complete data acquisition report.

Problem:

A manufacturer of thermocouples and sensors for the Aerospace industry had a need to circumferentially weld small parts made of stainless steel and Inconel.

Solution:

A CWP1-6 precision lathe answered the need perfectly. Controlled by Jetline's 9500 Microprocessor Controller, the rotational speed of the lathe and the output of the GTA (TIG) welding power supply were maintained within very close tolerances. This resulted not only in improved part quality, but also in higher productivity due to the ease of use of the system. Changeover from one part to another was achieved with a minimum of downtime.

Problem:

A manufacturer of electronic assemblies needed to carry out closure welds where heat input had to be minimized to avoid damage to the delicate electronic parts.

Solution:

A Jetline precision lathe equipped with GTAW (TIG) process facilities was used to precisely assemble, clamp, and rotate the parts for welding. Equipped with a Jetline Arc Length Control, the GTAW (TIG) torch was precisely positioned to provide consistent arc length, piece after piece. Accurate control of the welding arc reduced heat input and lowered rejection rates.

Problem:

A manufacturer of liquid transfer valve systems used in the food and chemical industries for the transfer of liquids from one container to another needed to purchase a system to weld a large variety of these valves. High quality welds were required for EPA standards.

Solution:

The purchase of a Jetline precision lathe with 9500 microprocessor control speeded up the changeover from one part to another. Multiple welds were achievable on each part using the unique firmware control in the 9500 System Controller.

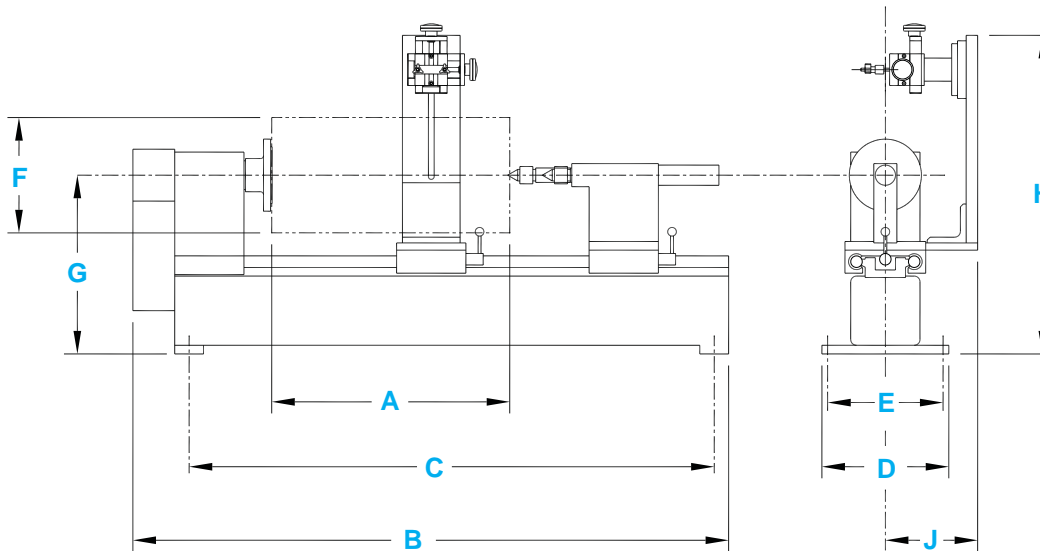
How about you?

Do you have a need which you think can be fulfilled by the use of a precision welding lathe?

Jetline is in a unique position to produce a solution to your problem just as we did for all the companies detailed above. Using one of our precision lathes with our recommended controls can save you time and money and improve the quality and integrity of your product.

Call us today for a solution to your problem.

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Specifications

MODEL	CWP1-4	CWP1-8	CWP1-12	CWP2-6	CWP2-12	CWP2-18	CWP5-12	CWP5-18	CWP5-24
Dimensions (refer to drawing):									
A - Maximum Part Length	4" (102)	8" (203)	12" (305)	6" (152)	12" (305)	18" (457)	12" (305)	18" (457)	24" (610)
B - Overall Length	27" (685)	31" (787)	35" (889)	34" (864)	40" (1,016)	46" (1,168)	40" (1,016)	46" (1,168)	52" (1,320)
C - Mounting Hole Spacing	22" (559)	26" (660)	30" (762)	27.5" (699)	33.5" (851)	39.5" (1,003)	33.5" (851)	39.5" (1,003)	45.5" (1,156)
D - Base Width		8" (203)			11" (279)			11" (279)	
E - Mounting Hole Spacing		7" (178)			10" (254)			10" (254)	
F - Maximum Part Diameter		8" (203)			11" (279)			12" (305)	
G - Center Height from Base		10.5" (267)			16" (406)			16" (406)	
H - Overall Height		20" (508)			28" (711)			28" (711)	
J - Torch Bracket Offset		7" to 9" (178 to 229)			6 1/8" to 9 5/8" (156 to 245)			6 1/8" to 9 5/8" (156 to 245)	
Headstock Spindle:									
Through-Hole Diameter		3/4" (19)			1 3/8" (35)			1 3/8" (35)	
Tooling Register Diameter		2.755" (70.00)			4.921" (125.00)			4.921" (125.00)	
Rotational TIR		.001" (.025)			.001" (.025)			.001" (.025)	
Tailstock Spindle:									
Morse Taper		No. 2			No. 2			No. 2	
Clamping Stroke		2" (50)			3" (75)			3" (75)	
Max. Clamping Force		60 lbf. (27 kg)			80 lbf (36 kg)			80 lbf (36 kg)	
Head/Tailstock:									
Spindle Alignment		.002" (.05)			.002" (.05)			.002" (.05)	
Weight Capacity		100 lbs (45 kg)			200 lbs (90 kg)			500 lbs (225 kg)	
Welding Ground		200 amps			400 amps			400 amps	
Rotational Speed (Standard):									
Minimum		0.2 RPM			0.2 RPM			0.2 RPM	
Maximum		9.0 RPM			9.0 RPM			9.0 RPM	
Speed Holding		±1%			±1%			±1%	
Rotational Speed (Precision):									
Minimum		0.036 RPM			0.036 RPM			0.036 RPM	
Maximum		18.0 RPM			18.0 RPM			18.0 RPM	
Speed Holding		±0.1%			±0.1%			±0.1%	
Input Requirements (all models):									
Electrical (Standard)		115 Volts, 60 Hz., Single Phase							
Electrical (Optional)		220 Volts, 50 Hz., Single Phase							
Compressed Air		80 PSI (3.5 kg per sq. cm.)							

Dimensions in parenthesis are (mm)

See Jetline price list for complete ordering information

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