ET-16
16” Swing
Center Distance 40” (60”)
Spindle Bore 2.05”
ADVANCED TOOLROOM LATHES
FOR SMALL BATCH MACHINING

ET-18
18” Swing
Center Distance 40” (60”)
Spindle Bore 2.05” (3.40”)

DESIGNED, ENGINEERED & ASSEMBLED IN USA
ET-21
21” Swing
Center Distance 60” (40”, 80”, 120”)
Spindle Bore 3.40” (4.01”)
ADVANCED TOOLROOM LATHES
FOR SMALL BATCH MACHINING

ET-25
25" Swing
Center Distance 60" (40", 80", 120")
Spindle Bore 3.40" (4.01")
INSIDE THE ET-TR

**HEADSTOCK**
Heavy duty headstock features an auto-shift gear box that provides high torque and high speed. All gears are balanced for smooth high speed operation.

**DRY SUMP**
A dry sump lubrication system is standard on all ET lathes. It features a separate oil tank that is located away from the headstock to keep the oil cool.

**ONE PIECE BASE**
The ET series features a rugged one piece base casting for added rigidity. Made from thermally stable Meehanite cast iron, it also contains coolant and chips with the integrated chip pan and flood coolant reservoir.

**CROSS SLIDE AND CARRIAGE**
Features hand scraped Turcite B on all friction surfaces including gibs. Metered oil system delivers precise lubrication and features a low lube alarm.

**TOOL POST OR 8 STATION TURRET**
Simple tool changing to meet your needs. Manual use or automatic.
WHY WE’RE BUILT BETTER

**FRYER / SIEMENS 828-HS CONTROL**
The ultimate toolroom CNC. Easy to use for single piece production but includes features unmatched by any other builder. Regenerative drives save you over 40% on electricity.

**ABSOLUTE ENCODERS**
Remembers your position with the power off. All fixture offsets and tool offsets are maintained so you don’t have to re-indicate parts like on other controls.

**TAILSTOCK**
High quality manual tailstock features a precision honed body, chrome plated quill, quill lock and graduated dial.

**PRECISION GROUND C3 GRADE DOUBLE NUT BALLSCREWS**
Provides incredible 0.0002” accuracy for your most demanding jobs.

**BED WAYS**
The extra wide bed is constructed from FC-30 Meehanite cast iron. It features extra ribbing that increases rigidity. Way surfaces are induction hardened to RC-50 and precision ground.
MANUAL HANDLES
Manual handles are provided for both the table and saddle with full digital readout (DRO) of position. No CNC experience is needed to use the manual handles.

ELECTRONIC STOPS
Allows you to set a stop position for any axis. Crank the handles and you can’t move past the stop position.

TAPERS AND CHAMFERS
Set the angle required and by turning one handle both axis move at the desired angle.

FINE/COARSE SWITCH
Allows you to easily switch between fast or slow movement of the handles or joy stick.

4 POSITION JOYSTICK
Simple joystick feed control allows positioning of the axes with a steady feedrate. The feedrate is adjustable with either the coarse/fine switch or the feedrate override knob.

OTHER MANUAL FEATURES
• Manually run spindle in either RPM or Constant Surface Speed.
• One button tool selection for easy tool changes.
• Teach mode
SIMPLE TURNING
You just need to make one simple turned part so why write an entire program? In Manual Mode all turning cycles are available to run by themselves with no program required. You choose your tool, speeds and feeds, depth of cut and the cycle does the rest.

THREADING
This operation becomes a simple fill in one box procedure. The thread cycle can run by itself in Manual Mode without having to write an entire program. Tapered, external/internal threads, inch/metric, right hand/left hand threads are all there in the same do-one cycle. The threading cycle also does thread repair with another click of a button.

DO ONE CYCLES
The Do One cycles allow you to quickly drill, bore or tap holes automatically by filling out a simple screen. Once the operation is completed the machine returns to manual mode. Includes simple turning, threading, thread repair, drilling, tapping and boring cycles.
CONTOUR EDITOR
This feature lets you create a tool path with finished dimensions right from your print. Enter the numbers and the path generates visually as you go along.

PROGRAM HEADER
Enter information about the diameter, length and shape of your blank and where you want to make tool changes.

PART PRINT
Programming in ShopTurn on the Fryer / Siemens 828-HS control is straightforward with no need for G codes. Enter dimensions directly off the print.

PROGRAMMING
MACHINE THE CONTOUR
This cycle connects to the tool path you created in the Contour Editor. Here you enter the tool, speeds and feeds, depth of cut and direction. An interrupted cut feature lets you break stringy chips during roughing.
FROM DRAWING TO FINISHED PART

GROOVING CYCLE
Any type of groove can be easily created with just a few keystrokes. V grooves with different wall angles and a radius at the bottom? No problem. Cycles can be switched to face or internal grooving with one key. Want multiples? Easy as adding how many and the spacing.

DRILLING CYCLE
Manual drilling from the tailstock is standard but maybe you have a lot of parts to make. Drill and tapping cycles make it automatic.

A time saving feature of the 828-HS is that it remembers all your previous values in any cycle. Open a cycle you used weeks ago and there are your last values. Now you only need to change one or two instead of starting over with empty boxes.

SIMULATION MODE
Before making any chips the full featured simulation mode lets you see the part in 3D to check if everything is correct compared to the print. Part can be rotated, zoomed and cut to see into different areas of the part. Groove in the wrong place? Fix it before you actually machine it. Simulation even shows cycle time.
 SETUP AND OPERATION

**TOOL TABLE**
Graphic display shows the type and name of tools. When you create a 55 degree insert it looks exactly like the tool. You can also control spindle direction and coolant. Tool life monitoring is also standard for time in cut or part count. Tool library has space for 250 tools with multiple edges available.

**MANUAL SCREEN**
All of your basic set-up operations begin here. You can call up tools, set part zeros and operate the machine manually. Want to turn on the spindle and drill a hole or face off a part with the electronic handwheels? Here’s where it all starts.
FASTER, SIMPLER & MORE PRODUCTIVE

AUTO SCREEN
After the program is proved out in simulation you are ready to run. The Auto screen Block Search function lets you start anywhere in the program. Part counters and run times are also included.

MEASURE TOOL
Touch off the tool on the part or chuck to set your X and Z lengths. Then use one of 99 work offsets to set your part Zero. All offsets are automatically saved.

HANDWHEEL RUN
This feature allows you to control your program execution with the electronic handwheel. Turning the handwheel causes the program to run with you in charge of the axis feed. Turn it slow or speed things up by cranking faster. When you stop turning the axes stop moving, turn the handle the opposite direction and the axes move backwards though the program. Designed to make proving-out programs easier with safety and confidence. (optional)
CONTROL OPTIONS

DXF FILE IMPORT FEATURE
Allows you to import DXF files and quickly convert to a conversational program. Automatically creates tool path for turning operations.

RESIDUAL MATERIAL DETECTION
This software option allows re-machining of relief contours with a tool smaller than the original tool. The control will remember where material has already been machined and will cut only residual material.

CONVERSATIONAL LIVE TOOL AND C AXIS CYCLES
Live tool part programming in C axis is simple with the canned cycles helping you fill in information. Tell the cycle what diameter you want to work on and it will wrap the cycle around the diameter or work on the front of the part to create pockets, keyways, drilling, engraving etc.
IN-PROCESS PART PROBE MEASUREMENT CYCLES
This feature allows you to measure part features during program execution. Can also be used in MDI mode after cutting the part to then measure certain features and display the measurement.

SIEMENS OFFLINE PROGRAMMING SOFTWARE
Easy-to-use software package that installs on a standard desktop PC and duplicates the control functions. Allows full programming and part program verification.

OTHER AVAILABLE CONTROL OPTIONS

EXTENDED OPERATOR FUNCTIONS
Includes an automatic teach function to save positions to an MDI program, the ability to save tool data and tool offset data, save MDI programs and other features.

HIGH SPEED NETWORK INTERFACE
High speed Ethernet port is the ideal way to connect your machine to your LAN (local area network). Features 10/100 MB/s bandwidth for fast uploads and downloads of part programs. Also features a drip feed option that allows you to run part programs larger than the memory of the machine.

REMOTE MONITORING
Allows monitoring of the CNC from any remote location where internet access is available. Check cycle times, spindle load, feedrate override position, program being run and more.
MACHINE OPTIONS

4 POSITION ELECTRONIC TOOL POST
The electronic 4 position tool post automatically indexes to the next tool. This unit holds standard 1” tooling and is available for the ET-18, 21 and 25. Can be indexed manually with ‘next tool’ button or automatically with program control.

DORIAN MANUAL TOOL POST
Quick change Dorian manual tool post is the perfect way to hold your cutting tools. Package includes 5-piece holder set, riser block, coolant port and installation.
8 STATION TURRET
Automatic 8 tool turret features standard stick tooling, coolant thru the turret and comes with 3 ID tool blocks. Can be indexed manually with ‘next tool’ button or automatically with program. Also includes a 12 position option.

LIVE TOOL TURRET
The Live Tool Turret package includes a 10 HP live tool spindle motor with rigid tap and a surface transformation feature. This feature provides full milling cycles such as pocketing and contouring to be easily programmed using the conversational menus. Also includes a 12 position option.
MACHINE OPTIONS

HYDRAULIC CHUCK
Automatic hydraulic chuck is foot pedal operated or by M code in CNC. Strong hydraulic pressure is adjustable for thin tubing to heavy bar work.

5C PNEUMATIC COLLET CHUCK
Air actuated collet adapter mounts directly to spindle. Includes a safety foot pedal to open and close collet. Can also be controlled with M codes or pushbuttons on the control console.

AUTOMATIC TOOL SETTER
Automatic tool setter makes set-up fast and easy. Motorized arm swings down from parked position to and then automatically sets the X and Z offset.
HYDRAULIC STEADY/FOLLOW RESTS
Hydraulically actuated grippers can be configured into programmable steady rests or follow rests. Great for long shafts with smaller diameters as the part is supported across from the tool the entire length of the cut. Opens and closes with foot pedal or M Code.

ROLLER STEADY REST
Clam shell type steady rest has a range of .5” – 7.5”. Larger sizes available.

CHIP CONVEYOR
Chip Conveyors available for all bed lengths. Conveyor runs the length of the bed and exits at a standard height into a chip cart or drum.
## ET-TR SERIES SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>ET-16</th>
<th>ET-18</th>
<th>ET-21</th>
<th>ET-25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MACHINE CAPACITY</strong></td>
<td></td>
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<tr>
<td>Swing Over Bed</td>
<td>16”</td>
<td>18”</td>
<td>21”</td>
<td>25”</td>
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<tr>
<td>Swing Over Cross Slide</td>
<td>8.125”</td>
<td>9.125”</td>
<td>12”</td>
<td>16”</td>
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<tr>
<td>Center Height</td>
<td>8.125”</td>
<td>9.125”</td>
<td>10.5”</td>
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<td>Swing in Gap</td>
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<td>N/A</td>
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<td>Distance Between Centers</td>
<td>40” (60”)</td>
<td>60” (40”, 80”, 120”)</td>
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<tr>
<td>Width of Bed</td>
<td>14”</td>
<td>14”</td>
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<tr>
<td>Width of Cross Slide</td>
<td>8.5”</td>
<td>8.5”</td>
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<tr>
<td>Cross Slide Travel (X)</td>
<td>10”</td>
<td>12”</td>
<td>12.5”</td>
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<tr>
<td>Longitudinal Travel (Z)</td>
<td>37”</td>
<td>37”</td>
<td>57”</td>
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<tr>
<td>Optional Travel (Z)</td>
<td>57”</td>
<td>37”, 77”, 117”</td>
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<tr>
<td>Ball Screw Size</td>
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<td>1.625” Z - 1.00” X</td>
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<td>Max Part Weight - Unsupported</td>
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<td>800 lbs</td>
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<td>Max Part Weight - Supported w/ S/R</td>
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<td><strong>SPINDLE</strong></td>
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<tr>
<td>Spindle Nose</td>
<td>Camlock D1-6</td>
<td>Camlock D1-6 (D1-8)</td>
<td>Camlock D1-8 (A2-11)</td>
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<td>Spindle Bore</td>
<td>2.05”</td>
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<td>3.4” (4.01”)</td>
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<td>Spindle Nose Taper</td>
<td>MT - 6</td>
<td>MT - 6</td>
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<td>Spindle Motor HP (Peak)</td>
<td>10 HP</td>
<td>10 HP</td>
<td>15 HP</td>
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<td>Spindle Speed (RPM)</td>
<td>100 - 3,000</td>
<td>50 - 2,500</td>
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<td>Speed Ranges</td>
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<td>High 100 - 3,000</td>
<td>High 350 - 2,500</td>
<td>High 300 - 2,000 (1,500)</td>
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<td>Speed Selection</td>
<td>Single Gear Range</td>
<td>Auto Shift</td>
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<td>Quill Travel</td>
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<td>Quill Diameter</td>
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<td>Quill Taper Hole</td>
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<tr>
<td>Positioning Accuracy</td>
<td>+/- 0.0002”</td>
<td>+/- 0.001”</td>
<td>400 IPM</td>
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<tr>
<td>Positioning Repeatability</td>
<td>+/- 0.0002”</td>
<td>+/- 0.001”</td>
<td>400 IPM</td>
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<tr>
<td>Rapid Traverse (X,Z)</td>
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<td>400 IPM</td>
<td>400 IPM</td>
<td>400 IPM</td>
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<td>Servo Type</td>
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<td>Axis Thrust (Peak)</td>
<td>3,058 lbs. X</td>
<td>3,504 lbs. Z</td>
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<tr>
<td><strong>PERFORMANCE TAILSTOCK</strong></td>
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<tr>
<td>Air Requirements</td>
<td>90 PSI - 5 CFM</td>
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<tr>
<td>Coolant Capacity</td>
<td>10 Gallons</td>
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<td>Coolant Flow</td>
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<td>Power Requirements</td>
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<td><strong>GENERAL INFO</strong></td>
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<tr>
<td>Voltage Requirements</td>
<td>208-240 VAC 3 PHASE (380-500 VAC Optional)</td>
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<td>Shipping Dimensions* (WxDxH)</td>
<td>86”x72”x68”</td>
<td>86”x72”x68”</td>
<td>106”x76”x68”</td>
<td>106”x76”x68”</td>
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<tr>
<td>Operating Dimensions (WxDxH)</td>
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<tr>
<td>Machine Weight</td>
<td>5,000 lbs.</td>
<td>6,500 lbs.</td>
<td>7,500 lbs.</td>
<td>8,500 lbs.</td>
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</table>

* Dimensions are approximate and may vary slightly.

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