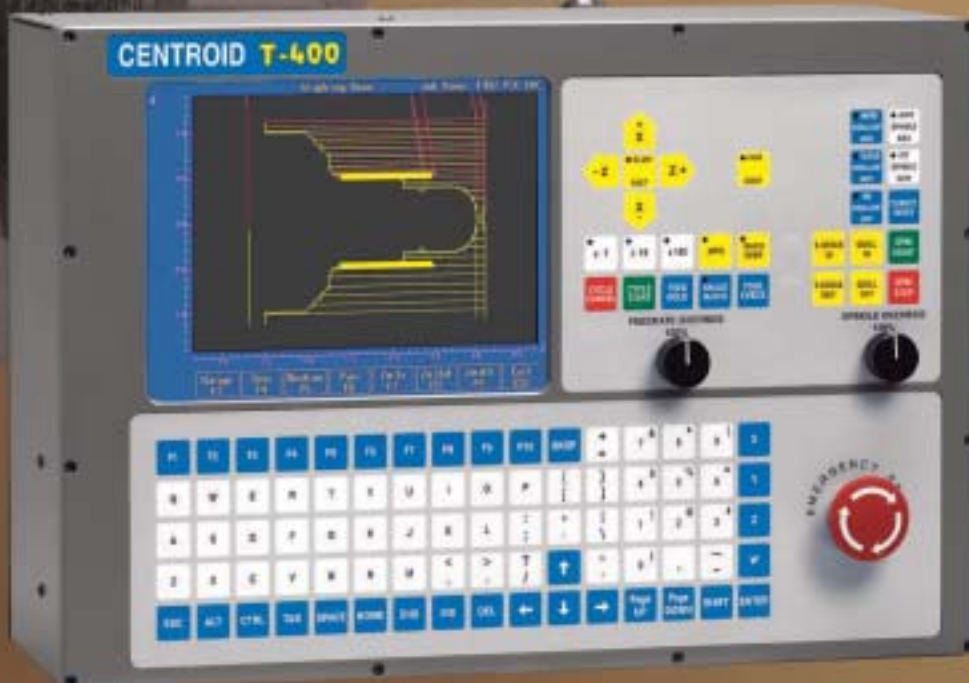




CENTROID™

T-400 CNC Control
for Lathes

*Easy To Use, Plus
The Features You Need*



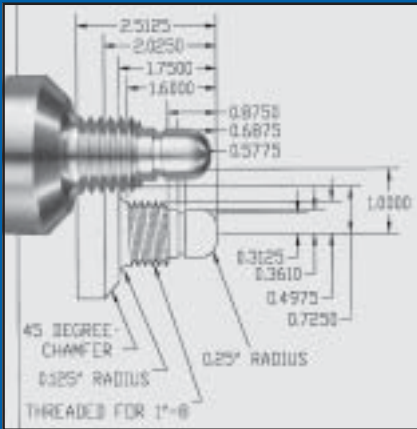
CNC Turning Control



So Easy, You'll Turn Parts The First Day...

Simple setup

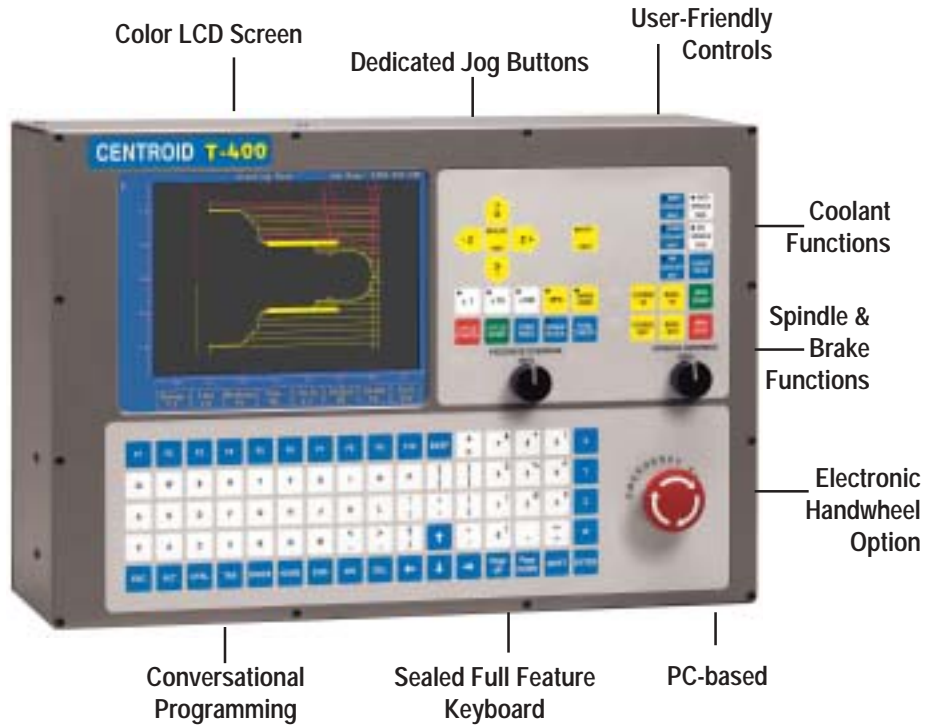
Easy to use graphical menus guide you through part and tool setup. The T-400 remembers the zero position and the tool library even after you turn the machine off, so once you have set a tool or a part position, you'll never need to reset it.



Easy to read operator's display

The standard high-resolution, non-glare, color LCD screen displays: tool position (DRO) at all times, spindle RPM, cutting feedrate, and a parts counter with timer. While viewing a program graphically, you can distinguish between rapid moves, feedrate moves, and cutter comp moves by the different colored lines.

In the CNC business, the name Centroid is synonymous with ease-of-use, reliability and value. Centroid's popular conversational programming system will get your part programmed quickly and accurately. Centroid's outstanding reliability and service ensure that your control will keep running like new for many years to come. The Centroid T-400 is equipped with standard features that will make your turning jobs easier.



Programming and Operation

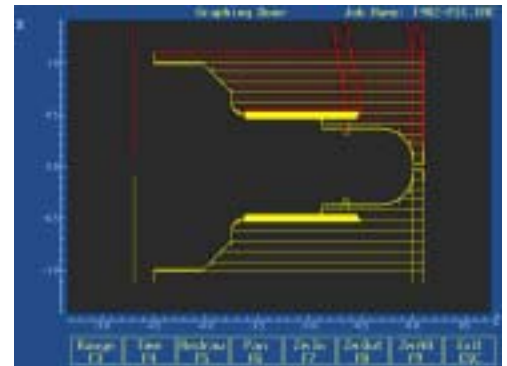
Program parts right at the control with Centroid's conversational programming feature. No G-codes to learn or memorize. Instantly see any changes you make to the part graphically. Conversational leads you through programming your part. Just fill in the blanks and check the graphics. G-codes are created automatically! Select from these canned cycles: Profiling, (material removing, roughing and finishing), Cutoff, Grooving, Threading, Line, Arc, Drilling and Floating-tapping, Automatic Blending (connecting radius), Chamfering, and Blended Chamfer. If dimensions are missing from your part, Math Help will solve for any unknown points.

Dedicated, easy-to-understand control panel

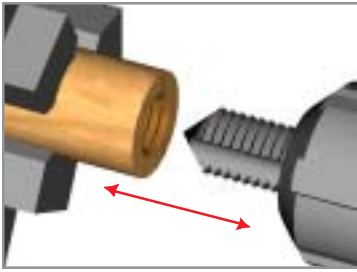
Separate dedicated directional jog keys for both X and Z make joggng the machine a one-button operation. The coolant-proof, sealed, full-size alphanumeric keypad has tactile feedback for solid, confident operation.

Graphics dry run

The T-400 will graph all tool movements of the program. The dry run graphing speed is user adjustable with the feedrate override knob. You can start and stop the dry run at any point or display only a portion of the program. The graphics dry run checks for overtravel in the program and will display the exact line number of the overtravel event, saving time and materials. It is scaled on both axes so you can determine the part size. Dry run displays the line of G-code being executed for easy reference when editing and it will accurately estimate the job run time.



The Features You Need in a CNC Lathe

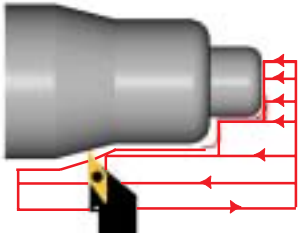


Drilling and Tapping

Canned drilling cycles include: Peck drilling (chip breaking), Deep Hole drilling (chip removal), and Drilling. Use a tap to make threads with the canned Floating-tapping cycle. Specify the threads per inch, the spindle speed and the depth and the control does the rest.

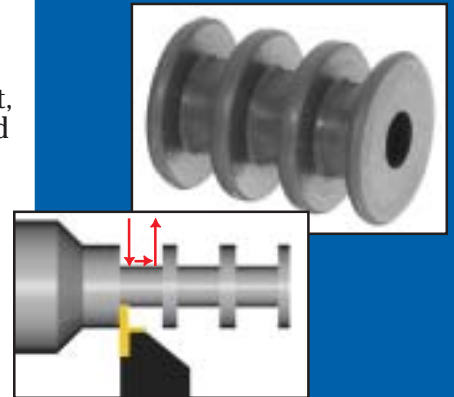
Profiling

Automatic material removal saves you time by generating all the commands to remove excess material from stock. Profiles are defined by simple lines and arcs. Then, the material around the profile is automatically "cleaned out." The Roughing and Finish Pass can be completed with the same tool or with different tools.



Grooving

The Grooving canned cycle can make Straight, Chamfered or Radiused Grooves. Automatic multi-pass repeat to a specified depth ensures proper material removal and finish.



Automatic constant surface speed control

The spindle automatically changes RPM to provide the correct surface speed that you have specified over the entire part, ensuring a better surface finish, superior turning, and longer tool life. Surface speed is also manually adjustable with the spindle speed override knob while the program is running.

Tool Check

Stop the job at any point to measure your part or reset a tool and restart right where you left off, or anywhere you need to restart a tool.

Manual Run

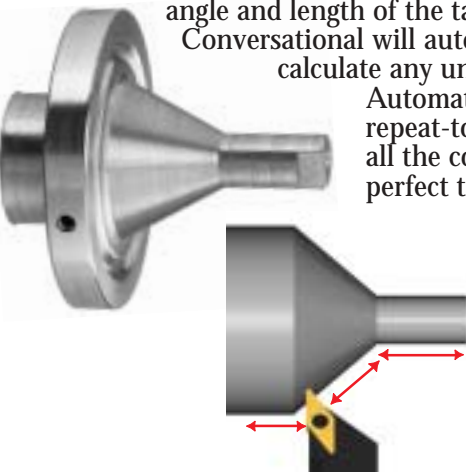
"Walk-through" the first part with the optional electronic handwheels. You "manually" step through the part program by turning the wheel. The other wheel is "slaved" to the one you turn, so you are in complete control of the cutting.

Threading

The T-400 canned threading cycles include Inside, Outside, Compound and Tapered threads. Simply Select the type of thread needed and enter the pitch, the diameter and the length. Conversational will automatically generate all the G-codes necessary to make the threads.

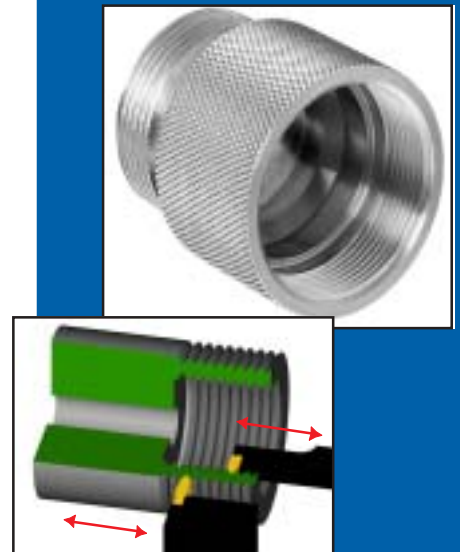
Tapering

Add any taper, at any angle, to your part by simply specifying a start point and an endpoint OR use the angle and length of the taper. Conversational will automatically calculate any unknown values. Automatic multi-pass repeat-to-depth generates all the commands to cut a perfect taper.



Off-line Conversational Programming

Create and verify part programs away from the machine. Use any PC to program with Centroid's offline conversational lathe software.





Lathe equipped with T-400 Control



Fully Prepared Pre-Wired Systems

T-400 Specifications

Control Computer Features

- PC Based technology
- Color VGA LCD display
- Conversational or G-code programming
- 3.5" Floppy disk standard
- Full splash-proof QWERTY keyboard
- RS-232, mouse, & parallel ports
- Solid State HD
- Software Updateable
- High Speed Block Throughput
- No Hesitations

Axis Control

- Constant surface speed control
- High speed contouring
- Backlash compensation
- Pitch error compensation
- Least input increment of .0001" (.001mm)
- 2000line lookahead accel/decel
- Quadrature encoder interface
- Emergency stop

Operation

- Icon and Soft Key based operating system
- MDI
- Run mode
- Single block mode
- Manual feed mode (jog) incremental or continuous feed
- BCD tool change output
- Manual pulse generator port
- Sequence and N number search

Tool Functions, Tool Compensation

- Tool function T0 - T99
- Tool offset 99 pairs
- Tool radius compensation [G41,42]
- Tool radius compensation cancel [G40]

Part Program Storage and Editing

- Program storage = available HD space
- Full screen unlimited file size text editor
- Read/write to floppy disk
- Save programs via COM ports
- Internal hard drive

Conversational Programming

- Tool path color graphics (with compensated path)
- Turning cycles (Straight and Taper)
- Grooving cycles (Straight, Chamfered or Radius Corners)
- Drilling cycles
- Tapping cycles
- Cutoff cycle (Straight, Chamfered or Radius Corner)
- Threading cycles (Simple or Complex)
- Stock removal cycles (Diameter or Face)
- Position, line and arc events
- Integrated tool library
- Run time estimates
- Graphical math help for solving angles, intersections and tangents, with paste to event
- Automatic corner radius, chamfer or blended chamfer

Full M-Function Control

M-functions are programmable for special considerations. The following is a list of the predefined M-codes supplied with the T-400 control.

M00 Stop	M92 Go to + home
M01 Optional stop	M93 Release power
M02 Restart	M102 Program restart
M03 Spindle CW	M103 Start timer
M04 Spindle CCW	M104 Cancel timer
M05 Spindle stop	M105 Move to switch -
M07 Mist on	M106 Move to switch +
M08 Flood on	M107 Output BCD tool #
M09 Coolant off	M108 Enable override
M26 Set home	M109 Disable override
M91 Go to - home	

Feed Function

- Rapid traverse
- Rapid traverse override (variable via feedrate knob) Jog panel key selectable
- Rapid traverse automatic accel/decel
- Feedrate override 2 to 200% variable

G Codes

- G00 Rapid Positioning
- G01 Linear Interpolation
- G02 CW Circular Interpolation
- G03 CCW Circular Interpolation
- G04 Dwell
- G10 Parameter Setting
- G20 Select Inch Units
- G21 Select Metric Units
- G28 Return to Reference Point
- G29 Return from Reference Point
- G30 Return to Secondary Reference Point
- G32 Constant Lead Thread Cutting
- G40 Tool Nose Radius Compensation Cancel
- G41 Tool Nose Radius Compensation Left
- G42 Tool Nose Radius Compensation Right
- G50 Coordinate System Setting, Max. Spindle Speed Setting
- G52 Offset Local Coordinate System
- G53 Rapid Position in Machine Coordinates
- G54-59 Selectable Work Coordinate Systems
- G65 Call Macro
- G70 Finishing Cycle
- G71 Stock Removal in Turning
- G72 Stock Removal in Facing
- G74 End Face Peck Cutting
- G75 Outer/Inner Diameter Peck Cutting Cycle
- G76 Multi-Pass Threading Cycle
- G90 Outer/Inner Diameter Cutting Cycle
- G92 One-Pass Threading Cycle
- G94 End Face Cutting Cycle
- G96 Constant Surface Speed
- G97 Constant Surface Speed Cancel
- G98 Per Minute Feed
- G99 Per Revolution Feed

Utilities

- Format floppy command
- Backup data & system files (menu driven)
- Restore data & system files (menu driven)
- Import/Export
- Drag Plot (Patent Pending)
- PLC and system diagnostics
- Motor temperature estimating

Data Input/Output and Communications

- RS-232 via Interlink
- LAN compatible

Physical Characteristics

- 18.875" x 13" x 6.375" Control Console
- 24" x 36" x 12" Electrical Enclosure
- Total shipping weight: (incl motors and crate) 550lbs.

Specifications subject to change without notice.



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