MasterGraph MGK
KATANA

HIGH-DEFINITION CNC PLASMA & OXY-FUEL CUTTING MACHINE

SIMPLY BETTER BUILT.

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A MASTER OF CONTROL: THE KATANA™ CONTROLLER JOINS THE MASTERGRAPH

Introducing the MasterGraph Katana MGK™, a state-of-the-art CNC oxy-fuel and plasma cutting machine designed to redefine precision, efficiency, and versatility in metal fabrication. Engineered with the same mechanical integrity as its predecessors, the MasterGraph EX2 and PlatePro XHD, the MasterGraph Katana MGK™ distinguishes itself with innovative advancements and superior control technology, updating the CNC interface of the MasterGraph platform to our cutting-edge Katana HMI controller.

Fabricated Main Beam Construction with Integrated Back Shelf:

Our in-house fabricated solid steel gantry, with a back shelf, centralizes critical components, enhancing stability and simplifying maintenance.

Precise Oxy-Fuel and Plasma Beveling Operations:

Newest additions of the optional 3D-X Full Contour Bevel Head, the IHT Automatic Process Control Torch Carriage, or Koike branded torch sets deliver incredibly precise bevel cuts with minimal dross.

Powerful Yaskawa Drives/Motors & Harmonic Drive Gearboxes:

Delivers a large amount of torque to easily countersink holes with the optional 3D-X Full Contour Bevel Head.

Engineered for Operational Safety:

The MasterGraph Katana MGK™ features dual machine collision protection for setups with two gantries on a common rail, a pull-rope emergency stop around the gantry, and a choice of laser area scanner or light curtain at the rear.

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KATANA™ CNC CONTROLLER WITH 21.5" TOUCH SCREEN

The Transition to the Katana™ CNC Controller :

The MasterGraph platform, powered by the new Katana™ controller, broadens operational capabilities, allowing for more complex and precise cutting patterns that enhance efficiency and flexibility. The upgraded Human-Machine Interface (HMI), mounted on a dual swivel arm, ensures superior access and maneuverability, making it easier for users to make adjustments and interact with the system.
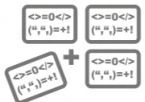
FEATURES AND BENEFITS

Industrial Panel PC
- 21.5" TFT display with capacitive multi-touch screen.
- Solid aluminum, machined billet housing
- Windows® 10 IoT Enterprise
- Built in Operator Control Console

Increased Productivity
Innovative software makes it easy for the operator to produce high quality parts from day one.

Integrated Communications
Advanced interfaces for the plasma and torch height control systems provide the user with expert cutting process controls using preprogrammed cutting charts.
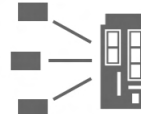
Intelligent System Functions
Intelligent control algorithms, along with premium drive and motor technology, ensure the highest dynamic response and precision when cutting or marking.

Remote Diagnostics and Servicing
Provides expert on-line support from our factory to yours.

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DESIGNED TO LAST: THE ROBUST BUILD OF THE MASTERGRAPH KATANA MGK™

We've invested heavily to guarantee that the parts used in our machine meet the highest global quality standards. Our rigorous engineering and manufacturing process ensures consistent, reliable performance, even in the most demanding environments.

Large Diameter Drive Pinions

Large Diameter Pinions offer smooth and accurate motion, designed to achieve 1400 IPM rapid traverse speeds.

Drive System Engagement - Dual Precision Linear Bearings

Advanced engagement system guides the pinion into the rack using dual precision linear bearings. This ensures remarkable longevity and accurate machine motion.

Large Heavy Duty Rail System

The floor-mounted system provides a rigid foundation for the 37kg and 22kg triple machine rail. Rails also allow for easy expansion to accommodate additional cutting lengths.

Large 8" Diameter Main Roller

The large heavy-duty main saddle rollers provide maximum stability for substantial loads.

### Powerful AC Servo Motors & Ultra Low Backlash Planetary Gearboxes

Robust Yaskawa Servo Motors boast 3 Kw, 1.34 HP X-Axis movement and 6 Kw, 8 HP Y-Axis movement to deliver precise, smooth, and accurate motion ensuring superior cut quality.

Fabricated Steel Beam Design With Heat Shields

Unique design combines a solid-steel, shielded beam with an integrated back shelf, creating a single, highly-durable weldment. The addition of internal cross members significantly enhances the product's rigidity, ensuring superior stability.
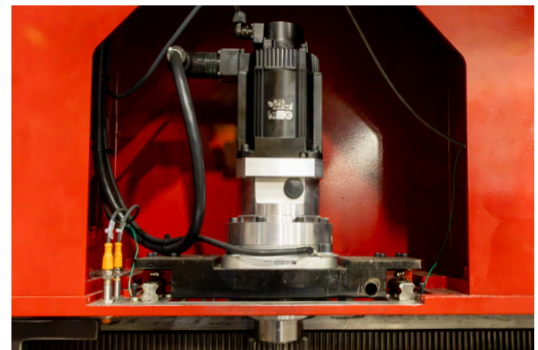
Pneumatic Slave Carriage Band Clamp:

Pneumatic Slave Carriage Band Clamp has been engineered with air cylinders for auto-positioning and precise spacing of up to 8 oxy-fuel and plasma torches.
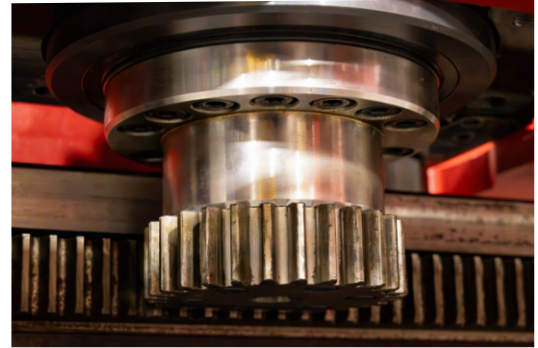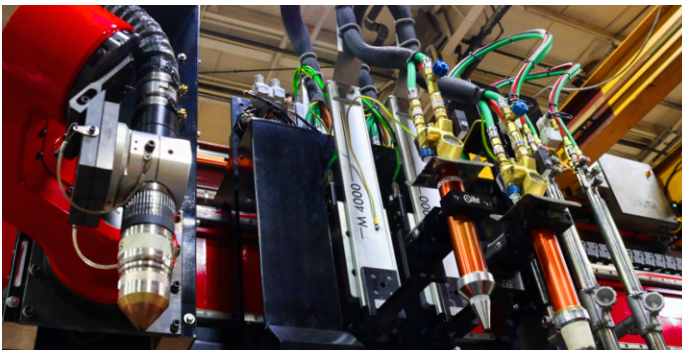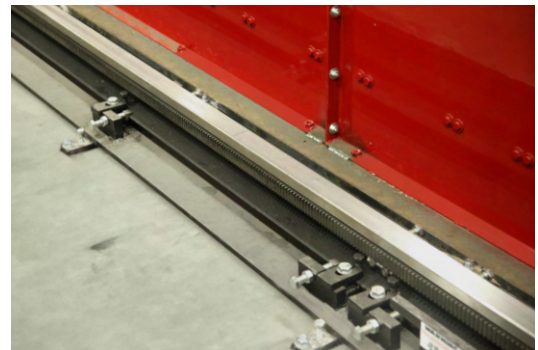
Large Diameter Drive Pinions

Large Diameter Main Roller

AC Servo Motor

Pneumatic Slave Carriage

Heavy Duty Rail System

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▪ On-Board Camera

Enables surveillance of the machine's starting-point prior to cutting. HMI integration provides a precise image of cross-hair location on the workpiece to verify proper execution of desired cut. An optional larger camera view can be mounted to the **HMI pedestal** (see below) for even better monitoring of the cutting process.

▪ Remote Pedestal for HMI

For a more stationary setup, especially for those jogging a wider cutting table, the Remote Pedestal removes the machine-mounted controller configuration, eliminating the need for the operator to walk alongside the machine's Y-Axis.

▪ Air Booster

For buildings with insufficient air-systems, an air booster can be added to utilize existing air pressure and elevate it to the necessary level into an accumulator, delivering steady pressure to support the plasma process.

▪ Scrap Torch and Hose Reel

For machines with an oxy-fuel supply, this handheld torch and extensive hose allows operators to cut remnants left on the table after part processing. Features a built-in, spring-retracted hose reel for easy storage and quick access.

▪ Rotary Rail Brush Cleaners

Compliments standard brass scrapers by mounting four brushes to the heel and toe of each machine saddle, thoroughly cleaning and removing residue from the top of the rail system.

▪ Beam Cooling

Heat Sensors in Main Beam trigger a fan to push air between beam and heat shields.

Air Booster

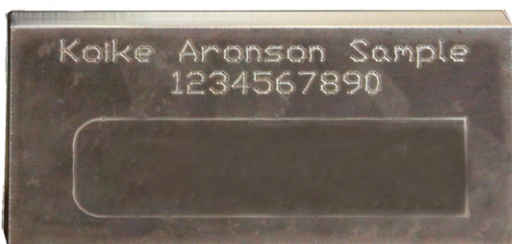*Rotary Brush Rail Cleaners*

Remote Pedestal

MARKING OPTIONS:

▪ Pneumatic Dot-Peen Pin Stamp Marker:

Carbide-tipped variable-speed punch for marking bend lines, layout lines, drill locations, and alphanumeric text as small as 1/4" high.

Pneumatic Dot-Peen Stamp Marker

Koike Aronson Sample
1234567890

Dot-Peen Marker Sample

▪ High-Definition Plasma Plate Marking:

Low-amperage plasma marking capability with adjustable marking depth via CNC parameters.

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HYPERTHERM

XPR™ revolutionizes cutting technology, elevating **HyDefinition®** cut quality across mild steel, stainless steel, and aluminum. Its compatibility with the same consumables enables quick changeovers, boosting productivity and slashing operating costs. With enhanced ease of use and optimized performance, **XPR™** ensures reliable operation with minimal intervention, setting new standards for precision cutting.

Features **Hypertherm® True Hole®** Technology
Bolt hole quality is delivered automatically without operator intervention allowing for a more-precise cut.

Hypertherm® XPR170® and XPR300®

NEW! Hypertherm® XPR460®

The **Hypertherm® XPR460®**, the newest addition to the **Hypertherm® XPR™** plasma systems family, offers the most consistent cut quality, thicker cutting capabilities, and faster cutting speeds in its class, all while maintaining the same consoles (Torch Connect and Gas Connect including Core, CorePlus, VWI, and OptiMix), hardware (torch and receptacle, standard leads, sleeves), and accessories (rotational sleeve, nozzle retaining cap, and shield retaining cap).

The **XPR460®** delivers over 28% more output power (kW) than the **HPR400XD®**, allowing for mild steel piercing up to 2 1/2" and boasts significant reduction in operating costs by extending the life of consumables through **Ramp Down Error Protection** which prevents excessive arc stretch, shutting down system operations when consumable blowout is detected.

Hypertherm® XPR460® Cutting Specifications

Mild Steel	Milimeters	Inches
Production Pierce Capacity (Air Shield Gas)	50 mm	2 in
Enhanced Pierce Capacity (Argon-Assist Piercing)*	64 mm	2.5 in
Production Severance	90 mm	3.5 in
Enhanced Severance	102 mm	4 in
Stainless Steel		
Production Pierce Capacity	38 mm	1.5 in
Enhanced Pierce Capacity (Argon-Assist Piercing)*	63 mm	2.5 in
Production Severance	90 mm	3.5 in
Enhanced Severance (Argon-Assist Cutting)*	130 mm	5 in
Aluminum		
Production Pierce Capacity (N2 Shield Gas)	38 mm	1.5 in
Enhanced Pierce Capacity (Argon-Assist Piercing)*	63 mm	2.5 in
Production Severance	80 mm	3 in

* Argon-assist technology for thicker piercing and thickness severance cutting is available with CorePlus, VWI, OptiMix gas consoles.

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# HYPERTHERM (CONT.)

HYPERTHERM® True Hole® Technology

The MasterGraph Katana MGK: True Hole® Ready

KOIKE is True Hole® certified, offering you the ability to implement True Hole® technology to your MasterGraph Katana MGK, a patented process for mild steel that virtually eliminates hole taper and improves roundness, producing bolt-hole ready holes directly off the cutting table, with little to no need for drilling, reaming, or secondary finishing.

This system automatically applies optimized parameters for gas flow, amperage, pierce timing, cut speed, lead-in and lead-out motion, and arc termination. By tightly controlling these variables, True Hole® produces noticeably cleaner, more cylindrical holes even in challenging diameter-to-plate-thickness ratios.

This technology is exclusive to Hypertherm's SureCut™ enabled plasma systems, such as the XPR and HPRXD families, and functions seamlessly when paired with compatible controls and CAM/nesting software. When a hole falls within the recommended thickness-to-diameter range, the system identifies it automatically and applies the True Hole® process without requiring operator adjustments.

The result is a level of precision that allows plasma cutting to compete with laser quality in hole-intensive applications, while maintaining the speed and cost-efficiency of plasma.

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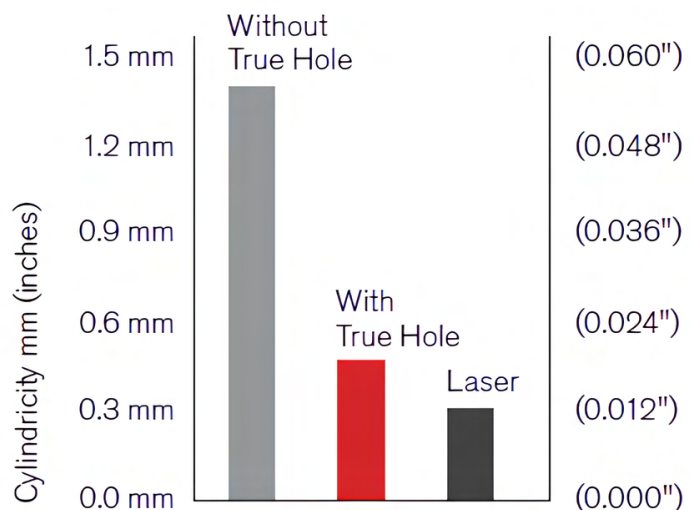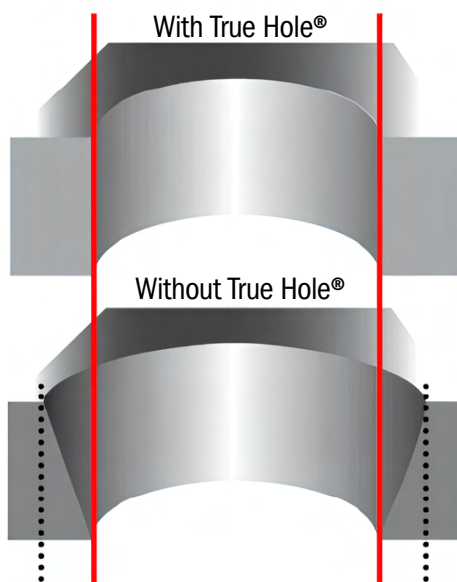
3D-X Full Contour Bevel Head

For the first time, your favorite plasma bevel head from our PlateProXHD makes its debut on the MasterGraph platform.

This head enables sophisticated 3D bevel cutting, facilitating precise angle cuts in multiple dimensions, performing A, V, X, Y, and K bevels.

The 3D-X design incorporates a helical rack and pinion lifter for fast, smooth, and precise motion, that delivers smaller corner loops and better hazard clearance at Y-axis 45 degrees.

Its advanced features ensure efficiency and precision, with one-touch homing and alignment capabilities, integrated torch breakaway, and concealed A/B axis

Plasma Manifold

Expands the plasma capabilities of the MasterGraph Katana MGK™, allowing for a dual plasma system configuration to fit your unique project specifications.

System Configurations:
- Dual Straight Cut (I-Cut)
- Single 3D-X and Single Straight Cut (I-Cut)

3D-X Full Contour Bevel Head

*Integrated Sensor THC
(Torch Height Control)*

Koike Integrated Sensor THC (Torch Height Control)

With a 12" (340.8 mm) lifter travel and a programmable lifter speed of 1,000 IPM, the Koike THC ensures swift and accurate adjustments during the cutting process.

Its adjustable stroke retract between cuts enhances operational efficiency, while dynamic positioning capabilities further optimize performance, enabling seamless adaptation to varying cutting conditions for consistent results.

*Manual Plasma
Bevel Station*

Manual Plasma Bevel Station

Allows for plasma beveling in the rail axis with non-contour mechanical adjustment from +/- 0 to 45°.

Laser Pointer

Provides a visual indicator for plate alignment and torch positioning.

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IHT Automatic Process Control System

IHT Automatic Process Control (APC) System:

Delivers precise control of oxy-fuel operations, featuring the Cutting Torch, Gas Control, Flame Ignition, Height Sensing, Lifter, and Bevel operations all in one package requiring only connections for oxygen and fuel gas.

Additionally, all comprehensive database systems are implemented directly into the CNC Console, automating the entire process from ignition, preheating, piercing, and cutting, eliminating the need for additional cutting control hardware.

Advanced features include flash back and slag detection to enhance torch longevity, and allows close to edge cuts and kerfs with minimal torch-to-torch distance.

Manual Oxy-Fuel Bevel Attachment for Koike 500L Torch:

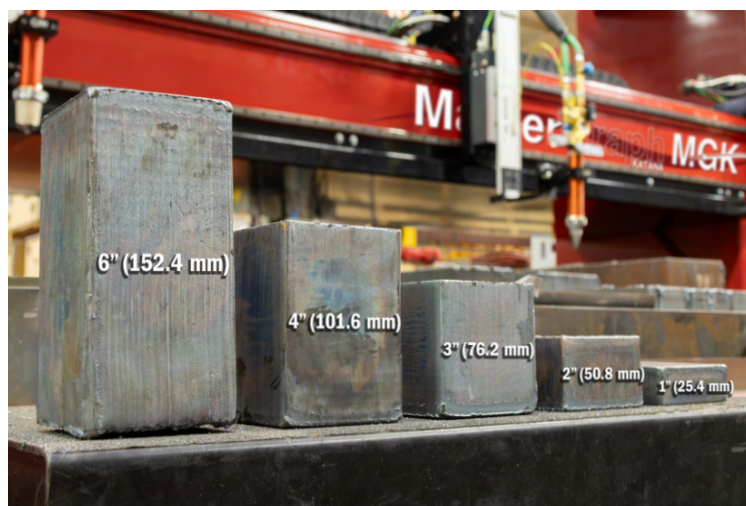Used for bevel cutting operations, including top and bottom level bevel cuts.

HI-LO Oxy-Fuel Gas System with Auto Ease-On:

HI-LO system initiates faster preheating of plate, delivering superior cutting quality and precise piercing on thicker plate. Features auto ease-on pierce control for cut oxygen.

Koike Auto-Gas Control System For 500L Torch:

Featuring Koike-designed Proportional Valves, this closed-loop system automates the setting and regulation of cutting oxygen, preheat oxygen, and fuel gas pressures for oxy-fuel cutting while continuously monitoring and maintaining precise gas flow and pressure.

Operators can select the tip size and plate thickness, and the system automatically adjusts the gas pressures from the Katana CNC.

Oxy-Fuel Torch Station (Holds Up to 8 Torches):

Model "G" motorized lifter, 12" (300 mm) stroke at 40 IPM. All stations are controlled from the Operator console. Includes three cutting tips and standard **500L Koike Torch**, offering plate cutting from 1/8" to 12" (3mm to 300mm) thick.

Koike Auto-Gas Interface on Katana CNC

Oxy-Fuel Cutting Samples: 6 to 1 " (152.4 to 25.4mm)

500L Oxy-Fuel Torch Station with Manual Bevel

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Water Cutting Table:

An economic solution to reducing smoke, sparks, and dust into the environment.

FEATURES:

- Can be used for both oxy-fuel and plasma cutting.

- Constructed out of 1/4" thick steel.

- Steel tank air bladder allows raising and lowering the water level with air.

- Designed for leveling plates up to 6" thick.

- 1/8" thick slats spaced 3" apart prevent small parts from falling into the table and reduce slag.

- Easy lift lugs for quick access to collector pans.
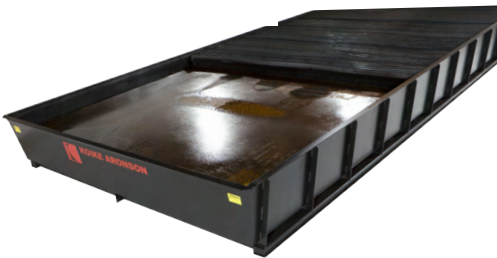
Klean Sweep Self Cleaning Downdraft Table:

Automatic self-cleaning table for high-performance dust and slag collection.

FEATURES:

- No need to stop production; removes slag and scrap while you cut on demand or on programmed intervals. Slag disposal method can be dumped into embedded floor containers or conveyed into portable collection unit.

- Engineered for optimal fume extraction based on your cutting processes. Exhaust channel ducts can be internal or external based on the application.

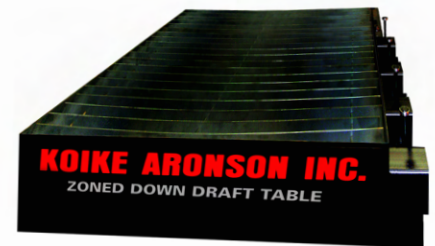- Standard table design allows materials up to 6" in thickness.

Koike Zoned Downdraft Cutting Table:

A modular design featuring optional expansion capabilities to extend the cutting area.

FEATURES:

- No electronic components.

- Slat frames and slag pans remove easily for cleaning.

- Multiple zones for optimal fume extraction.

SAFETY OPTIONS:

Laser Area Scanner:

- Mounted on the rear of the gantry beams, these scanners monitor two zones (Warning and Protective) and detect obstructions by projecting a detection laser across a horizontal plane up to 190°.

- **The Warning Zone:** farther from the machine, alerts operators to approaching obstructions without stopping machine operations.

- **The Protective Zone:** closer to the machine, triggers an immediate stop (E-Stop) upon detecting obstructions, requiring their removal and a system reset before resuming operation.

- Intrusion statuses, as well as set up, are controlled and displayed on the machine's HMI.

Pull Rope E-Stop:

- Lifeline™ 3 cable switch delivers constant access to immediate emergency stop functionality, ceasing all cutting operations with a simple pull.

- Meets the stringent requirements of ISO-13850 safety standards (safety of machinery-emergency stop equipment).

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Effective Cutting Width: [ ]   **Effective Cutting Length:** [ ]

Material Types: [ ]

MATERIAL THICKNESS RANGE

Plasma Thickness: [ ]   **Oxy-Fuel Thickness:** [ ]

PLASMA TYPE

Quantity: [ ]   ○ Hi-Definition

Voltage: [ ]

PLASMA SYSTEM

○ Hypertherm®

○ Kjellberg®

PLASMA BEVEL

○ Manual Bevel Station

○ 3D-X Full Contour Bevel Head

PLASMA HEIGHT CONTROL

○ Koike Sensor - THC

PLATE MARKING

○ Pneumatic Dot Peen Pin Stamp

○ Low-Amperage Plasma Marking

RAIL AXIS CABLE CARRIER

○ Floor Mounted

○ Overhead Mounted

CNC CONTROLLER

○ Koike Katana™ CNC Controller

OFFLINE SOFTWARE

☐ Hypertherm® ProNest

OXY-FUEL

Quantity: [ ] **Fuel-Gas Type:** [ ]

☐ Auto Ignition

☐ Capacitive Height Control

☐ Manual Bevel Attachment

CUTTING TABLES

☐ Pneumatic Water

☐ Dry

☐ Downdraft

☐ Self-Cleaning Downdraft

☐ Fume Collector

**SCAN TO FILL ELECTRONIC FORM
(Select Click to Request Quote):**

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Effective Cutting Width (A)
Distance Between Floor Mount Pads (B)
Rail Gauge (C)
Machine Width (D)
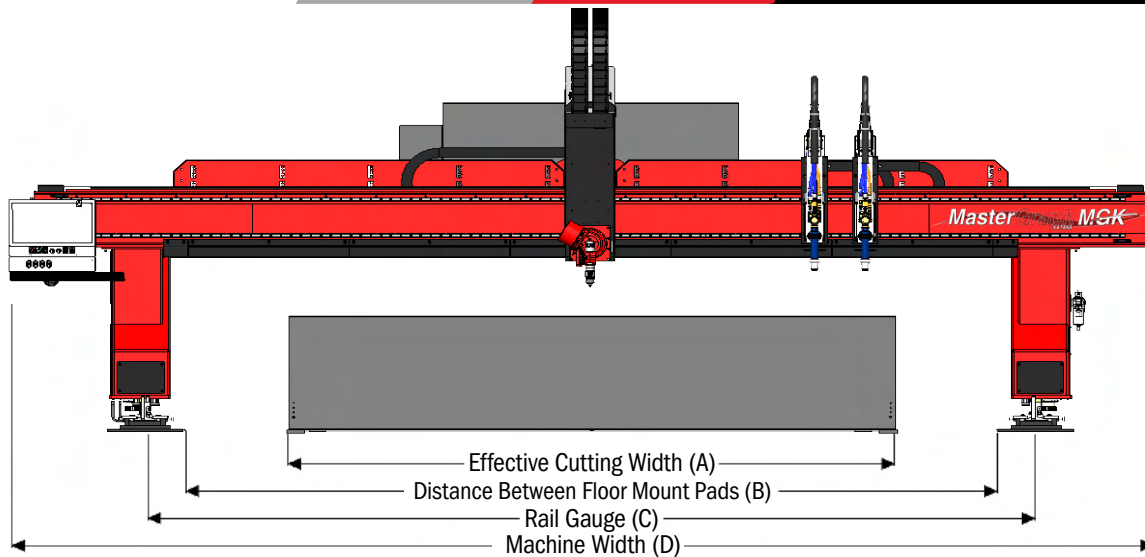
MasterGraph KATANA MGK	MGK 2500	MGK 3100	MGK 3700
Effective Cutting Width (A) (5-Slave Stations)	96 in	120 in	144 in
Effective Cutting Width (2-Slave Stations)	120 in	144 in	168 in
Distance Between Floor Mount Pads (B)	144 3/4 in	168 3/4 in	192 3/4 in
Machine Rail Gauge (C)	162 3/4 in	186 3/4 in	210 3/4 in
Machine Width (D)	223 1/4 in	247 1/4 in	271 1/4 in
Effective Cutting Length (Expandable)	250 in	250 in	250 in
Rapid Traverse Speed	1400 IPM	1400 IPM	1400 IPM
Contour Speed (Maximum)	600 IPM	600 IPM	600 IPM
Machine CNC	Katana	Katana	Katana
Machine Drive System	AC Servo	AC Servo	AC Servo
Maximum Number of Tools	10	10	10
Maximum Number of Slave Stations	8	8	8
Maximum Plasma or Marker Stations	2	2	2
Maximum Oxy-Fuel Stations	8	8	8
Oxy-Fuel Gas System 10in. Max. Thickness	Hi-Lo, Autogas, IHT With APC	Hi-Lo, Autogas, IHT With APC	Hi-Lo, Autogas, IHT With APC
Machine Voltage	208-240 VAC 3-phase/30 AMP	208-240 VAC 3-phase/30 AMP	208-240 VAC 3-phase/30 AMP

*Specifications are subject to change without notice. For exact dimensions, see final assembly drawing.

SIMPLY BETTER BUILT – FOR OVER 100 YEARS.

OUR STRICTLY CONTROLLED MANUFACTURING AND PRODUCTION PROCESSES ENSURE WE HAVE THE HIGHEST-QUALITY MACHINES WITH THE MOST RELIABLE PERFORMANCE. WE COLLABORATE WITH OUR CUSTOMERS TO PRODUCE THE RIGHT MACHINE FOR THEIR NEEDS WITHIN A RANGE OF BUDGETS.

WELDING & POSITIONING

CUTTING

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