GANESH MACHINERY
The Edge in Cutting.

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GANESH CYCLONE 32-NCY

4-AXIS CNC MILL/TURN CENTER
FULL CONTOURING "C" AXIS & "Y" AXIS
18-TOOL STATIONS with 7-LIVE TOOLS

For Bar work, 2nd Operation machining & Chucking work.

6,000 rpm, 1-3/8" Bar Capacity.
High-Performance C-axis, 19" Y-axis travel.
18-Tools with 7-Driven toolholders included.

CYCLONE 32-NCY 4-AXIS PRECISION CNC LATHE

The CYCLONE NCY-32 is a 4-axis 1.25" (32mm) bar diameter sliding headstock CNC lathe **without a guide bushing,** which facilitates faster setups, greater workpiece concentricity, and superior cutting rigidity over guide bushing style Swiss lathes. The CYCLONE NCY-32 does not require the use of ground barstock or a guide bushing like the Swiss-style machines must use, and the bar remnant is less than a quarter of the wasted remnant length of a Swiss style lathe. All of these features represent a significant costs savings when using this machine design. The CYCLONE NCY-32 CNC screw machine configuration also allows for shorter cycle times due to the enhanced rigidity and the ability to aggressively rough-out material and finish with a second tool, all while achieving greater tool life. The CYCLONE NCY-32 can use as many tools as necessary to rough and finish a feature on the workpiece, unlike conventional Swiss machines that are limited by the length of the guide bushing, and must make the rough and finish cut while burning up the tool in one-pass by micro-feeding the tool. These advantages are particularly evident in tough materials and in work with low length-to-diameter ratios.

The GANESH CYCLONE NCY-32 features 18-tool stations which comprise of a bank of 4-live cross tools, a bank of 3-axial live tools, 6-turing tool stations, and 5-ID tool stations, all in a gang configuration to complete single-sided work in one operation. Additional cutting tools can be utilized in machining the workpiece by double-tooling the ID-tools stations with dual-insert boring bar holders for rough and finish boring, boring and turning, boring and threading etc. with twin insert boring bars without spindle reversals.

The CYCLONE 32-NCY X-axis stroke is 7.5", the Y-axis moves 11" for full off-centerline machining capability, and the Z-axis features 6.5" of headstock movement. The full rotary C-axis has 360,000 radial positions (0.001-degree resolution) for engraving and other complex radial machining details. The 5-station fixed ID gang tooled slide can use 25mm solid bushings or ER-20 collets to hold cutting tools. All 7 of the rotary toolholders included with the machine also use the same ER-20 collets for tool shanks up to ½" (13mm).

The 6173-pound GANESH CYCLONE-32 NCY is equipped with a 6000-rpm spindle and features rigid tapping. A hydraulic cylinder provides a secure grip on the workpiece for heavy machining applications, without the slip-back so often seen when air collet closers are used.

The CYCLONE 32-NCY is built using World-Class premium components, with Japanese motors and drives from Mitsubishi, and premium ballscrews, bearings and linear ways. This compact machine comes complete with a parts catcher, and hydraulic chucking featuring a Traub A-32 "True-Length" collet chuck for barstock up to Ø1.25".

CYCLONE 32-NCY Design Specifications

Machine Bed -

The one-piece closed box machine casting is made of high-density Meehanite processed cast iron that is heavily ribbed to increase lateral stiffness and maximize stress absorption. The symmetrical torque-tube casting ensures that no twisting occurs in the bed during heavy cutting or as a result of thermal migration. The cast bed weighs 4,400 pounds and the design gives superb vibration control, which provides for superior surface finish and increased tool life. The assembled machine weighs over 5,500 pounds making it the heaviest machine in its class.

Linear Ways

Premium heavy-duty THK 26mm wide linear bearing slide ways are used on the X, Y & Z linear axes. The heavy-duty extra wide linear ways provide a superior cutting platform with enhanced rigidity for improved surface finish and better tool life. The fast rapid traverse rates reduce non-cutting time and the low stick/slip characteristics of the linear way design ensures superior complex work piece shape definition because the axes precisely follow the control contour commands.

Ballscrews –

Premium quality double-nut double-anchored ballscrews are utilized to ensure high accuracy and long service life. The ballscrew nuts are preloaded and forced lubricated and are laser aligned during machine assembly. The ballscrew rotational torque is checked over the entire travel length to ensure that there is a non-binding assembly so as to minimize wear and thermal migration that would adversely affect machine accuracy.

Machine Spindle -

The machine spindle is supported in two matched-sets of high quality Class-7 (P4) bearings, which are lubricated for life. The spindle is dynamically balanced to eliminate vibration for better surface finish and workpiece accuracy. This extra attention to detail in assembly produces a spindle that generates less heat and maintains a longer operational service life. Every spindle is put through a 72-hour test run prior to assembly that records any thermal gradients or spindle vibration. This process ensures many years of trouble-free production usage. The spindle is driven by a multi-ribbed offset drive belt to enhance the cutting torque power range for more efficient metal removal over a wide range of spindle speeds. The included collet chuck uses Brown & Sharpe #22 & Traub A-32 collets. A Hardinge 5C collet chuck is optional.

Spindle Motor -

The spindle is driven by a highly reliable Mitsubishi motor designed specifically for heavy-duty machine tool applications. The motor is balanced within 5-microns to provide state-of-the-art surface finishes. The motor is designed with less rotor inertia than standard induction motors and features a large diameter output shaft and heavy-duty radial load bearings for a long service life. This means faster acceleration/deceleration rates and reduced cycle time for increased productivity. The Mitsubishi motor is matched to a Mitsubishi servo amplifier module which provides variable current to the motor ensuring both high reliability and accuracy in angular positioning for superior thread start positioning, engraving, and other live tool machining where accurate high response angular positioning is required.

Brushless Axis Motors -

All three axis motors use the high-performance Mitsubishi Brushless AC servo motors that provide for less wear and are totally enclosed to ensure no dust or damage to the motor for increased reliability. This Brushless AC motor design improves productivity by accepting higher voltages and increased current for faster acceleration and deceleration. The Mitsubishi servo amplifiers for the 3-linear axis, spindle motor, and the two banks of driven toolholders are all contained in a separate electrical enclosure that has its own heat exchanger for improved reliability.

Automatic Lubrication System –

The automatic lubrication system operates on a timed interval and monitors for low oil level or blockage and will stop the machine at the end of the current cycle if a fault condition occurs. The lube system is housed in a recess in the machine casting to ensure that passing shear hazards cannot damage it.

CYCLONE 32-NCY MACHINE SPECIFICATIONS

AXIS TRAVELS		
CNC Controlled Axis	#	4-Axis (X, Y, Z, C) w/High-Performance C-axis
X-Axis Travel (Vertical Tool)	Inch	7.5" (190mm) Linear Ways
Y-Axis Travel (Cross Tool)	Inch	19.3" (490mm) Linear Ways – True Y-axis, not compound Y
Z-Axis Travel (Sliding Headstock	Inch	6.5" (165mm) Linear Ways
C-Axis Travel (Rotational Axis)	Degrees	360 degrees (360,000 radial positions)
SPINDLE		
Spindle Bore	Inches	1.456" (37mm)
B&S#22 or Traub A-32 Collet Capacity	Inches	1.25" (32mm), 1-3/8" (36mm) collet adapter available
Spindle Speed Range	RPM	100-6,000 RPM
Spindle Horsepower	HP	10-HP 3,000 RPM Spindle Motor (2:1 Pulley Ratio)
Spindle Center Height	Inches	38" (965mm)
Rigid Tapping on Main Spindle		Yes
Spindle bearing (Ø110mm)		5-ball bearing spindle, 3-front & 2-rear bearings
TOOLING SYSTEM		
Number and size of turning stations	#	6 Tools of ½" or 12mm (5 stations of 5/8" Optional)
Number of Internal Static Tools	#	5 ID tool stations (25mm bores) for tool bushings/collets
I.D. Tool Bores (Round Shank)	mm	25mm bore for ER-20 collet, split or solid tool bushings
DRIVEN TOOL SYSTEM		
Number of cross working driven tools	#	4-cross driven tool stations with ER20 collet holders
Number of end working live tools	#	3-axial driven tool stations with ER20 collet holders
Size of driven tools (round shank)	Inch	ER-20 collet capacity (1/16" – ½") (1-13mm) diameter
Rigid Tapping with Driven Tools		Included for main spindle and driven tools
Driven Tool programmable range	RPM	0-4,000 RPM – step-less speed range
Driven Tool HP	HP	Radial 2.0-HP(1.5kw), Axial 1.0-HP (0.75kw)
AXIS DRIVES		
Rapid Travers Rate – X,Y,& Z axis	ipm	1,181 ipm (30m/minute)
Maximum federate for thread cutting	ipm	236 (ipm (6m/minute)
Minimum Programmable Input	Inch	0.0001" (0.001mm = 40 millionths of an inch)
C-Axis Resolution	Degrees	0.001 degree (360,000 Radial Positions)
Brushless AC Servo Motor Drive	HP	X = 2-HP (1.5kw), Y&Z = 1.5-HP (1.0kw)
Ballscrew diameter	Mm	25mm diameter - 10mm pitch double-nut ballscrews
SYSTEM REQUIREMENTS		
Electrical Requirements	KVA	16 KVA – 42 amps @ 220vac ±5% 3-Phase
Pneumatic Requirements		85 psi @ 10-cfm for parts catcher and spindle brake
Hydraulic System Capacity	Gallons	10-gallon (40 liter) hydraulic tank, 500 psi pressure
Coolant Pump Motor/ Tank Capacity	HP	¾ HP w/flow sensor / 50-gallon tank with dual filtration
Automatic Metered Lubrication system		3-6cc/15-minute (adjustable lubrication flow rate)
MACHINE DIMENSIONS		
Floor Space – L x W x H	Inch	86" x 74" x 76" (2,176 x 1,858 x 1919mm)
Machine Spindle Center Height	Inch	38" (965 mm)
Machine Net Weight	Pounds	6,172 lbs (2,800 kgs)

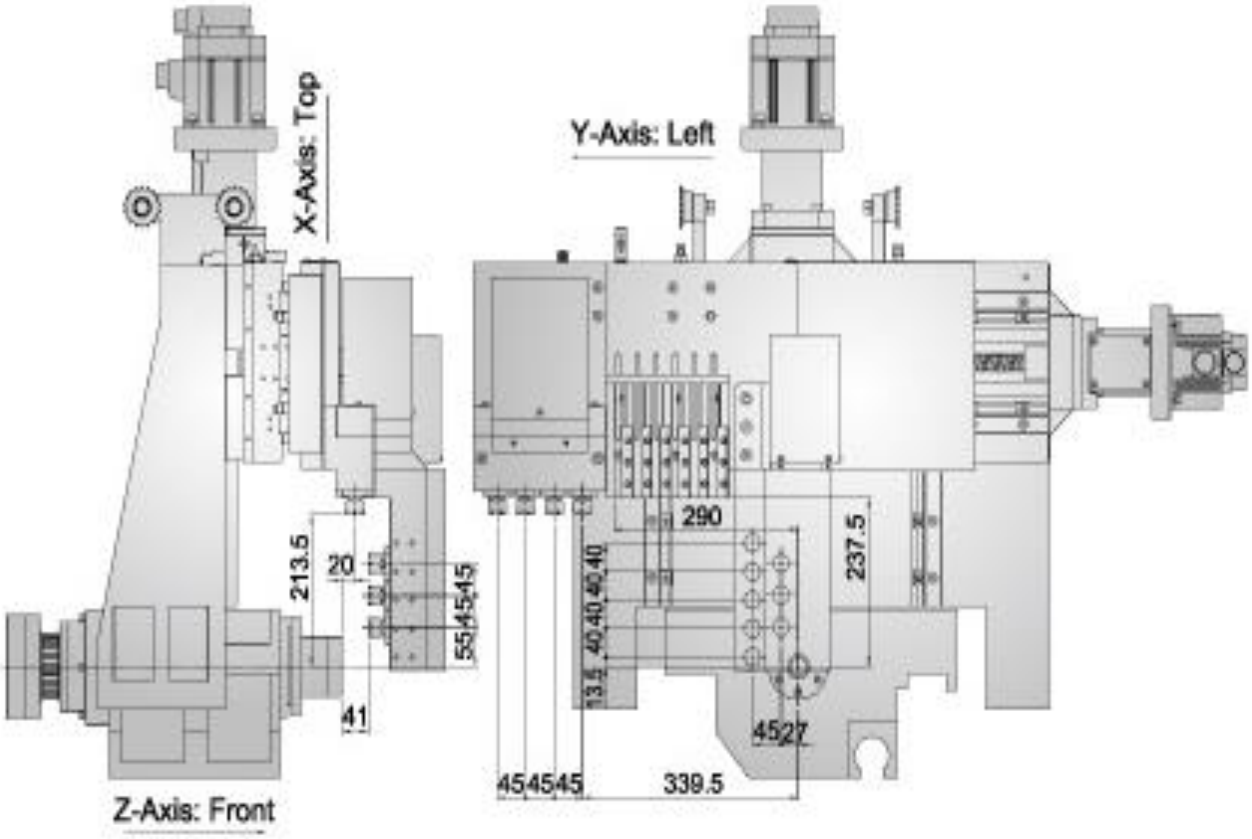
Note: **SPECIFICATIONS AND PRICING IN THIS DOCUMENT ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE!**

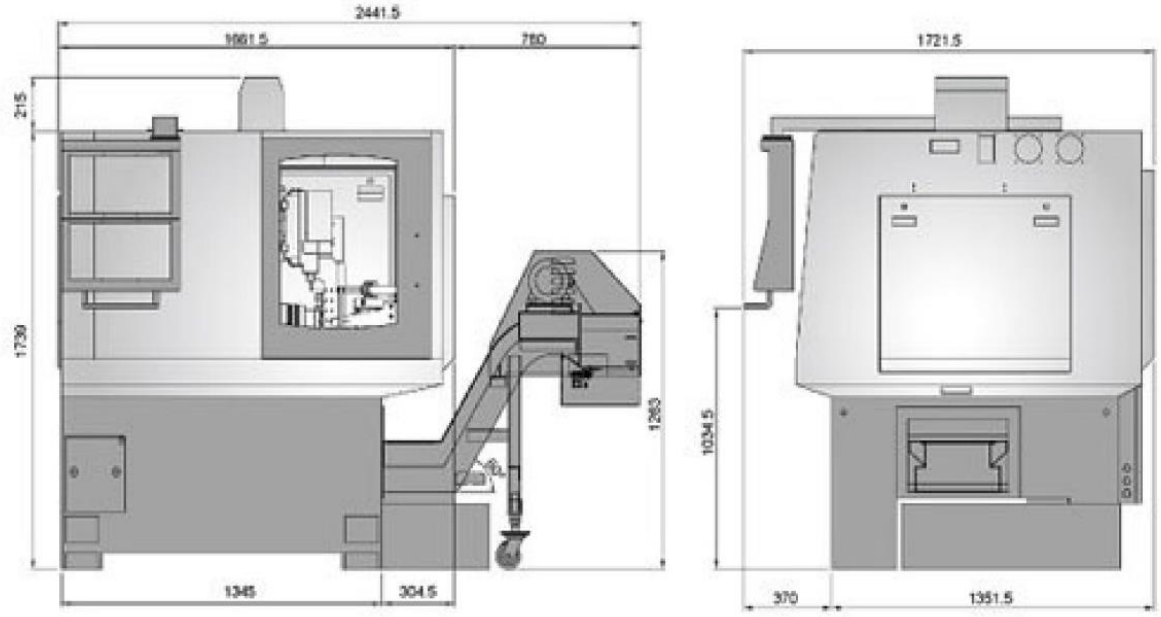
No center less ground stock, no guide-bushing, standard off-the-shelf tooling!

The 32-bit **Ganesh 900T** PC based CNC control is made expressly for heavy-duty CNC Machine tool use. The control can be programmed using the standard G-code programming format. The operator can program at the machine or offline using a text editor, or a CAD/CAM programing system. Programs can be entered by hand, RS-232, Compact Flash drive, or the Ethernet RJ-45 connection. The tool path can be verified using the tool path graphics display to insure program accuacy. The operator can use the Simulation Mode and dry-run the actual machine through the part program using the MPG handwheel retrace to control the process prior to machining the part. The operator can access the help screens that display the G and M code lists. The C-axis can be conviently programmed using the very efficient G12.1 mode.

- 256 MB program memory, 96-Tool offset pairs for geometry and wear offsets
- Programs like the venerable Mitsubishi Meldas control
- 10.4” Color Graphics display with color variation overlay for each tool in simulation
- Program input / output via, RS-232, RJ-45 Ethernet or 1-GB Compact Flash Card reader
- The MPG handwheel retrace steps through the program to simulate the axes moves.
- Tool-Life Management, Program Code Check, & Alarm Help
- Over 20-standard canned cycles for efficient program development
- Advanced drilling and tapping servo synchronization for shorter cycle times
- Cylindrical Interpolation transforms the cutting path from a plane to a cylinder
- NC file name storage with complete record of start time, total time and output quantity.

NCY-32 Tool Clearance Diagram & Machine Layout





Machine LxWxH = 86” x 74” x 76” (2,176 x 1,858 x 1919mm)

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