





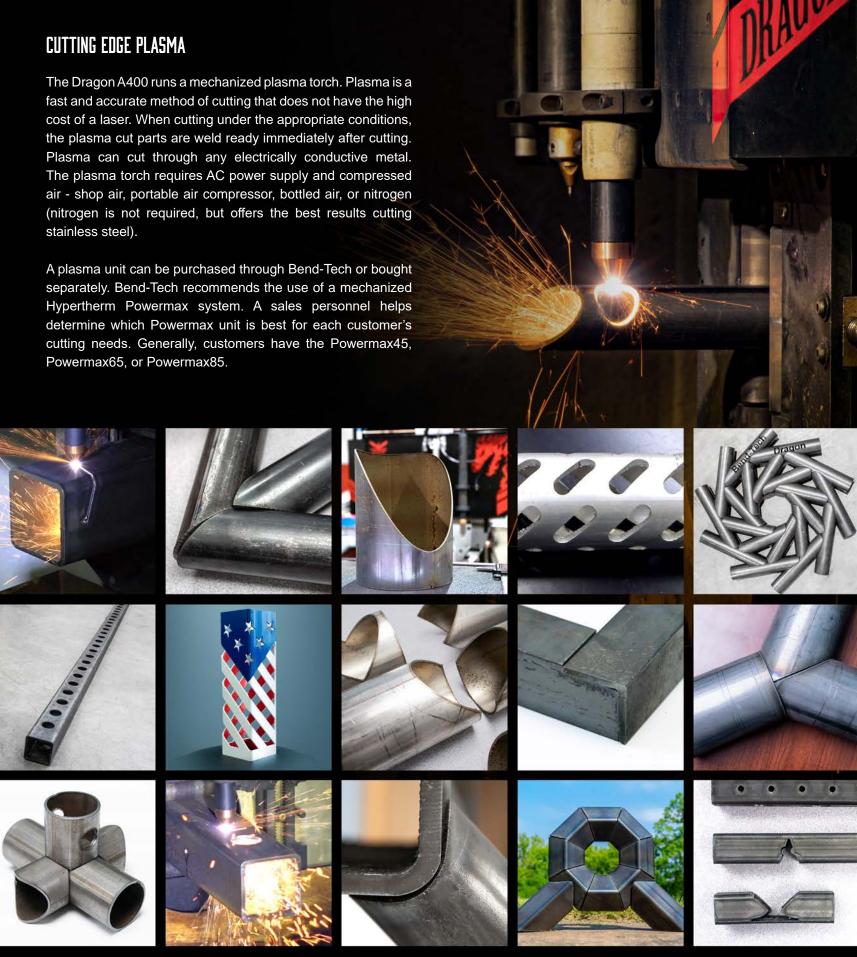
## IMPROVING THE BOTTOM LINE

Increasing accuracy and efficiency through CNC automation, the Dragon A400 saves money for fabricators. Production time is often made five times faster by the Dragon A400. CNC automation minimizes errors in production. Wasted time, wasted materials, and wasted labor burden productive fabrication. Increasing the shop's total production output is a big reason Bend-Tech Dragon customers say the Dragon A400 was well worth the investment. For tube and pipe fabrication shops looking to lower costs, reduce waste, and increase profits, the solution is the Dragon A400.

## INCREASE EFFICIENCY & ACCURACY WITH CNC AUTOMATION

The CNC automation of tube processing drastically cuts down the time of production. The Dragon A400 uses CAM and CNC to make correct parts every time. Eliminating wasteful errors in fabrication saves time and money. The parts coming off the Dragon A400 fit up as intended, removing the need for the time-consuming process of manually fitting tube. The Dragon A400 is a machine for tube and pipe fabrication businesses looking to improve production by increasing efficiency and maintaining consistent accuracy.





Copes, miters, angled copes, holes, any part can be cut.

#### **BUILT TO HANDLE YOUR MATERIAL**

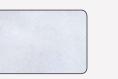
#### **Material Types**















Steel

Stainless Steel

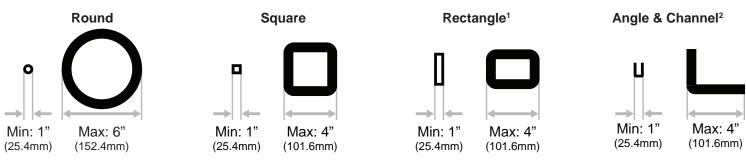
Galvanized Steel

Steel Aluminum

Black Pipe

Chrome Alloy

#### **Material Sizing**





The Dragon A400 handles full 24 ft length material. The chuck has a pass through ability for round material with a 2" or less OD to accommodate longer than standard pieces.

# Material Weight Material Thickness 1/32" (0.79mm) 5/8" (15.8mm)

Maximum capacity of 400 lbs

Material thickness range of 1/32" - 5/8"

<sup>1.</sup> Dragon A400 can process rectangle tubes up to a 6.375" hypotenuse. (e.g. 2"x6", 3"x5")

<sup>2.</sup> Angle & Channel is an optional add-on feature.

#### COMPLETE PRODUCTION COMPONENTS

#### **Quick and Easy Loading Process**

The open design of the Dragon A400 allows material to be loaded from either side, front, back, or top. Usually, one or two people can easily load the tube. Once secured in the chuck and the front gate, the loading process is complete.

In most situations, the Dragon A400 can be loaded by a single person in less than two minutes. The quick and easy loading process keeps production on schedule.

#### Chuck

The chuck has four self-centering jaws to hold round, square, rectangle, angle, and channel profile tubing. The chuck has a pass-through hole that allows round tubing up to 2" OD to pass-through. The chuck key is stored right on the trolley; keeping the chuck key nearby, but out of the way.

#### Center Support Lifter

The automatic center support helps hold full-length material during the loading process.

#### **Front Gate**

The front gate has two self-centering vice-like roller jaws that hold their position and are adjustable by turning a hex key wrench. The front gate securely holds tubes up to 400 lbs. Once set at a size, the front gate holds that position. This allows the operator to run the same size of a tube over and over without having to adjust the gate with every new stick.

#### **Automatic Tool Changer**



- The Bend-Tech Dragon tool changer comes with a plasma torch mount, permanent marker with mount, an engraver with mount, and laser light and mount.
- The automated CNC tool changer allows for marking, engraving, and cutting to occur seamlessly at the push of a button.
- The laser light provides accurate calibration and alignment of the material during the loading process with the machine.

#### **Control Box and Electronic Systems**



- The control box connects the Dragon Software Suite on the customer's computer with the motors that operate the Dragon A400.
- The cabling on the Dragon A400 is high-flex cable to eliminate wear through usage.
- The Dragon A400 has four emergency stop buttons on the machine for ease of shutdown if necessary.
- Sensors are located on all axes of movement.

#### **Part Catcher and Coolant Tray**

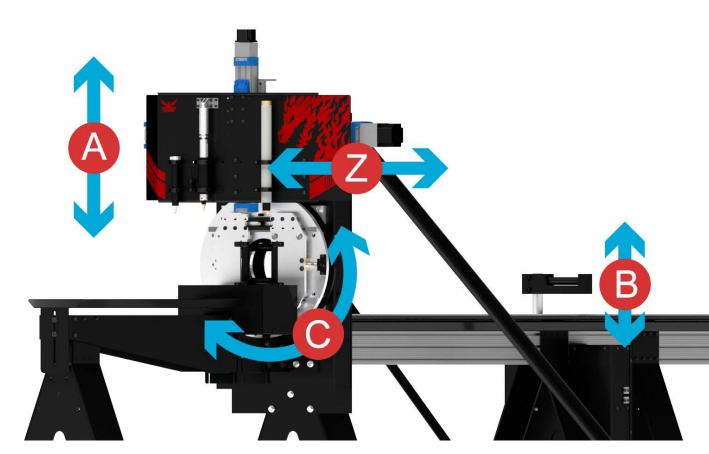


Whether you have six-foot-long parts or two-inch-long parts, the part will fall about six inches into either the part catcher or the coolant tray.

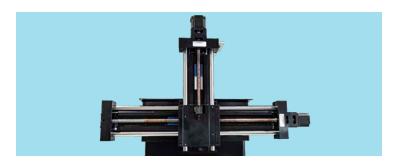
#### INCREASE PRODUCTION OUTPUT WITH FULL AUTOMATION

#### 6 Axes of Movement<sup>1</sup>

The six axes of movement cut any part. Complete automation produces your parts faster and more accurately. The A400 is a six axes machine driven by brushless DC electric motors. American made motors are ideal because they provide fast and accurate movement powerful enough to handle a 400 lb tube. The six axes provide accurate cuts within a tolerance of +/- 0.010".



A & Z-Axis: Ball screw that moves the tool changer from side to side(Z) and up and down(A)



 This axis of movement provides accurate cutting on square/ rectangle tubes and non-rotational hole cutting on round tubes.

C-Axis: A gear driven system that rotates the front gate (Optional Add-On feature)



- Enables the machine to cut angle iron and channel.
- Rotates in sync with the chuck's Y-Axis.
- With the new Angle/Channel Motorized Gate, the Bend-Tech Dragon can use the automation of CNC plasma cutting for round, rectangle, square, angle, and channel profile material.

X-Axis: A steel cord precision belt drive system that moves the material along its length.



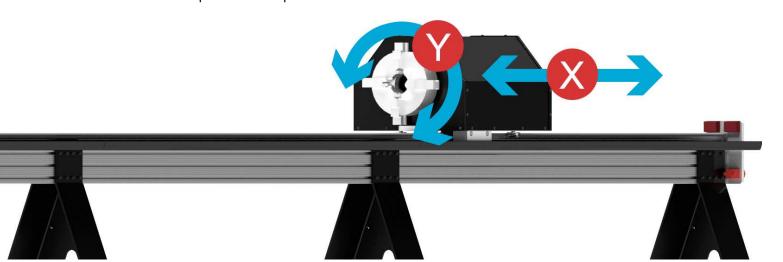
- The rapid travel between cuts reaches 1100" per minute.
- Fast movement between cuts is essential for production machines.
- The X-axis is programmed to move simultaneously with the Y-axis between cuts to increase production output.

Y-Axis: A gear driven system that rotates the material.

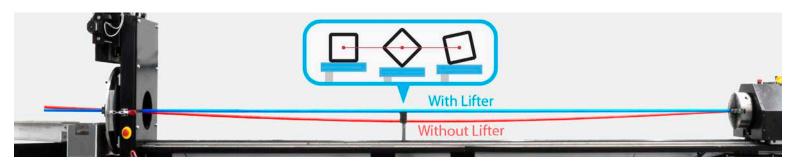


- Gearing is a steel and nylon gear setup to reduce wear.
- Gearing is a 7:1 ratio for power to rotate a 400 lb tube.
- The Y-axis is programmed to move simultaneously with the X-axis between cuts to increase production output.

11



B-Axis: Vertical ball screw that moves the center support roller up and down.



- The center support automatically moves up and down and moves out of the way from the track when not needed. The complete automation prevents the center support from colliding with the track and chuck trolley.
- The fully automatic center support lifter prevents bowing in long pieces (as shown in red above) for accurate cutting, marking, and engraving.
- As shown above, the center support lifter goes up and down to maintain constant centered leveling support as a square or rectangle tube rotates.

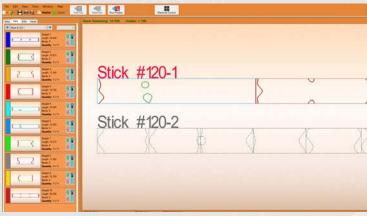
<sup>1. 6</sup>th axis is an add-on option. 5 axes are the standard for the A400.

#### DESIGN TO PRODUCTION MADE EASY WITH POWERFUL CAD & CAM SOFTWARE

The Bend-Tech Software provides a smooth transition from design to finished part. Easy to use, the software eliminates a considerable amount of waste in time and mistakes.

#### Import Your 3D Parts or Design from Scratch

Import 3D CAD designs or create them from scratch with the Bend-Tech Dragon CAD. The Dragon CAD imports STEP & IGES files that are supported by most CAD software. Some of the compatible software is pictured to the right. Once imported, the Dragon CAD will trace all your CAD geometry and convert it into a CAM ready file. This process normalizes along the cut path for weld ready part. The CAM ready file is read by the Dragon A400 for CNC production.



viewer is available to see each action in detail. With the click

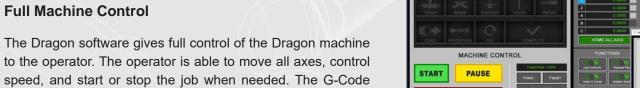
of a button, homing the machine is easy. The control panel

includes an Emergency Stop button for safety.

**Full Machine Control** 

#### **Setup Tooling for Your Needs**

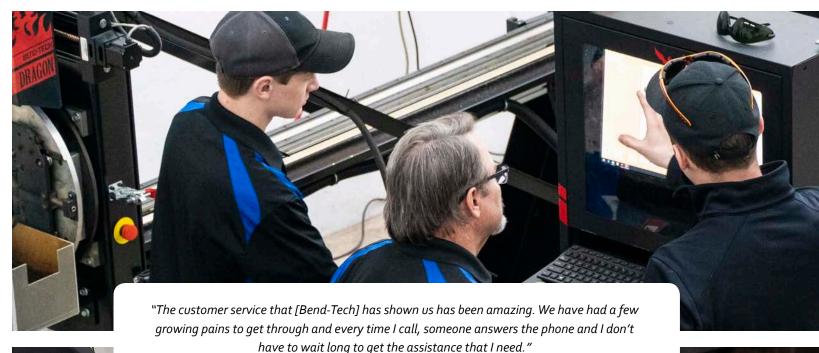
The Dragon software is an automated CAM/CNC product that understands tubing. Exclusive to Dragon machines, this software automatically creates your part's cutting, marking and engraving paths. The Bend-Tech Dragon CAD converts geometry into machine-readable G-Codes. To place several parts on the same stock tube, the software comes with a comprehensive nesting feature.



## Laser Engraver On/Off On/Off STOP

"Bend-Tech Software is super easy to use. Once you have designed the parts. You click, transfer to Dragon, nest your parts, and then hit cut." -Invisible Man Racing-

#### **EXCELLENCE IN CUSTOMER SUPPORT**





#### We are Here to Help

The Bend-Tech Dragon Customer Support department is an in-house team that persists in helping the Dragon customer until the problem is resolved. The Bend-Tech Dragon A400 is fully supported. When you buy a Dragon A400, you are not just receiving a machine, but a support staff that helps resolve issues when they arise. The support staff is located at our headquarters where the manufacturing of the Dragon takes place. This provides our technicians with hands on expertize of the machine and software. Our customer support is available over the phone and via email during the regular business hours of 8 AM to 5 PM (CST) Monday through Friday.

#### Bend-Tech Dragon Software Suite and 2 Year **Maintenance Package**

Bend-Tech Dragon Software Suite comes with a full CAD/ CAM program that allows for original designing, importation of designs from other CAD programs, part nesting, and Bend-Tech Modules. CAM software allows a smooth transition from your CAD to CNC production.

The 2 Year Maintenance Package includes the latest updates and enhancements in the software and direct customer support over the phone, email, or computer.



**Work Process - Design & Nesting Process** 

Using the Bend-Tech Dragon Software, a section of handrail can be imported or designed in the CAD/CAM that comes standard with all Dragon A400.

Duration: 5 min



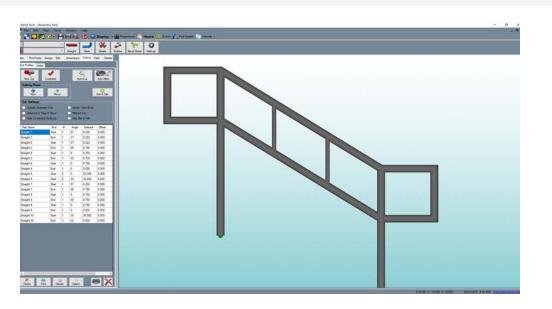
In this section we provide a time trial breakdown of producing a small section of handrail. The handrail was designed in the Bend-Tech Software in 5 minutes. To import a design into Bend-Tech from a different design program takes less than a minute. The parts were nested on a single 20 foot stick of two inch round steel. Loading the 20 foot 1.5" OD tube took only 1 minute for one person. Once loaded, the machine operator clicks the "start" button on the computer and the machine takes 10 minutes to process all of the handrail parts. Once marked and cut, the handrail parts are ready for welding.

#### **Efficient Production**

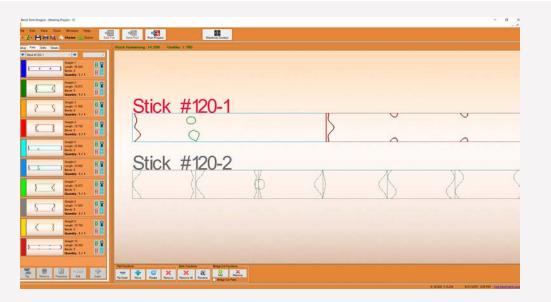
The Bend-Tech Dragon A400 decreases production time by producing tube parts fast and accurately. Without the Dragon, this 16 minute project takes about 110 minutes. This level of efficiency is where the Dragon thrives at helping the bottom line.

#### **Accurate Parts**

Eliminating waste is always important. The automation of tube and pipe production brought by the Dragon A400 helps minimize waste. Parts getting cut and marked accurately the first time is essential in minimizing waste. Consistently accurate parts fit correctly and are weld ready.



During the importing process, Bend-Tech Software prepares all cuts and holes as the parts are defined.



Once all of the parts are designed or imported, they can be auto-nested or quickly nested manually on tube up to full stock length.



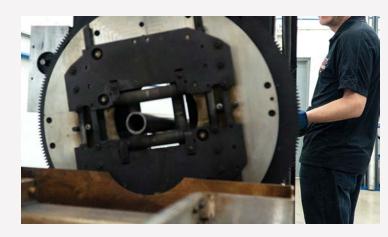
Loading the tube is done by one or two people, depending on the weight of the tube.



The Dragon A400's open design means that loading can be



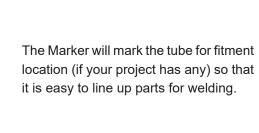
done on either side or dropped in vertically.



First, the tube is set into the front gate and rested on the center support lifter with the back end near the chuck.

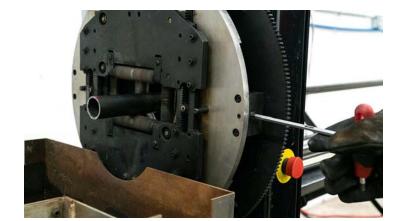


Next, the self-centering chuck is tightened to lock the tube in place for movement along the X-axis and Y-axis.



quickly and accurately.





Lastly, the front gate is tightened by two vice-like screws that hold their position until manually changed. A hex key is used to tighten and loosen the front gate jaws.



Once loaded, the machine is ready to start producing parts. Click "Send to Dragon" in the software and then click "Start".

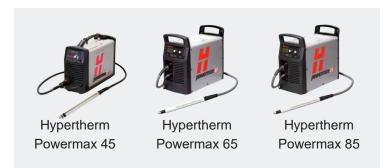
16 minutes after starting, parts for a quarter-flight handrail with a mid-rail and pickets is done.

The time savings displayed in this time trial is the true benefit of the Dragon A400. This automation of production is what saves so much money.



#### AVAILABLE ADD-ONS FOR YOUR DRAGON (Each sold separately)

#### **Hypertherm Powermax Plasma System**



There are three amp levels of Powermax plasma systems recommended for use on the Bend-Tech Dragon. The Hypertherm Powermax systems come with a 25' lead. The level of Powermax system required varies based on multiple factors. The Dragon requires a mechanized plasma torch. To best decide what level of Powermax system required, talk to a Bend-Tech sales personnel.

#### **Coolant System**

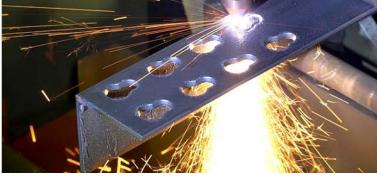




The coolant system increases cut quality, reduces slag amount, and decreases fumes from the plasma cutting. For companies that cut aluminum, stainless steel, or tubing with a small OD such as 1", it is highly recommended that you include a Coolant System in your purchase. The coolant system comes with a hose, hose reel, tube plug set, modular trays, and coolant reservoir. (Pump not included.)

#### **Angle/Channel Motorized Gate**





A motorized gate on the Dragon A400 cuts anything you need on angle and channel profile material. Various end cuts, such as copes, miters, and more are cut accurately and efficiently through automated CNC plasma cutting. Numerous holes such as square holes, bracket mount holes, large electrical cabling holes, and any other types of holes are cut with ease. The Angle/Channel Motorized Gate add-on still cuts all of the other tube profiles round, square, and rectangle material. The Angle/Channel Motorized Gate is an add-on option and is not standard on the Dragon A400.

#### **Technology Package**



The technology package includes: an enclosed metal workstation cabinet on wheels that comes with a PC with SITE License, computer monitor, keyboard, corner radius gauges (for square/rectangle tube), level, hex wrenches, digital caliper, extra proximity sensor, extra connector cable, spare belt drive, and a feeler gauge. The enclosed workstation cabinet is 63.25" height by 24.5" width by 22.5" length and a power cord lead of 144".

#### **On-site Training**





On-site Training includes two total days of training with a Bend-Tech Dragon Technician working on-location with the machine operator(s). This two day total can be two straight days or a half day, followed by a whole day, and then another half day. The Dragon Technician looks over install and setup of the machine and troubleshoot any problems with the initial setup. Next, their training covers downloading software and machine drivers, designing parts in the software, importing step files, software/machine/material settings, homing the machine, running projects on the machine, loading the machine, and general maintenance. This package includes all expenses.

#### POST PURCHASE ITEMS

#### **Delivery**



The lead time for the Dragon A400 is typically zero to four weeks. Shipping usually takes about a week, but varies on location. Once your Dragon has started shipping, you will receive a tracking number. Contact Bend-Tech sales personnel for a current lead time.

Bend-Tech is responsible for the package through the delivery process. Bend-Tech coordinates with the shipping company and if there are any problems, Bend-Tech resolves the error with the shipping company. If there is an error or damage in the shipping, please contact the Bend-Tech sales personnel right away. The Bend-Tech sales personnel focuses on making sure the necessary steps are taken to get the machine up and running as soon as possible.

#### Installation



As pictured on the right, the Dragon A400 is shipped partially assembled. All Dragon A400 machines are fully assembled and calibrated at headquarters. Then, the machines are partially disassembled for shipping. Your Dragon A400 comes with a comprehensive assembly guide to instruct on how to properly reassemble the machine.

#### **Shipping Crate**



The Bend-Tech Dragon A400 is shipped in a fully enclosed wood crate. The crate is designed to secure your Dragon A400 during the shipping process. The crate is 10' length by 5.5' width by 7' height as shown below.

#### **Technical Documents**



- The technical documents are a detailed description on all of the different aspects of the machine so that an operator can be self-sufficient in all things with your Dragon A400 machine.
- Included in the technical documentation is: the inventory of purchase, assembly guide, computer optimization guide, troubleshooting guide, and maintenance guide.

#### Warranty



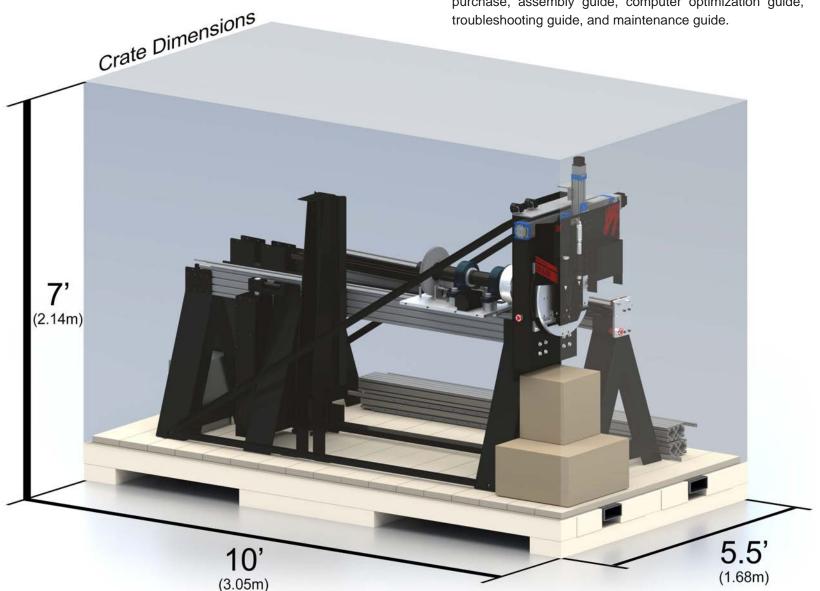
Your Dragon A400 has a 12 month electronics and hardware limited warranty. Defective or faulty parts identified on the machine within this time period after delivery will be replaced at no charge and shipped to the location. After the 12 month warranty period, replacement parts can be purchased through Bend-Tech, LLC. and shipped to the location at the customer's discretion.

THE WARRANTY MAY BECOME VOID OR LIMITED IN THE EVENT THAT YOU MAKE HARDWARE CHANGES TO THE MACHINE.

#### **Dragon A400 Software Maintenance Plan**

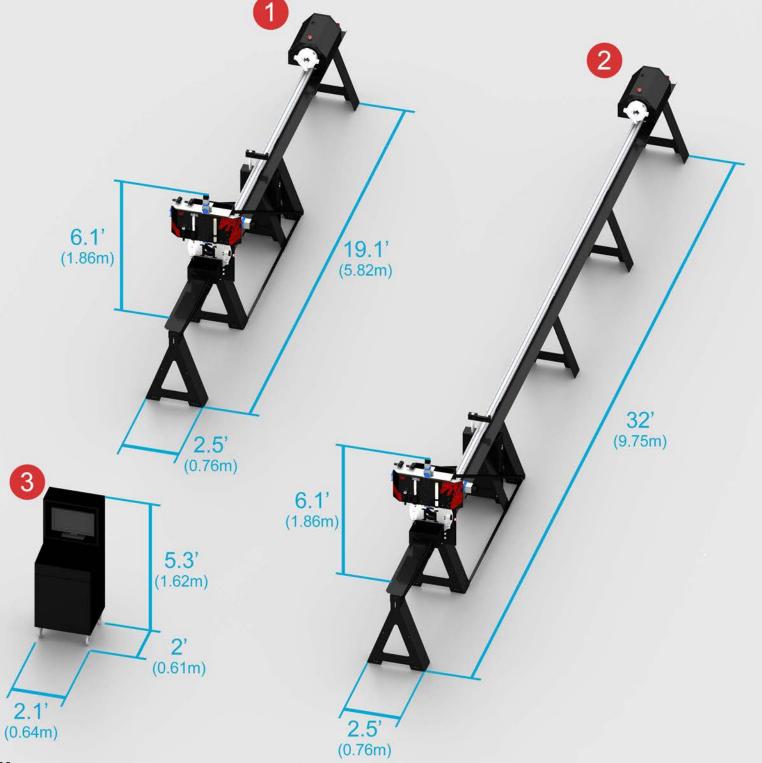


A 2 Year Software Maintenance Package is included in the purchase of a Bend-Tech Dragon A400. After the 2 Year Software Maintenance Package has expired, there is a year long maintenance package that is repurchased on a yearly basis to continue to receive support and software updates. The Dragon Software is always improving to ensure the best capabilities for your company and others. The Software Maintenance Package ensures consistent updates to your software product and keeps you running with the newest capabilities possible. Your Bend-Tech, LLC. sales personnel will contact you 1 month to 2 weeks before your maintenance plan expires to ask if you'd like to re-apply for an annual subscription.

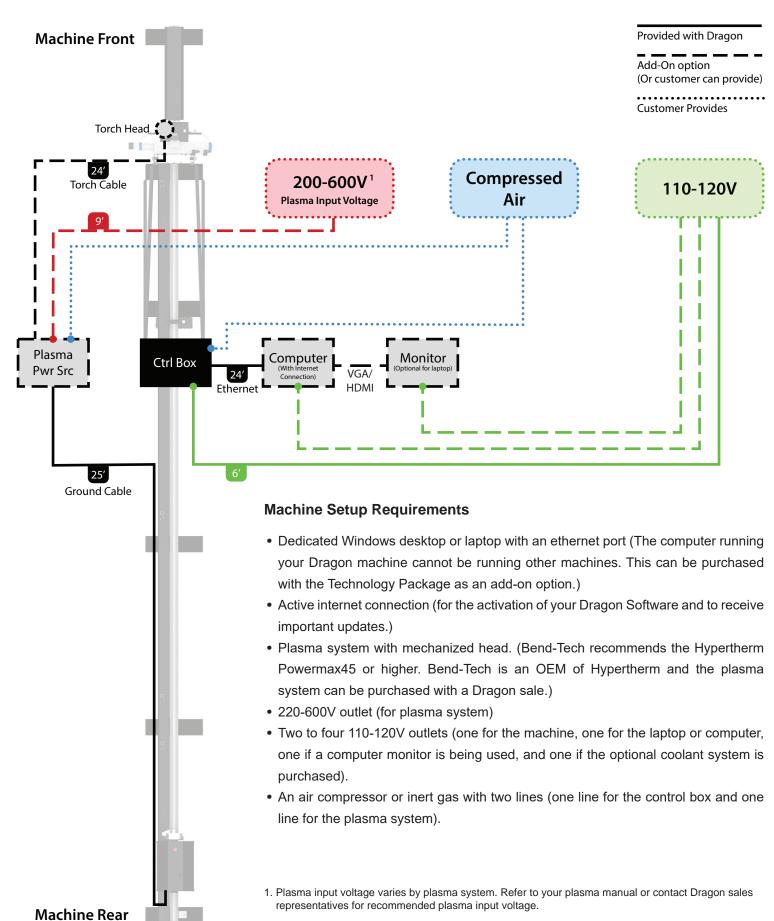


#### MACHINE FOOTPRINT

- 1 The 12' length machine has a footprint of 19.1' length by 2.5' width by 6.1' height.
- 2 The 24' length machine has a footprint of 32' length by 2.5' width by 6.1' height.
- The enclosed workstation cabinet in Technology Package is 2' length by 2.1' width by 5.3' height and a power cord lead of 12'. (This is an add-on feature that does not come standard with the machine.)



#### SHOP SETUP & REQUIREMENTS



## BEND-TECH: INNOVATORS OF TUBE & PIPE FABRICATION

Bend-Tech takes pride in providing products that innovate the way tube and pipe are designed and fabricated. We are ready to continuously push this industry with tools that are efficient and accurate to improve your bottom line.



















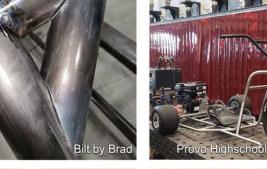


















Over 26,000 customers use Bend-Tech products to better design and fabricate tube and pipe!

#### Made in the USA



Bend-Tech was started in 2001. Since then, Bend-Tech has been hard at work growing into the company we are today. Today, Bend-Tech has over thirty employees, each sharing the common goal of innovating the way tube and pipe are designed and fabricated. In 2017 we moved into a 36,000 square foot headquarters. All of our employees work at Bend-Tech headquarters in Osceola, Wisconsin.

#### **In-House Manufacturing & Direct Support**



All production of the A400 is done in-house at Bend-Tech headquarters. Sub assemblies, electrical components, control box, final assembly, testing, calibrating, and packaging all take place in the same location. The single location allows us to keep quality control at our high standards.

The Dragon Technicians that make up our Support Department are between the Production and the Software Development departments. This arrangement provides a flow of information across departments that resolve customer issues promptly.

Bend-Tech has a team of developers that spend every day making improvements to the Bend-Tech Software. It is an important part of Bend-Tech's past and future to have the premier tube and pipe software available for fabricators.

#### FREQUENTLY ASKED QUESTIONS

#### What are the material capabilities?

Tube Profile: 1"-6" round, 1"-4" square, 1"-4" rectangle, 1"-4" angle, and 1"-4" channel.

Tube Material Type: Steel, aluminum, stainless steel, DOM, HREW, black pipe, galvanized steel, and any type of electrically conductive material.

Tube Length: Full stick length capable up to 24 feet. (pg.7)

#### What is included in the purchase of a Dragon A400?

Dragon A400 machine, center support lifter, marker, engraver, laser pointer, and Bend-Tech Dragon software. (pg.8-13)
Requirements: a dedicated windows desktop or a laptop with an Ethernet port, an active internet connection, a plasma torch with a mechanized head, 220-240V outlets, two 110-120V outlets, misc. outlets, and an air compressor. (pg.23)
Available Add-ons: Hypertherm plasma system, coolant system, technology package, angle/channel motorized gate, and on-site training.

#### What size of plasma cutter does the machine use?

We recommend a Hypertherm Powermax 45, 65, or 85 depending on the shop requirements. (pg.18)

#### What is the warranty?

(pgs.18-19)

Your Dragon A400 has a 12 month electronics and hardware limited warranty. For further information regarding the warranty, view: (pg.21).

#### What service is available for the machine?

Customer support always answers the phone during our business hours and we strive to work with you to resolve the problem. If necessary, Bend-Tech can send a Dragon Technician to location; contact the sales personnel for a quote. (pgs.13,19)

#### How does the initial setup process work?

Your Dragon A400 is shipped partially assembled. All Dragon A400 machines are fully assembled, calibrated, and tested at headquarters. Then, the machines are partially disassembled for shipping. Your Dragon A400 comes with a comprehensive assembly guide to instruct on how to properly reassemble the machine.

#### Are replacement parts available?

Yes, we keep a full stock of inventory of parts.

#### Where is the Dragon A400 made?

Your Dragon A400 is proudly assembled here in the USA. All of our departments are located in our 36,000ft<sup>2</sup> facility in Osceola, WI. Almost all of the parts are from the Minneapolis & St. Paul area here in the Midwest.

#### Is the CAD/CAM software included?

Yes.

## Does the software have import, export, CAD/CAM, and designer abilities?

Yes. The Dragon CAD/CAM software can import/export to and from many of the commonly used CAD programs (such as Solidworks, Inventor, AutoCAD, PRO Engineer, Tekla, SDS2, etc.) and can be used as a design program. (pg.12)

## What software maintenance, charges, and updates occur with Dragon?

A 2 Year Maintenance Package is included in the purchase of a Bend-Tech Dragon A400. After the 2 Year Maintenance Package has expired, there is a year long maintenance package that is repurchased on a yearly basis to continue to receive support and software updates.

#### What is your current lead time?

Typically, our lead time is 0-4 weeks. Bend-Tech always has inventory of the A400 by constantly manufacturing machines. For current lead time, contact our sales personnel.

Is the Dragon A400 a production machine? Yes.

## How many Dragon machines are out in the field? Over 400 as of July 2019.

#### How does the Dragon A400 load?

From the front, back, top, or either side; it depends on how your shop is set up and what you are cutting. There are multiple ways to easily load material. The tube can be placed in the front gate, then tightened into the self-centering four jaw chuck, and then the front gate can be closed to the correct amount of tightness on the material. Usually, loading takes one person. (pg.8)

#### What is the cut speed?

The cut speed varies based on a variety of factors; including material size, cut design, material type, tolerance requirements, material thickness, the use of a coolant system, and others. Depending on the variables, the torch can run up to 120 inches per minute while cutting. Between cutting, the rapid travel can run up to 1100 inches per minute (x-axis) and 30 RPM (y-axis).

#### What is the cut quality/dross level?

The dross level varies based on a variety of factors; including amperage used, cut speed, material size, cut design, material type, tolerance requirements, and material thickness. Optional coolant circulation system can greatly improve the cut quality and dross level. You can request a benchmark/sample package to see the Dragon cut parts in person. (pg.28)

#### What is the tolerance on the cuts?

+/- 0.010"

## How long has Bend-Tech been in the tube & pipe business?

Since 2001.

#### How easy is the software to use?

Like many software programs, it does take some time to get comfortable knowing the ins and outs of the Bend-Tech Software. Most people become comfortable using the Bend-Tech Software after a couple days of practice and from there they become increasingly aware of the more detailed features. In case there is confusion with certain aspects of the software, we have Wiki pages and videos to help teach and train people on the software. Also, the Bend-Tech support staff is always around to help during the normal weekly business hours. There is an On-site Training option available for purchase. The Onsite Training includes Bend-Tech sending a Dragon Technician on-site to train your Dragon Operator(s) on how to use the machine and the software. Customers are also allowed to come visit Bend-Tech headquarters to receive their training.



## Do you have more questions for us? We are here to help:

Phone: 1-651-257-8715 Email: sales@bend-tech.com

#### TAKING THE NEXT STEP TOWARDS OWNING YOUR DRAGON



#### See the Dragon in Person

Give us a call or email and set up a time to come visit us to see the Dragon and Bend-Tech Software in person. We always welcome people to tour our facilities and receive detailed information from our Dragon Technicians through live demonstrations. If you cannot visit us in person, we can give a virtual tour of our facilities with an online video chat.



#### Request a Sample Package

After contact, Bend-Tech will send you a sample package containing a variety of sample parts cut on the Dragon A400. Round, square, steel, and aluminum tubes have various cuts that show the cut quality of the Dragon A400. (The sample pack is free including shipping.)



#### Request a Benchmark

Get in touch with us and we can make a benchmark of your part(s). Send us the material and the design file, and we will cut out the part(s) and ship them to you with a video link via email. The benchmark provides an opportunity to see the cut speed, cut quality, and clean up amount for your part(s).



#### Comprehensive Pricing Guide

Contact Bend-Tech or your Dealer representative for a comprehensive pricing sheet. The pricing guide breaks down the price on each available item. This allows you to select the best options for a Dragon A400 that fits your shop's needs.

#### **Contact Us**

Phone: 1-651-257-8715 Email: sales@bend-tech.com Address: 729 Prospect Ave, Osceola, WI 54020

#### **Further Information Available Online**

www.bend-tech.com

Visit our website to see more information, pictures, and videos on the Dragon A400. Fill out an inquiry for direct contact with Bend-Tech sales personnel.

#### Want to See More?







@bend\_tech

facebook.com/2020ssi youtube.com/bendtech

For up-to-date information, pictures, videos, and more, follow Bend-Tech on Facebook, Instagram, and YouTube.



## NOTES



