



BAYKAL CNC PLASMA CUTTING SYSTEMS - BPS

The BPS has been designed after 5 years of market research and with input from leading design and supplier companies to be the class leader in precision plasma cutting.

Performance

With our high rigidity machine heavy duty drives and smart height sensing systems we can offer the fastest cutting cycles in the market

Strength and stability

The BPS has been designed to capitalise on Baykal's skill in fabrication and machining to be the strongest and stiffest machine in its class. This structure guarantees long term accuracy and minimum vibration for the whole of the machine's life. Combined with the precision drive components this means that the machine can give higher quality and accuracy or shorter cycle times for a given quality level.

Even small details like bearing placement have been considered. Many machines have the bearing surfaces on the front of the beam and others on the top. The top mounting system, minimises damage from dross, the front mounted system keeps the bearing close to the plate for apparent stability. The Baykal system ensures the widest possible bearing base to minimise the effects of bearing clearance or machining tolerances while limiting damage from cutting dust and dross.

The structure is all steel to ensure that there are no accuracy variations caused by thermal variances between for example an Aluminium gantry and a steel base. The gantry is fabricated from folded sections designed to give the maximum stiffness to weight ratio. It is not just the nearest size rolled hollow section which are designed for heavier loads and do not achieve the same dynamic qualities of a purpose designed fabrication.

Built for long life and high reliability

At Baykal we are used to supplying machines which are still in service after 25 years. We believe in building long life machines with quality components from such companies as Hypertherm for the plasma, Yaskawa for the motors, Gudel for rack and pinions, our aim is to ensure maximum service life and minimum downtime but most of all, maximum lifetime return on your investment.

The mid height rails and concealed longitudinal cable chain minimise the chance of running surfaces and supply cables and hoses being damaged during loading and unloading and the BPS plasma's unequalled construction ensures long term stability even in rough fabrication shop environments. Unlike many high rail machines the rails are isolated from the cutting table so preserving them from shock during loading and unloading and thermal stress while cutting.



High Precision Drive System

The double side drives are fitted with AC servos and very high precision (3 arc minute) planetary gearboxes. This ensures that the drive system is equal to or better than the highest precision systems available in the market. The unique floating drive arrangement allows constant pinion/rack mesh without the excessive wear or compliance associated with spring or pneumatically loaded backlash compensation systems.

Particular attention has been given to minimising runout, backlash and compliance in the drive train which means that we can run with higher gains and higher acceleration without overshoot or vibration. While many drive systems are selected for torque capacity, the Baykal system is designed to minimise total lost motion by having high precision components, very high resolution (better than 1 micron) and a very stiff mechanical components.

Torch Height Control and Crash Protection:

Baykal has also refined the whole torch protection/initial height sensing system. The touch height sensing system is designed to minimise contact forces on the torch and hence improve consumable life, increase accuracy of initial height sensing and shorten the starting cycle.

The torch breakaway protection is rigid and yet provides light breakaway forces so that there is minimal chance of damage to the machine in the event of a high speed crash. It is also highly repeatable so that the whole torch can be lifted off the breakaway for easy inspection and or consumable changing and then returned to position with new consumables to continue cutting without an offset. Many of the pneumatic or spring based systems cannot achieve that repeatability and in an attempt to maximise mounting accuracy they can be so stiff that in a high speed crash that components still suffer damage.

Versatility:

The heavy duty structure and isolated table means that the machine can be quite readily adapted to heavier plasmas and/or oxy fuel torches so that the machine can have one or more plasmas for light to intermediate plate, oxy fuel torch for heavy mild steel plate and plasma inkjet or powder markers for all metals.

Performance

The BPS plasma is fitted with much larger drives than many plasma machines which means that the acceleration and traverse speeds (30m/min) are higher than the industry standard. This translates into shorter cycle times and lower cost parts for you.

Diagnostics:

In the unlikely event of a machine problem extensive diagnostic tools in the control and plasma allow you to identify the fault and shorten service response times by giving a precise status of the machine and plasma.



Turnkey System

As well as the plasma and optional marking systems the machine is supplied with a dust and fume extraction system from Donaldson (England) and class leading programming software from Lantek (Spain). Baykal supports these products directly saving you time and money sourcing support from different manufacturers

Packaged fume extraction

The fume extraction system supplied with the Scimitar is guaranteed to give long reliable service with your plasma cutting system. In the past many plasma machine customers have been caught out by buying cheaper alternative brand systems which were sized for welding or laser cutting applications. These systems do not stand up to the heavy duty plasma workload and require very frequent and time consuming maintenance.

Leading Edge Software

Baykal has searched the world for a suitable software package to make it as easy as possible for customers to prepare work for our machines. This package has the most powerful set of programming tools available for drawing parts from scratch or editing CAD drawings.

It also has both DXF and BMP import facilities for importing CAD drawings or scanned graphics. Together with text and splining tools it is a powerful package for signmaking as well as normal engineering parts.

It has text marking support and dimensioning facilities for quality control, cutting machine operator guidance and part identification.

There are three levels of nesting systems with traditional interactive nesting, advanced interactive nesting with rapid rotation and bump checking and fully automatic nesting.

For manufactureres of fume extraction and material handling systems there is an optional extensive library of 3D shape developments for duct pieces hoods hoppers etc.