

**FRYER**<sup>®</sup>  
MACHINE SYSTEMS

**ET SERIES**

## ET TOOLROOM WORLD CLASS

High quality USA made construction distinguishes the Easy Turn Series of toolroom lathes. Featuring high quality components, hand built precision, and world class design, the Fryer ET Toolroom lathe will provide accurate, reliable performance for years to come.

### HIGH QUALITY CONSTRUCTION

- ▲ Rigid one piece base casting
- ▲ Meehanite SP-100 castings have twice the strength of gray iron
- ▲ Turcite B anti-friction way and gib liners
- ▲ Digital servo motors and drives with absolute encoders
- ▲ Machine ways are induction hardened to 55RC and precision ground
- ▲ Full metal guarding with dual doors (except ET-10)
- ▲ C3 grade accuracy double nut ball screws
- ▲ Precision built two speed geared headstock (ET-18, 21, 25)
- ▲ Manual tailstock with graduated feed dial



FRYER ET-21

# ET TOOLROOM

## EASE OF OPERATION

The Easy Turn is easier to use than a conventional lathe while offering the productivity of a CNC. Use the manual handles to make parts faster with Easy Turn's handle driven "Do One" cycles and electronic stops. Touch screen programming provides simple conversational, fill-in-the-blank menus making it extremely easy to learn. In addition, the Easy Turn's unique 'Handwheel Run' feature makes proving out programs safer and easier.

## MANUAL OPERATION

- ▲ Manual handles for X and Z axis
- ▲ Electronic stops make manual positioning easy
- ▲ Do chamfers and taper cuts by turning one handle

## SEMI-CNC OPERATION

- ▲ Programmable power-feed function
- ▲ Simple "Go To" function for axis positioning
- ▲ "Do One" function allows you to easily cut threads, thread repair, chamfers, radius, boring, drilling, and more

## FULL CNC OPERATION

- ▲ Simple menu system – no codes of any kind
- ▲ Reads standard G & M codes from CAD-CAM systems
- ▲ Geometry Creator calculates missing dimensions
- ▲ 3D part verification – solid model or wire frame
- ▲ Safe and fast Handwheel Run mode



FRYER ET-10

## 5 MODELS TO CHOOSE FROM

- ▲ **ET-10**    **10.5" Swing / 18" Center**
- ▲ **ET-16**    **16" Swing / 40" Center**
- ▲ **ET-18**    **18" Swing / 40" Center**
- ▲ **ET-21**    **21" Swing / 60" Center**
- ▲ **ET-25**    **25" Swing / 60" Center**

**TOOLROOM**



## ET LARGE CAPACITY FLEXIBLE PRODUCTION

Fryer's large capacity Easy Turn lathes provide flexible production performance for both one off and large runs. Large work pieces are handled easily thanks to ergonomic access and full crane support. Dual handwheels provide fast setup and the ability to operate manually. Large spindle bores and long centers provide flexibility for your largest work pieces. Conversational programming, G code programming, 3D graphics and Fryer's unique Handwheel Run mode simplify operation.



FRYER ET-40 WITH EXTENDED GUARDING

### STANDARD FEATURES AND OPTIONS

- ▲ 4", 6", 9" bores
- ▲ 60", 80", 120" and 160" centers
- ▲ 4 position electronic toolpost
- ▲ 8 station automatic turret
- ▲ Live tool automatic turret with C axis
- ▲ Hydraulic and manual chucks
- ▲ Steady and follow rests
- ▲ Chip conveyor
- ▲ High pressure coolant systems
- ▲ Dorian manual tool post
- ▲ Rear mounted chucks
- ▲ Hydraulic tailstock

### 3 MODELS TO CHOOSE FROM

- ▲ ET-26    **26" Swing / 60", 80", 120" Centers**
- ▲ ET-30    **30" Swing / 60", 80", 120", 160" Centers**
- ▲ ET-40    **40" Swing / 60", 80", 120", 160" Centers**

# ET LARGE CAPACITY

## HEAVY DUTY CONSTRUCTION

Heavy duty construction distinguishes the ET Series large capacity lathes. Designed for applications where high rigidity and high accuracy are required, these machines can be custom configured for a wide range of applications. Heavy Meehanite castings, large diameter ballscrews and rugged spindles provide the strength and precision necessary for your most demanding applications.

### CONSTRUCTION FEATURES

- ▲ Precision built 4 speed geared headstock
- ▲ Meehanite SP-100 castings have twice the strength of gray iron
- ▲ Extra large 20" wide bed
- ▲ C3 grade accuracy double nut ball screws
- ▲ Digital servo motors and drives with absolute encoders
- ▲ Machine ways are induction hardened to 55RC and precision ground
- ▲ Rigid one piece base casting
- ▲ Turcite B anti-friction way and gib liners
- ▲ Manual tailstock with Z axis positioning bar



FRYER ET-30

LARGE CAPACITY

# CONSTRUCTION



## Touch 2100 Control

The key to a great machine is a great control. The 2100 is not only easy to use but has more features than any other CNC.



## 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 series lathes. It features a separate oil tank that is located away from the headstock to keep the oil cool. An electric gear drive oil pump maintains constant pressure and flow no matter what the RPM. A cartridge filter and pressure switch give you peace of mind.



## Ballscrew

High precision C3 double nut ballscrews are used in all Fryer ET series lathes. We feature class 7 angular contact bearings for axis preload and radial support bearings on the opposing end.





## Spindle

All ET series lathes feature heavy duty large bore headstocks. We utilize standard Camlock D1 series spindle noses so changing chucks is fast and easy.



## Digital Drive System

The heart of the 2100 is the compact digital drive. Combining axis, spindle, and CPU components for better performance and reliability.

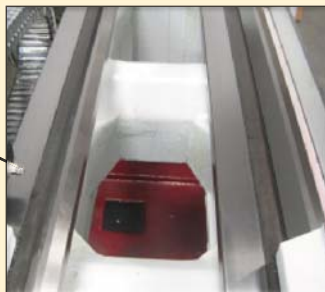
## Tailstock

High quality manual tailstock is a standard feature on all Fryer lathes. The tailstock features a precision honed body, chrome plated quill, quill lock, body lock and graduated dial.



## 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-55 and precision ground.



FRYER ET-21 FRAME

## Cross Slide

Precision built cross slide and carriage feature hand scraped Turcite B on all friction surfaces including gibs. Metered oil system delivers the precise lubrication and features a low lube alarm.



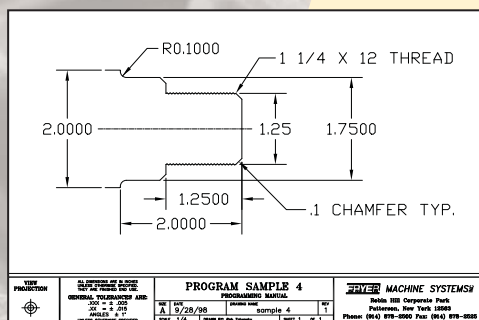
## One Piece Base

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.

CONSTRUCTION

# FROM DRAWING TO FINISHED PART

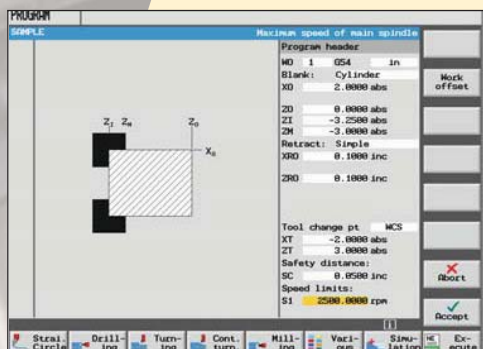
The Touch 2100 makes shopfloor programming simple even for the most complex parts. One touch hot keys for quick and easy set-up; simultaneous verify helps spot program errors quickly; Handwheel Run lets you make the first part faster and safer than other controls.



## PART DRAWING

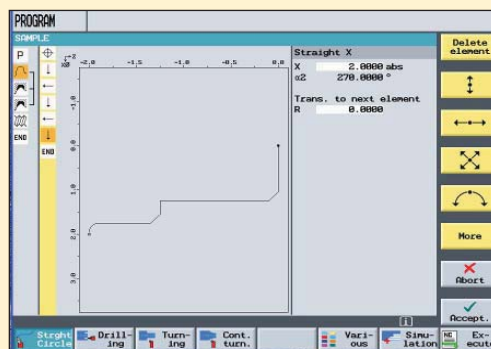
By using the dimensions shown on any part drawing the Touch 2100 is easily programmed. The control is so advanced that even if you are missing dimensions the 2100 will automatically calculate them making programming faster and easier.

## PROGRAM THE PART



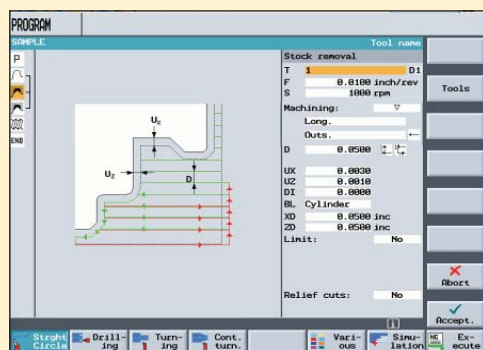
### STEP 1. SETUP

Answer basic questions about the stock size and tool change position.



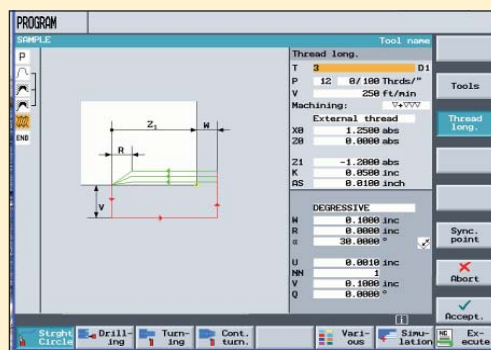
### STEP 2. GEOMETRY

Enter part dimensions using the Simple Geometry Creator. The dimensions are drawn on the screen while you enter them and missing information is automatically calculated.



### STEP 3. ROUGHING CYCLE

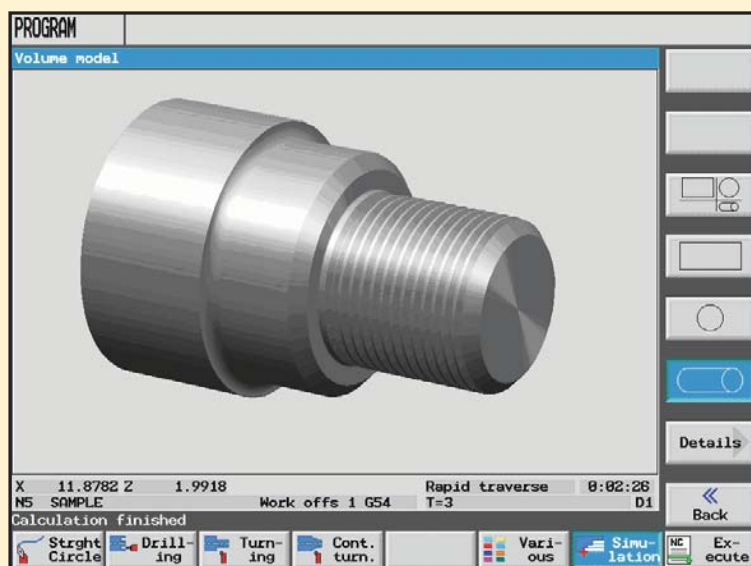
Answer basic questions about the depth of cut, tool type and finish stock allowance.



### STEP 4. THREADING CYCLE

Answer basic questions about the thread size pitch and tool type.



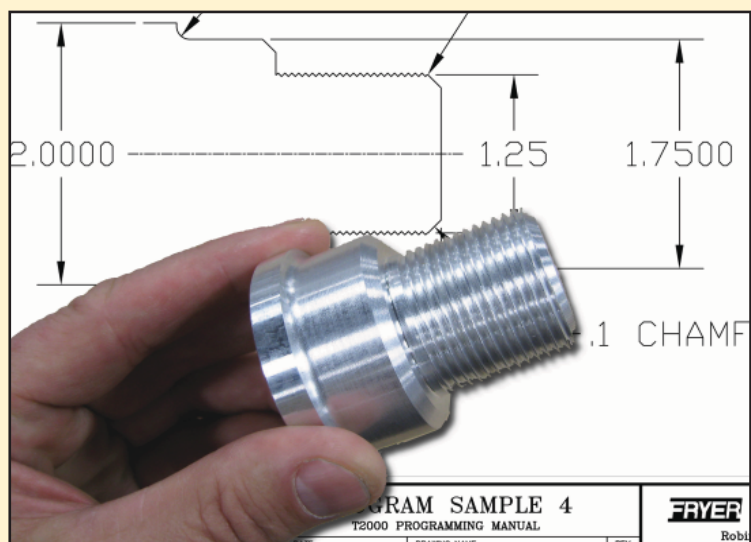


## VERIFY THE PART

The Touch 2100 uses sophisticated solid model graphic verification to accurately show what your part will look like BEFORE you cut it. Also choose from wireframe or multi-view screen, which allow you to view your part from three different angles simultaneously.

## RUN THE PART

For many people pressing "Cycle Start" is an act of faith, as new operators are not sure where the machine will go. The Touch 2100 builds confidence with its unique Handwheel Run function. By turning the handwheel, the program execution is controlled by you. This unique function allows you to move forward and backwards through a program easily and safely.



## FINISHED PART

The Touch 2100's unique simple set up, easy conversational menus, automatic geometry calculator, solid model verification and Handwheel Run function allow you to produce your parts faster and easier than any other control on the market today.

PROGRAMMING

## WHO WE ARE

Since our inception 26 years ago, family-owned Fryer Machine Systems has based our operation on three core principles: build a quality product, price it fairly and provide quality service. This philosophy has allowed Fryer's business to grow even in challenging times. Fryer manufactures a diverse line of over 50 models of high quality machine tools in our Patterson, NY facility. Over the years Fryer has become well-respected for our quality and innovation. In addition to our standard line Fryer produces customized machines for a number of major companies in the aerospace and automotive markets.



## OUR COMPANY

- ▲ Over 26 years experience
- ▲ Family owned
- ▲ Over 3500 machines in the field

## OUR SHOP

- ▲ Modern 50,000 sq. ft. manufacturing facility
- ▲ Sophisticated quality control
- ▲ Hand built/custom configured assembly system



## OUR CUSTOMER SUPPORT

- ▲ Remote diagnostics and tele-service
- ▲ Fully stocked parts department with same day shipping
- ▲ No charge phone service

## OUR PEOPLE

- ▲ Local New England craftsmen
- ▲ Made in the USA
- ▲ Excellent engineering & application support
- ▲ People who care





# QUALITY CONTROL

Fryer uses a variety of quality assurance tools to guarantee problem free operation. Each machine is required to meet the highest standards during mechanical and electronic inspections as well as performance cutting tests. Every machine logs a minimum of 100 hours of run-in to be sure each machine component is functioning properly and is up to spec. Only after all quality inspections are completed do our master builders sign off on the quality certificate..

## MECHANICAL INSPECTION

- ▲ 100 hours of run in time
- ▲ Over 89 individual mechanical inspections
- ▲ Granite squares and indicators calibrated yearly
- ▲ Full machine coolant testing



## ELECTRONIC INSPECTION

- ▲ Renishaw laser calibration on all axis
- ▲ Renishaw ball bar testing
- ▲ Electronic balancing of all rotating components



## PERFORMANCE INSPECTION

- ▲ Machine test part
- ▲ Precision measurement of test part
- ▲ Test part inspection report

## CERTIFICATION

- ▲ Quality certification signed by builder, supervisor and electrician
- ▲ Laser calibration report
- ▲ Ballbar calibration report



QUALITY CONTROL

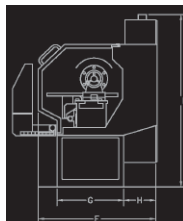
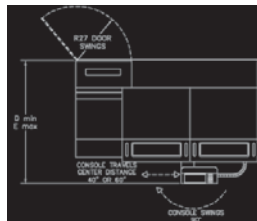
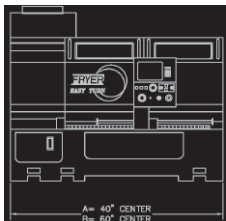


## MACHINE CAPACITY

## PERFORMANCE

## GENERAL INFO

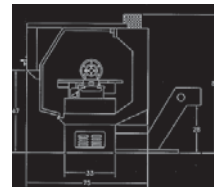
SPECIFICATIONS	TOOLROOM SERIES				LARGE CAPACITY SERIES		
	ET-16	ET-18	ET-21	ET-25	ET-26	ET-30	ET-40
Swing Over Bed	16"	18"	21"	25"	26"	30"	40"
Swing Over Cross Slide	8.0"	9.5"	12"	16"	16"	18"	28"
Center Height	8.0"	9.5	11"	13"	13"	15"	20"
Distance Between Centers	40"		60"		60"		
Opt Distance Between Centers	N/A	60"	40"		80", 120"	80", 120, 160"	
Width of Bed	10.25"	14"	14"		19"		
Width of Cross Slide	7.0"	8.5"	8.5"		11.0"		
Cross Slide Travel (X)	7.5"	10"	12"	12.5"	14"	16"	18"
Longitudinal Travel (Z)	37"		57"		57"		
Optional Travel (Z)	N/A	57"	37"		77", 117"	77", 117", 157"	
Quill Travel	4.0"	5.0"	5.5"		8.0"		
Quill Diameter	1.97"	2.5"	2.5"		4.1"		
Quill Taper	MT-3	MT-4	MT-4		MT-6		
Ball Screw Size	1.625" Z - 1.00" X				2.0" Z - 1.25" X		
Max Part Weight—Unsupported	350 Lbs	500 Lbs	800 Lbs	800 Lbs	2,000 lbs		
Max Part Weight—Supported w S/R	2,000 Lbs	2,500 Lbs	3,000 Lbs	3,000 Lbs	10,000 lbs		
Spindle Nose	Camlock D1-4	Camlock D1-6 (D1-8)	Camlock D1-8		Camlock D1-11 (A2-11, A2-15)		
Spindle Bore	1.562"	2.05"	3.5"		4.10" (6.1", 9.0")		
Spindle Nose Taper	MT - 5	MT - 6	Straight		MT - 8		
Spindle Motor Horse Power (Peak)	7.5 HP	10 HP	15 HP		30 HP (50 HP)		
Spindle Speed	150 - 3,000	50 - 2,500	50 - 2,000		10 - 1500 (1000, 750)		
Speed Ranges	Single Range	Low 50 - 350	Low 50 - 200		Low 1 10 - 100		
		High 100 - 2,500	High 100 - 2,000		Low 2 100 - 200		
					Medium 200 - 675		
					High 675 - 1500		
Speed Selection	Single Range	Auto Shift			Manual (Automatic)		
Positioning Accuracy	+/-0.0002"				+/-0.0002"		
Position Repeatability	+/-0.0001"				+/-0.0001"		
Rapid Traverse (X,Z)	400 IPM				400 IPM		
Servo Type	AC Digital Brushless				AC Digital Brushless		
Axis Thrust (Peak)	3,058 lbs. X		3,504 lbs. Z		4,504 lbs. X		8,700 lbs. Z
Air Pressure Requirements	90 PSI - 5 CFM				90 PSI - 5 CFM		
Coolant Capacity	10 Gallons				28 Gallons		
Coolant Flow	2 GPM				2 GPM		
Power Requirements	60 AMP				80 AMP		
Voltage Requirements	205-245 VAC 3 PHASE (400-480 VAC Optional)				205-245 VAC 3 PHASE (400-480 VAC Optional)		
Operating Dimensions (WxDxH)	86"x62"x68"	86"x72"x68"	106"x76"x68"	106"x76"x68"	155"(60), 175"(80), 215"(120) x 82 x 78"		
Machine Weigh	4,500 lbs.	6,500 lbs.	7,500 lbs.	8,500 lbs.	12,500 lbs.	13,500 lbs.	15,000 lbs.
		60" 7,000 lbs.	40" 7,000 lbs.	40" 8,000 lbs.	80" 14,000 lbs	80" 15,000 lbs.	80" 16,500 lbs.
					120" 16,500 lbs.	120" 17,500 lbs.	120" 19,000 lbs.
t						160" 20,500 lbs.	160" 22,000 lbs.



REF	ET-16	ET-18	ET-21	ET-25
A	85	88	88	88
B	N/A	108	108	108
D	58	65	65	65
E	65	70	70	70
F	45	52	52	52
G	20	27	27	27
H	16	16	16	16
I	70	73	73	73

## MACHINE SPECIFICATIONS

DIMENSIONS ARE IN INCH



REF	ET-26	ET-30	ET-40
A	126	161	161
B	31	53	53
C	22	22	22
D	22	22	22
E	68	68	68
F	20	20	20
G	88	88	88
H	70	70	70
I	90	95	95
J	111	116	116

