

The Jet Edge Low-Rail Gantry features a gantry bridge traveling on a floor-mounted rack and pinion drive system. The gantry, comprised of two machined end-trucks which support the main cross-axis beam and deck, provides the platform for the precision shape cutting processes. Its design is rugged and accurate for heavy-duty shape cutting and high-speed positioning in lengths up to 50 feet.



The trucks, each equipped with individual drive units, provide the motion along the x axis. The double-drive unit prevents lagging which could occur with a slave truck that is free running or mechanically coupled by an axle. Two steel wheels located in each truck assembly ride the machined top surface of the linear rails. A pair of side-guide rollers at each end of the master drive truck straddle the rail contacting the machined sides for accurate guidance. An air blast nozzle located at each end of the truck removes dirt loosened by the wheel and rail scrapers. Plasma can be added to the machine to increase its functionality.

Construction

All components are modular welded steel construction with machined mounting surfaces, and are bolted together to form a rigid machine frame.

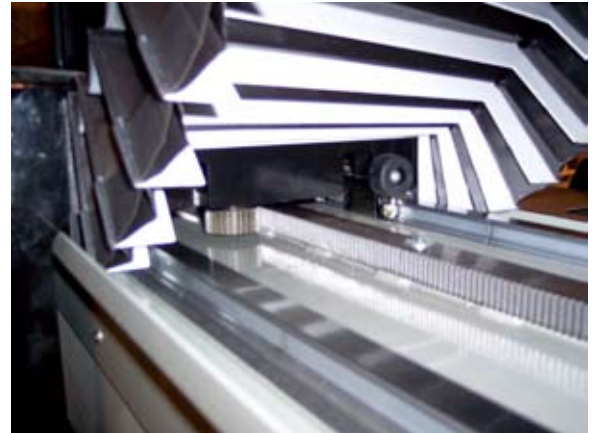
The PLC offers easy modification and integration of additional stations at minimal cost. Burny 10 Touch-Screen control including standard shape and CAD/CAM/Nesting on board.



Performance Features

Rail System

Support for the machine and longitudinal (lengthwise) travel is accomplished on elevator-type rails that feature an enhanced rail design with linear motion guides and specialized bellows system for X and Y axis. The machined surfaces of the rails provide smooth, even tracking for sure accuracy. The floor-mounted rails are supported by heavy duty leveling pads featuring forged steel clips for fastening the rail to the pad and integrated adjusters for aligning the machine rail in all directions. The ends of each rail section are machined with a tongue and groove, providing positive rail alignment. The pads allow for fast and easy alignment of the machine rails.



Servo Drive System

AC Brushless servos, with a service life many times that of conventional brush-type servos, are used for both axis. The lower or rail axis utilizes two servo motors, synchronized solely by the servo drive system, freeing the CNC to process only positioning and process functions. This allows faster positioning speeds by today's high performance waterjet and plasma systems. The measuring system is also an integral part of the AC Brushless Servo Drive System. The drives provide encoded position information to the CNC. A major advantage of this is the elimination of separate encoders and resolvers from the system.

The servo motors are directly coupled to a high precision planetary gear reducer. The drive pinion is mounted directly to the gear reducer output shaft. The design eliminates all belts, pulleys, and associated components which results in a very low maintenance drive system. The precision gear reducer with a maximum backlash of seven arcminute translates less than 0.002 in. backlash to the standard output pinion.

Carriages

The basic machine includes a (master) carriage integrated with the cross axis drive module. It can be used to support up to three stations. Additional slave carriages may be added as required. A stainless steel band is looped around pulleys at each end of the beam with the ends attached to the master carriage. Three way band clamps allow each slave carriage to: a) follow the same path as the master carriage, b) follow a mirror image of the master carriage, or c) remain detached from the band when the station is not used.

Industry Standards

Jet Edge motion systems are manufactured according to National Machine Tool Building Association (NMTBA) standards. Motion system tolerance capabilities are verified through dynamic analysis using a Renishaw[™] Ballbar system. This analysis assures customer satisfaction by delivering tight and consistent part-cutting tolerances.