KOMO

Built for a Lifetime

CNC Machining Center Specifications

MACH III 5 AXIS TWIN TABLE

Komo Machine, Inc.

1 Komo Drive
Lakewood, NJ 08701 USA
Phone: 732-719-6222
Toll Free: 800-255-5670
Fax: 732-579-5443
E-mail: info@komo.com

MADE IN THE USA

Machine Construction

Frame

The machine frame is constructed of heavy wall, structural steel tubing. The frame has been designed and analyzed using Finite Element Analysis (FEA) to provide a rigid and stable machining platform.

The frame components are stress relieved prior to machining. Machining is performed using a high precision machining center, capable of five sided machining in one set-up to insure parallelism and perpendicularity of the final product.

Table / Work Surface

The work surface is precision machined aluminum. The aluminum construction provides superior rigidity to insure high cut quality in a variety of applications. All tables are 2" (50.8mm) cast aluminum stock.

Work Area Dimensions

1005TT	(2) 60" x 60" (1524mm x 1524mm)
1008TT	(2) 60" x 96" (1524mm x 2438mm)
1010TT	(2) 60" x 120" (1524mm x 3048mm)
1012TT	(2) 60" x 144" (1524mm x 3658mm)
1605TT	(2) 96" x 60" (2438mm x 1524mm)
2005TT	(2) 120" x 60" (3048mm x 1524mm)

Axis Configuration

The machine is configured with a traveling table, stationary gantry design.

X axis (gantry) motion is accomplished via pre-loaded precision rotating nut ball screw. The ball screw is driven by a digital Fanuc Alpha HVI servo motor.

Y, V and Z axis motion is accomplished via pre-loaded precision ball screws and powered by digital Fanuc Alpha HVI servo motors.

The Z axis is supported by a pneumatic counterbalance system.

A and C axis motion is accomplished via belt driven precision gears. Both axes are driven by a digital Fanuc Alpha HVI servo motor.

Each axis is mounted on precision ground linear guide ways with pre-loaded precision bearing trucks.

The Fanuc servo motors provide the fastest acceleration/deceleration rates in the industry.

Automatic Lubrication System

All positioning bearings, ball screws and racks are serviced by a centralized automatic lubrication system, activated directly by the machine control, the method recommended by the ball screw and linear guide way manufacturers.

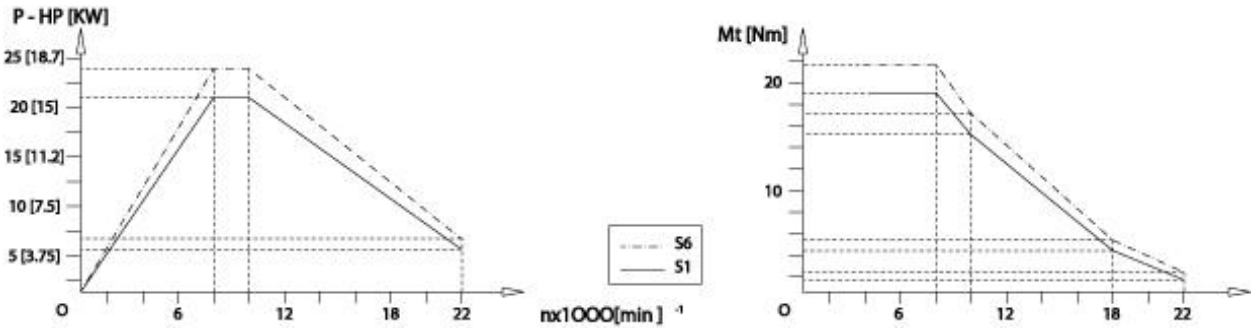
Automatic Tool Changer

Each machine is supplied with a 15 station aggregate compatible tool changer. The tool changer is powered by a Fanuc servo motor for fast, reliable tool changes.

Head Configuration

KOMO uses only the highest quality spindles on the entire machining center product line. Each spindle must meet exacting specifications, and is subject to a strict inspection process prior to being accepted into inventory. The spindle is a 24HP (18kw) 22,000 RPM, HSK 63F electro-spindle, powered by an AC frequency inverter. The HSK tool connection provides a rigid tool interface to insure high cutting performance in a variety of materials with the highest quality part finish.

The 5 axis spindle is not supplied with a dust collection assembly. Ask about our dust collection options.

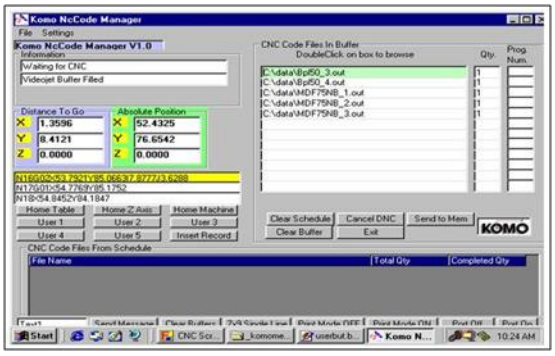


Guarding

As a standard safety feature, a tube frame is provided that surrounds the spindle work zone. This tube frame is designed to prevent the operator from entering the machine work zone during operation.

KOMO Production Manager Software

Each machine includes KOMO's exclusive Production Manager Software with Intelligent Spoil Board Management©. This productivity feature takes the guesswork out of managing your spoil board, insures optimum performance of the flow-through vacuum system when nesting and provides a fast and efficient way to load programs into your CNC machining center.



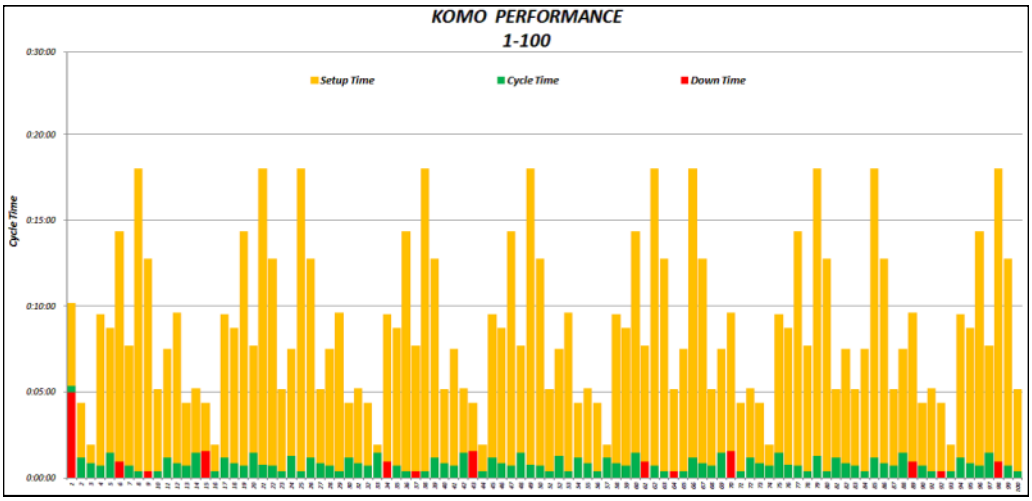
Intelligent Spoil Board Management

- User programmable buttons allow fast access to most commonly used programs
- Send programs to control memory in just seconds
- Ability to save partially run Schedule files due to production interruption
- Multiple file select and drag-and-drop support
- See your programs running on the control without switching screens

KOMO PRODUCTION MANAGER

KOMO Machine Monitoring Software

Each machine now ships with KOMO's exclusive software that captures the machine's production data without any input from the operator. Specific events are recorded throughout the day, which are later imported into a spreadsheet and analyzed. This data is then graphically displayed, which can help to identify problem areas. The software starts up with the machine every morning, and is password protected against being disabled by the operator. This software also includes Tool Life Monitoring, which will visually warn the operator as each tool is nearing its end of life expectancy.



Control

The machine features the latest version Fanuc 310i-B5 control with integrated PC front end. As a Fanuc Authorized CNC System Integrator, KOMO has been installing Fanuc controls on our machines for over 30 years. We have worked closely with them to bring improvements and innovations to our products, resulting in some of the highest acceleration/deceleration rates and raw servo accuracies in the industry.

Control Features

Primary Features

- High-speed industrial CNC
- Network compatible
- Windows® 7
- 4 GB RAM
- High-speed serial bus
- USB ports (2)
- 120 GB solid state hard drive

Operator Interface

- 19" color touch screen monitor
- Run hour / parts count display
- Actual feed rate display
- Alarm / operator message display
- Spindle load meter
- Controller keyboard
- Current position display
- Tool length measurement
- Remote diagnostic capability
- KOMO Production Manager software

Manual Override Features

- Full function hand wheel (MPG)
- MDI operation
- Feed rate override
- Traverse override
- Spindle override

Features to Simplify Programming

- Tool length / work zero point measure
- Position switch
- Stored limit check
- Helical interpolation
- Program restart
- Work piece setting error compensation
- Custom macro B
- 99 tool length offsets
- External data input
- APC - advanced preview control
- 128k (320M) part program memory
- Rotary axis control
- Inverse time feed
- Increment system type C
- Bell-shaped acc/dec
- Stored pitch error compensation
- Inch/metric conversion
- 54 work coordinate offsets
- Tool offset memory type C
- Manual feed
- Multi-part program editing
- Twin table control

Enhanced Accuracy / Speed / Part Finish

- AI contour control 1
- 3D tool length offset
- Tool radius compensation
- Tool center point control
- Tool nose radius compensation
- Simultaneous 5 axis control
- Backlash compensation
- Fanuc Alpha HVI servo motors
- High speed skip

Optional Control Features

- Rigid tapping
- Rigid tapping retract
- 3D rigid tapping

Standard Machine Specifications

Machine Space - Overall with Guarding

Length	1005TT	144" (3658mm)
	1008TT	314" (7976mm)
	1010TT	314" (7976mm)
	1012TT	320" (8128mm)
	1605TT	154" (3911mm)
	2005TT	154" (3911mm)
Width	1005TT	320" (8128mm)
	1008TT	320" (8128mm)
	1010TT	320" (8128mm)
	1012TT	320" (8128mm)
	1605TT	404" (10,261mm)
	2005TT	404" (10,261mm)
Height		173" (4395mm)
Clearance under the bridge		40" (1010mm)
Table height (floor to table top)		32" (812mm)
Weight		26,000 - 39,000lbs (11,700-17,728kg)

Table

1005TT	(2) 60" x 60" (1524mm x 1524mm)
1008TT	(2) 60" x 96" (1524mm x 2438mm)
1010TT	(2) 60" x 120" (1524mm x 3048mm)
1012TT	(2) 60" x 144" (1524mm x 3658mm)
1605TT	(2) 96" x 60" (2438mm x 1524mm)
2005TT	(2) 120" x 60" (3048mm x 1524mm)

Travels

	X Axis	Y Axis
1005TT	162" (4114mm)	80" (2032mm)
1008TT	162" (4114mm)	164" (4166mm)
1010TT	162" (4114mm)	164" (4166mm)
1012TT	162" (4114mm)	164" (4166mm)
1605TT	258" (6553mm)	78" (1982mm)
2005TT	258" (6553mm)	78" (1982mm)
Z Axis	36" (914mm)	
Optional Z Axis travel available	48" (1220mm)	
A Axis	± 120°	
C Axis	± 245°	

Feed and Traverse Rates

X Axis	3150 ipm (80 mpm)
Y Axis	3150 ipm (80 mpm)
Z Axis	735 ipm (18.7 mpm)
Acc/Dec	83 in/sec²

Spindle / Tool Changer

Speed (liquid cooled) .....22,000 RPM
Power (S6) 24HP (18kw)
Tooling .....HSK 63F
Tool changer .....15 stations
Drive system .....Precision gear box with Fanuc servo
Maximum diameter (adjacent pockets full) .....3.25" (82mm)
Maximum diameter (adjacent pockets empty) ....6.5" (165mm)
Maximum weight (per tool) 12lbs. (5.4kg)
Maximum weight (full carousel) 96lbs. (43.5kg)
Maximum tool length (70mm tool holder) .....5" (127mm)

Drive System

X, Y, V, Z Axes .....Fanuc Alpha HVI digital servos
X Axis .....Precision ball screw 2.48" (63mm) dia
Y, V Axes .....Precision ball screw 1.97" (50mm) dia
Z Axis .....Precision ball screw 0.98" (25mm) dia
Lubrication .....Centralized automatic lubrication
1605TT and 2005TT X axis is driven by precision rack and pinion

Linear Guide Ways

X Axis .....45mm, six (6) bearing trucks
Y, V Axes .....35mm, qty bearing trucks dep on table
Z Axis .....45mm, four (4) bearing trucks
Lubrication .....Centralized automatic lubrication

Repeatability

Unidirectional linear axis positioning
(per meter) .....± 0.0006" (± 0.015mm)
A and C Axes unidirectional repeatability.....20 arc seconds

Machine-specific drawing available on request.

All specifications are based on the standard machine configuration. Any options or changes may result in modifications to the machine specifications.

Installation

Installation of the machine will be performed by a Factory Trained and Certified Technician. Once the machine has been positioned, the technician will level the machine, perform power up and conduct a thorough pre-production test routine.

After the machine has been installed and tested, the technician will provide daily maintenance instruction and review machine operation.

Travel and living expenses of technician are included with machine purchase.

Power and Air Requirements

Electrical Requirements

Machine is 480 volts with a full load amp draw of 57 amps *

Contact Komo Machine for new amp rating if any alterations are made to the head configuration and for transformer requirements.

* Does not include vacuum pump. Vacuum pump will require a separate electrical connection. Amp rating will be supplied with the New Owner's Manual and will vary depending on size and voltage of pump selected.

Plant wiring required: 440/480 volt, 3 phase brought to main machine disconnect. NEMA 12 electrical enclosure is equipped with an industrial grade "closed loop" heat exchanger for temperature control.

Air Requirement

Machine requires 22scfm (900ml per minute) maximum usage, pressure is 90-95psi (7 bar) of filtered, dry air.

Ambient Working Temperature

41º - 95º Fahrenheit (5º - 35º Celsius)

Machine Training

Machine Operation training is provided at Komo Machine for up to two (2) persons for three (3) days. Each seat of training is available for one (1) year from machine installation.

Note: Customer is responsible for travel and living costs for all training programs.

Support

A Control Operator's Manual and a KOMO Operation and Maintenance Manual are supplied in CD-ROM format and are also loaded on the machine hard drive for access from the operator control station. Electrical schematics are provided in hard copy format.

Also included with each machine is our world class **24/7/365 toll free technical support**. As part of this support system, each machine comes equipped with Remote Diagnostics capability, allowing a KOMO Support Technician to "dial into" your machine to assist in troubleshooting and minimize response time to correct a problem.

Warranty

Each machine includes the KOMO **standard two year warranty**. See the Terms and Conditions document for full information.

Machine Options

Non-Perishable Tooling Package

A complete set of HSK 63F tool holders with collets can be supplied as optional equipment. All tool holders are balanced to a specification of G2.5 at 24,000RPM for optimum tool performance and spindle life.

Non-Perishable Tooling Package for a 15 Station Tool Changer

- 15 76mm ER40 tool holders
- 15 ER40 collets
- Bench top tool changing block
- Collet wrench

Vacuum System Package

Choose the right vacuum pump for your application. All pumps available in multiple horsepower and voltage options.

Dekker AtlasCopco

Voltages available (3 phase): 208V, 240V, 380V, 480V, 575V
Additional voltages available upon request.

All pumps are designed for fast draw-down to an ultimate vacuum for fast cycle times and more powerful hold down.

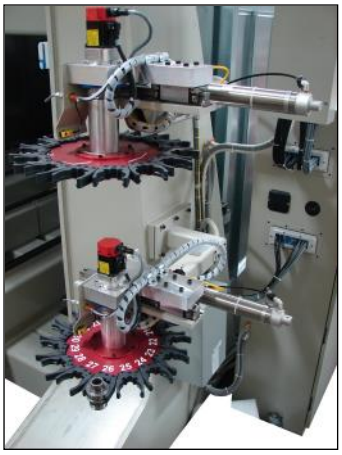
The vacuum pumps are started via pushbutton on the main operator panel and come complete with a remote start relay, allowing the pump itself to be located either next to the machine, or in a remote location.

Table Options

- Threaded steel inserts for the machined aluminum table
- Vacuum manifold for clamping devices
- Machined aluminum universal grid vacuum table; multiple vacuum zones available
- Custom table options

Additional 15 Pocket Side Mounted Tool Changer(s)

Increase tool capacity by adding 15 pocket side mounted tool changers (maximum capacity 60 pockets) with full aggregate capability.



Additional Safety Equipment

KOMO offers a variety of add-on safety equipment that can be configured to any specific model and application, including but not limited to:

Laser Scanners

Light Curtains

Pressure Mats

Bump Strips

A and C Axis Options

A and C Axis Rotary Encoders
Add rotary encoders to increase the repeatability tolerance of the A and C axes to 10 arc seconds.

A and C Axis Brakes
Add hydraulic brakes to the A and C axes for additional rigidity when doing indexing machining operations.

Rotary Distributor
Add the rotary distributor to allow for continuous rotation in the C axis and eliminate the need for unwinding of the spindle head.

Integrated Pop-Up Roller Ball System

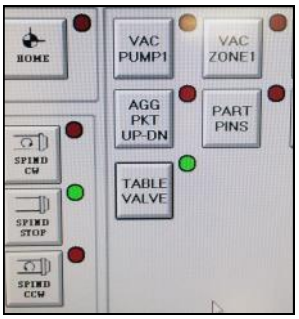
Built right into the machining table, these roller balls raise and lower to facilitate material transfer, which reduces operator fatigue and increases productivity. Available on composite and aluminum universal grid tables.

Dual Screen

The dual screen option gives you the ability to be running the standard CNC screen with the touch screen interface while running program controls and other operations on the attached 19" screen.

Table Fixture Air Supply

In cases where a vacuum system is not always required for part holding, an air supply can be provided if fixtures will be utilized on the machine table. This option is manually operated by a pushbutton, or can be controlled by an M code in the part program.



Mist Coolant System

The optional mist coolant system gives you the capability of cutting non-ferrous metals.

KOMO

Built for a Lifetime

From Us to You - Since 1966

Corporate Headquarters

Komo Machine, Inc.
1 Komo Drive
Lakewood, NJ 08701 USA

Manufacturing and Assembly Facility

Komo Machine, Inc.
2 Komo Drive
Lakewood, NJ 08701 USA

Contact Us

Phone: 732-719-6222
Toll Free: 800-255-5670
Fax: 732-579-5443
E-mail: info@komo.com

WMMA
WOOD MACHINERY MANUFACTURERS OF AMERICA
MACHINERY, CUTTING TOOLS AND SUPPLIES

member iapd
international association of plastics distribution

AWFS FAI
VEGAS

AMT
THE ASSOCIATION FOR MANUFACTURING TECHNOLOGY

WMIA
Woodworking Machinery Industry Association