Cyclone Series

Cyclone E

- A robust CNC Slant Bed Lathe for Educational and Training purposes
- Designed to replicate an industrial turning centre
- Built-in IBM based Fanuc compatible control panel and Stepper drive
- Provides full CNC capabilities through the specially developed Denford VR CNC Turning control
- Fitted with Educational 8 station Turret
- Suitable for mounting on Heavy Duty Work Bench (extra)

Cyclone E*

Cyclone U

- A CNC Slant Bed Lathe for Advanced Technical Education and Vocational Training
- Fully closed loop Servo drives to X & Z Axes
- Automatic Lubrication to both Ballscrews and Slides
- 0-5000rpm infinitely variable spindle speeds give industrial positional accuracy and quality surface finish
- Uses ISO codes throughout & accepts existing Fanuc programmes through the RS232 Interface
- Fitted with a Heavy Duty 8 Station Bi-directional Rotary Toolpost
- Mounted on Industrial Cabinet Base with Swarf Drawer (standard)

Cyclone U

Cyclone P

- Fitted with a built-in Fanuc 21i-TA control, for 2 axis turning of small parts
- Ideally suited to Advanced Technical Training and Light Production applications
- Fanuc 21iTA control provides for single block operation, block skip, feed hold, constant surface speed control by G96 or constant speed G97
- Programming is ISO standard G & M codes
- Programs are given alpha/numeric titles for library storage
- The console is an integral part of the machine, using a 7.2″ LCD mono screen with full editing MDI facilities, programme storage, canned circles, inch/metric conversion and many other features
- Fitted with Heavy Duty 8 station Bi-directional Rotary Toolpost
- Mounted on Industrial Cabinet Base with Swarf Drawer (standard)

Cyclone P*

* Bases may differ from those shown, depending on specification

Cyclone Specifications

Control Features Cyclone E & Cyclone U
VR CNC Turning (including FANUC 21I-TA & OT)

Control Features Cyclone P
FANUC 21i-TA CNC Controller

Standard Equipment

3 Jaw Chuck, Totally Enclosed Interlocked Guard, Programmable Flood Coolant - Electric, Lo-Vo Light, Automatic Lubrication to all slides and ballscrews, Operation and Instruction manual

Standard Mechanical Features

Max Swing over bed	255mm (10″)
Max Turning Dia	158mm (6 1/4″)
Max Turned Length	210mm (8 1/4″)
Spindle Bore	35mm (1 1/4″)
Spindle Nose	A2-3″
Spindle NoseTaper	No. 5MT
Distance between centres	300mm (12″)
Tailstock Taper (Optional)	3MT
X Axis Travel	94mm (3 !/4″)
Z Axis Travel	210mm (8 1/2″)
Bed	Hardened & Ground
Machine Length	1145mm (45″)
Machine Width	1100mm (43 1/2″)
Coolant Capacity	12 Litres (2.6 gals)
Programmable Spindle Speed	0-5000RPM
Electrical	380/415 volts 3 Phase & Neutral 50/60Hz

Cyclone E

Educational 8 Station Turret
Control Software – Denford VR CNC Turning
Suitable for mounting on Heavy Duty Bench
Axis Motors – Stepper, 1.8 Nm
Spindle Motor – 4 kW (5.4 HP)
System Resolution – 0.005mm
Mechanical Resolution – 0.001mm
Height – 700mm + bench
Weight – 500 Kilos + bench

Cyclone U

Heavy Duty 8 Station Bi-Directional Rotary Toolpost
Control Software – Denford VR CNC Turning
Mounted on an Industrial Cabinet Base with Swarf Drawer
Axis Motors – Servo, 2 Nm
Spindle Motor – 4 kW (5.4HP)
System Resolution – 0.005mm
Mechanical Resolution – 0.001mm
Height – 1550mm
Weight – 750 Kilos

Cyclone P

Heavy Duty 8 Station Bi-Directional Rotary Toolpost
Fitted with a true Industrial Fanuc 21i-TA Controller
Mounted on an Industrial Cabinet Base with Swarf Drawer
Axis Motors – Fanuc Servo, 2 Nm
Spindle Motor – 4 kW (5.4 HP)
System Resolution – 0.001mm
Mechanical Resolution – 0.001mm
Height – 1550mm
Weight – 750 Kilos

8 Station Turret/Toolpost

External Tool Size	12mm x 12mm
Internal Tool Size	25mm
Index Time - Station to Station	0.65 seconds

Optional Extra Equipment

Bar Feed, Variable Power Chucks and Controls, Pneumatic Tailstock, Additional Tools and Toolholders, Spray Mist Coolant,

GENERAL

- Industrial Format Programming using QWERTY keyboard.
- Simultaneous 2 Axes Continuous path eliminating dwells between program blocks.
- Circular and Linear Interpolation.
- Imperial or Metric Programming.
- Drip Feed facility from File Format Data.
- Supports long file names.
- Thumbnail preview of files.
- Customisable docking toolbars.
- Comprehensive tooling management features including: Colour Coding of Tools and Tooling Inventory Library (only allows students to select tool available in the workshop).
- Multiple windows allow simulation of CNC program during machining.
- Industrial control panel FANUC 21i-TA selected through file menu

EDITOR

- Full G and M code listings with Context Sensitive Help.
- CNC file editor (file sizes only limited by disk space)
- Uses Standard ASCII text files
- Colour formatting of NC code for easier reading
- Powerful NC Code Modification features including Cut, Copy and Paste, Modify NC values by a percentage, Modify NC words by a value, Change case, Line renumber, Add/Remove spaces.
- Syntax checking

2D SIMULATION

- Dynamic zooming
- Colour coding of tools
- Different move types (rapid/linear/arc) distinguished by colour
- Unique "SourceTrack" technology permits interaction between graphical data and NC code. (Click on an object in the graphics display and you can immediately edit the relevant line of NC code).

3D SIMULATION

- Dynamic rotation
- Dynamic zooming
- Colour coding of tools
- Supports different tool types

VIRTUAL REALITY

- Complete CNC Lathe available in the classroom.
- Allows the student to familiarise themselves with switch on / datum / jogging
- Includes a fully working Automatic Turret with true representation of cutter sizes.
- Practice setting Work Piece offsets and Tool offsets in the classroom
- Runs NC programs

COMPILED OUTPUT

- XNC file format gives improved high speed machining.

POST PROCESSOR

- Allows translation of NC programs between controller types (Fanuc to Siemens)

- Control Panel with 7.2″ LCD Mono Screen
- Machine Operators Panel
- Simultaneous 2 Axes Contouring Control
- Rapid Traverse 7.5m/min
- Feedrate override 0-150% (10% increments)
- Rapid Traverse Override (100%, 50%, 25%, 0%)
- Spindle Analogue Output
- Cutting Feed 1-7.5m/min.
- Tangential Speed Control
- Programmed Spindle Speed Display
- Jog Override (Maximum Jog Rate 5m/min)
- Spindle Speed Override(+20% to –50%)
- Reference Point Return (G27,G 28, G29)
- Automatic Co-ordinate System Setting
- Inch/Metric Conversion
- Subprogram: 4 Folds Nested
- Tool Geometry/Wear Compensation
- Tool Nose Radius Compensation (G40, G41, G42)
- Program Stop (M00)
- Program Dwell (G04)
- Exact Stop Mode (G61)
- Exact Stop (G09)
- Dry Run Facility
- Axis Lock
- Multi Repetitive Cycles
- Single Block/Auto Execution
- Cycle Start/Feed Hold
- Constant Surface Speed Control
- Backlash Compensation (Maximum 255 Pulses)
- M, S and T Codes Input/Output
- Program Format: ISO using G and M Codes
- Full Program Input and Edit Facility
- 63 Registerable Programs with Battery Backup
- Program/Sequence Number Search/Display
- Memory 4kB (10m Tape Length) 4000 Characters
- Program Protection – Battery Backup
- Self Diagnostic Functions (Dynamic Ladder Display)
- Help Screen
- Periodic Maintenance Screen
- Alarm History
- Operator Screen
- Automatic Acceleration/Deceleration
- Skip Function (G31)
- All Axes Interlocked with Software Limits
- True Absolute Measuring System Without Reference or Datuming Requirements
- RS232C Serial Interface with DNC Capabilities
- External Message
- Operator Messages – Low Lubrication etc.
- Electronic Handwheel
- PCMCIA Slot Capability

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