

# EUROTECH ELITE

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## QUATTROFLEX 710 SLL



**HALES MACHINE TOOL** INC

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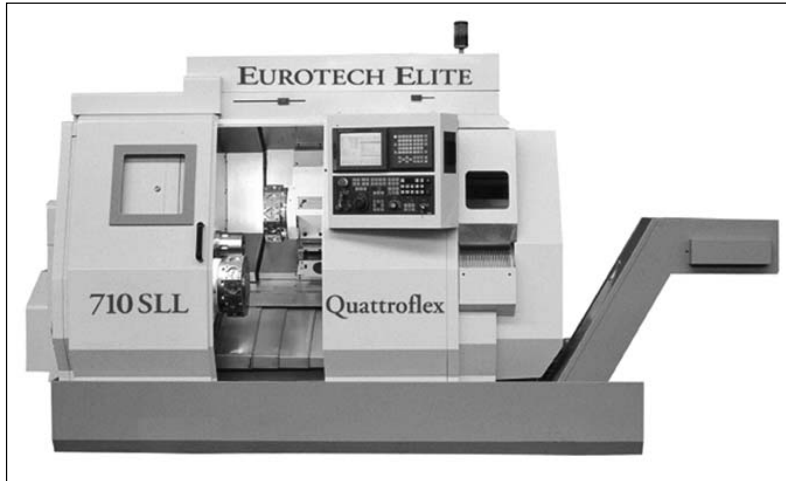
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# QUOTATION

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# EUROTECH ELITE

## Quattroflex 710 SLL Universal Turning/Milling Center



### MODEL QUATTROFLEX 710 SLL – 7-AXIS TURNING CENTER w/ SUB-SPINDLE & (2) LIVE-TOOLING TURRETS

- 2-3/4" BAR CAPACITY
- 35 HORSEPOWER MAIN SPINDLE
- C-AXIS MAIN & SUB-SPINDLES
- 24 LIVE TOOLING STATIONS

### STANDARD FEATURES

- Fanuc 18i-TT 7-axis control with 10.4" color LCD monitor and full keyboard.
- Graphics parts cutting display.
- 32-bit Pentium CPU high-speed microprocessor CNC system.
- 30° Slant bed design provides extra rigidity for heavy machining.
- Two (2) spindles and two (2) turrets.
- 7-axis simultaneous machining..
- Main spindle for first operation work.
- Sub-spindle for secondary operation work.
- Sub-spindle provides the capability to finish both sides of a work piece in a single operation.
- Automatic part transfer from the main spindle to the sub spindle, round stock or irregular shapes.
- First and second operations can be performed simultaneously – cycle time of a complicated part can be reduced by as much as 50 percent.
- Extended editing function: copy, move, merge and change
- Rigid tapping on main, sub-, and live-tool spindles.
- Sub-spindle Ejector and Airblow.
- 4000 RPM main spindle speeds.
- 35 horsepower wide range constant output spindle motor.
- 10 horsepower synchronized sub-spindle.
- 5000 RPM sub-spindle speed.
- 4000 RPM, 5-horsepower live-tooling. (23,200 RPM live tooling available)
- 12-station upper turret (12-live tooling).
- 12-station lower turret (12-live tooling).
- 0.15 seconds/station turret indexing.
- Upper turret rapid traverse: 787 IPM X-axis and 944 IPM Z-axis.
- Lower turret rapid traverse: 472 IPM X-axis and 393 IPM Z-axis.
- 945 IPM B-axis rapid traverse.
- Eurotech tool monitoring system.
- Double tool probe.
- Set of Eurotech Elite tool holders.
- Air Conditioned Electronics Cabinet.

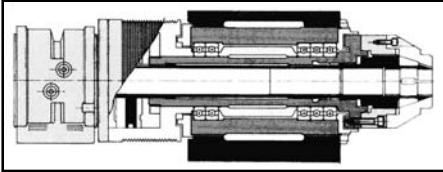
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## DESIGN AND CONSTRUCTION

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The 710 SLL-Y utilizes a state-of-the-art 30 degree slant bed base. The use of linear ways on the Z and B axes combined with hardened, ground ways on the X axis provides both rigidity and speed.

The 30 degree slant bed provides optimum chip flow for chip removal. The entire base is engineered to eliminate unwanted machine vibration. This thoroughly tested and proven machine design delivers rigidity, accuracy and performance.



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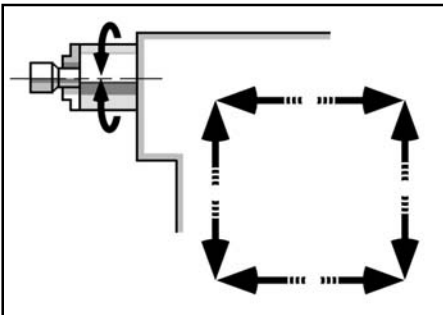
### MAIN SPINDLE

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The Quattroflex 710 SLL incorporates a wide-range 35 horsepower Fanuc spindle drive motor. This cartridge type spindle rotates on five pre-loaded singular-contact bearings which are 100% tested.

The spindle operates at speeds up to 4000 RPM. The wide range constant output spindle motor provides powerful cutting throughout the spindle speed range. High speed cutting of bar stock can be performed at top spindle RPM, while high-torque is available at lower spindle speeds for heavy duty chucking.

The spindle bearings are doubly protected by an external labyrinth to ensure long life.



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### SYNCHRONIZED SUB-SPINDLE

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A powerful 10 horsepower Fanuc AC spindle motor drives the sub-spindle with an infinitely variable spindle speed selection up to 5000 RPM. This high-powered motor allows major operations to be performed on the sub-spindle, thereby increasing the machine's flexibility.

Sub-spindle positioning is accomplished by a servo drive motor, which allows precise positioning along the B-axis.

Upon completion of the first side of a part, the sub-spindle synchronizes its speed with the main spindle for the part pick-off operation. The part is then automatically transferred to the sub-spindle allowing for operations to be performed on the cut-off side of the work piece.

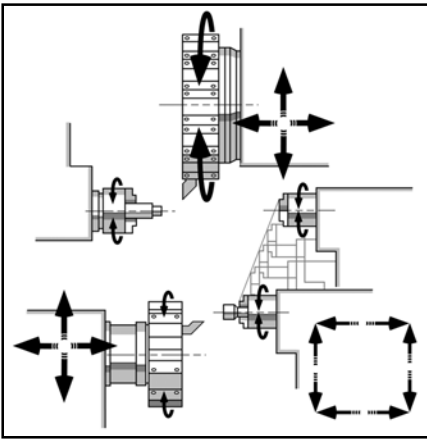
The sub-spindle shifts hi-lo on box-ways in line with the main spindle for pick-off, and in the lower position for machining. This is accomplished via a hydraulic cylinder and precision stops.

The turrets can work simultaneously on the main spindle or sub-spindle, or they can work on the main and sub-spindles separately. The cut-off side of a part can be machined by the lower turret on the sub-spindle while the upper turret machines the part in the main spindle. First and second operation machining is completed at the same time thereby reducing total part cycle time by as much as 50%.

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## AXIS DRIVES

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Pre-loaded precision ball screws drive the X, Z, and B axes screw nuts, center-mounted between the ways for optimum drive conditions. Automatic lubrication on all ways provide smoother operation and reduced maintenance expense. All drives are protected by covers and chip guards to prevent damage from coolant and chips. The drive motors are all AC Fanuc closed-loop servo drives.

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## UPPER AND LOWER TURRETS

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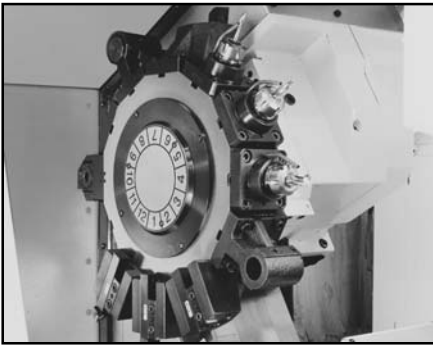
With two independently controlled turrets the Quattroflex 710 SLL provides full 7-axis machining capability.

The upper turret has 12 tooling stations, and the lower turret has 12 tooling stations. Both turrets can machine on both the main and sub-spindles.

Simultaneous O.D. and I.D. cutting, or O.D. cutting at two points is possible. Thus, reducing cycle times with two (2) tools in the cut at the same time. Idle time is also reduced, because one turret can index or rapid traverse while the other turret is machining parts.

Both turrets provide fast indexing of 0.15 seconds station to station. Bi-directional turret indexing allows the turrets to automatically take the shortest path to the next selected cutting tool station. The upper and lower turrets are interference free, providing ample clearance between each tool station and the work piece, allowing any combination of O.D. or I.D. tools to be used.

Either turret is free to work on either spindle at any time, dramatically increasing flexibility.



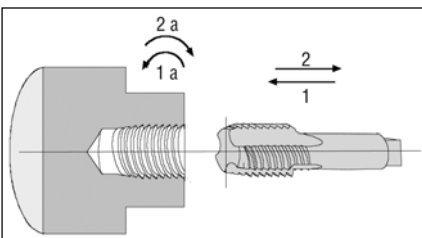
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## DOUBLE TOOL PROBE

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The electronic probe makes for fast and easy setting of tools, while avoiding the danger of operator error. The operator simply pushes a button to touch-off the tools after each set-up or insert change. The system automatically sends all data relevant to tool position to the CNC unit for storage.

Twin tool probes are mounted on a sturdy arm, allowing upper & lower turret tools to be set.

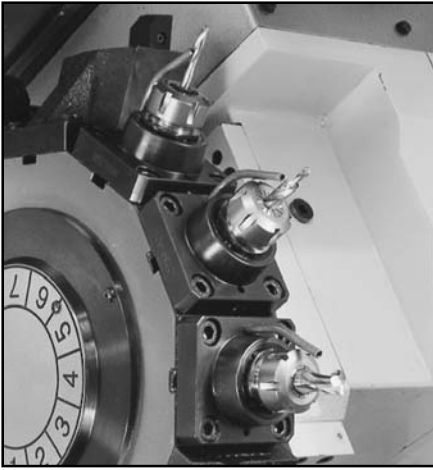


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## RIGID TAPPING

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Rigid tapping is fast, quick, easy, yields precise threads and does not need tap-holders with adjusted stroke. It is controlled through an M-function that synchronizes rotation with slide feed. This function is standard on the main, sub-, and live tool spindles.



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## **REVOLVING TOOL ATTACHMENT UPPER/LOWER TURRETS**

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Cross/end drilling, Milling or tapping operations by the upper turret on the main spindle can be performed simultaneously with lower turret on the sub-spindle. This simultaneous machining can reduce the cycle time if a complicated part.

The upper turret accepts 12 revolving tools and the lower turret accepts 12 for maximum machining capability.

Programmable spindle speed range is from 4000 RPM standard and on select tools 23200 RPM, providing an infinitely variable spindle speed selection.

The 710SLL features a 5 Horsepower AC revolving tool drive motor for both the upper and lower turrets.

A wide selection of revolving tools is available for both the upper and lower turrets for machining in the X- or Z-axis.

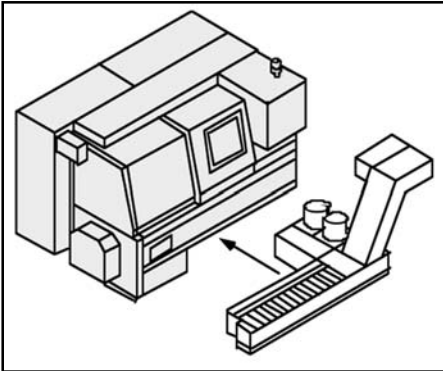
Eurotech live tooling also makes rigid tapping and polygon milling a reality.

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## **PROGRAMMABLE PARTS CATCHER AND CONVEYOR**

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The standard gantry-style parts catcher receives the part from the sub-spindle by extending its bucket in front of the work-holding device. The sub-spindle ejector then pushes the part into the bucket for transport to the rear of the machine. Here a chute carries the parts to an external conveyor. Parts handling can be accomplished while the main spindle is machining, further reducing cycle times.



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## **CHIP CONVEYOR**

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The chip conveyor provides automatic chip disposal. The chip conveyor is located below the work area and chips are channeled out of the machine for easy discharge into a chip cart.

The 710 SLL provides more clearance for chip removal below the sub-spindle than any machine in its class. This ensures that service problems will not develop due to chip build-up.

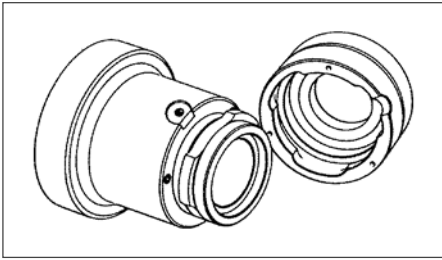
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## **AIR CONDITIONED CABINET**

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The electronics cabinet is kept at a constant temperature by a sophisticated air conditioning system.

This system decreases maintenance downtime and cost. It will also lengthen the life of the machine's control and PC boards.



## WORK HOLDING SYSTEM

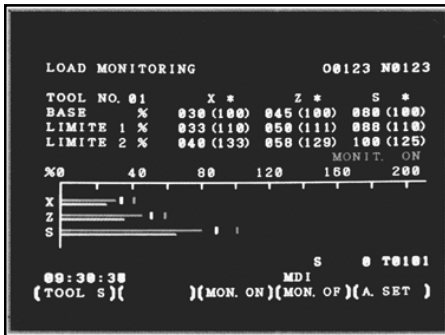
Furnished standard is an innovative dead-length collet chuck system with rapid-action bayonet locking caps. This German-made system allows an operator to change a collet chuck in less than sixty seconds.

The main spindle is provided standard with a compact B60 size. An optional B90 size is available for work up to 2 3/4". Eurotech's sub-spindle is equipped with a matched collet chuck, holding B42 collets ranging from 1/8" to 1-5/8". Both collet styles are readily available throughout the U.S., and have anti-rotation provisions for synchronized passing of irregular stock.

## EUROTECH TOOL MONITORING SYSTEM (ETMS)

Eurotech has developed ETMS to make turning easier and more profitable. Tool load monitoring, one of the main functions of ETMS, constantly checks spindle and axis motor power absorption, automatically interrupting machining cycle should any abnormality arise.

Each tool can have two limit values preset. One for overload to stop at end of cycle, indicating normal wear and one value that when exceeded, stops the machine immediately, usually indicating broken tooling.



## FANUC 18i-TT CONTROL

This machine utilizes a Eurotech Elite Fanuc 18i-TT control with a 32-bit hi-speed Pentium microprocessor. This hi-speed 32-bit CNC system provides a processing speed that is many times faster than conventional 32-bit systems. Part program cycle time is reduced to obtain a higher level of productivity. The ultra-efficient system utilizes all fiber optic coupling.

Eurotech Elite's graphic parts cutting display allows programming accuracy to be checked prior to actual machining by displaying the programmed tool path in graphic. The graphic tool path can also be displayed on the screen during actual machining so the operator can easily keep track of the machining progress.

Each turret is programmed separately and timing codes are used to coordinate the simultaneous operation. The turret can be programmed to be indexed anywhere along the slide axes, either in front or along side of the work piece. Cutting tool approach distance is shortened and chip-to-chip time is kept to a minimum.

Tool geometry offsets provide easy programming and tool setting on the machine. The operator simply takes a trial cut on the work piece, measures the cut diameter or length and inputs this measurement value. The control will then calculate the offset amount and set the correct position of the cutting tool.

Standard control features include: 7-axis programming, graphics parts cutting display, background editing, constant cutting speed control, decimal point programming, corner chamfering and corner rounding, multiple repetitive cycles, canned cycles, manual pulse generator, extended edit functions (copy, move, merge and change), tool nose radius compensation and the PCMCIA slots RS 232C(serial) interface for remote data input and output.



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## **EUROTECH STANDARD BARFEED INTERFACE**

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A 24 pin Hartig plug is provided already wired completely to interface with any style or brand of bar feeding device. This standard feature will compliment the most sophisticated magazine type barfeed, as well as the simplest hydrodynamic unit.

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## 710 SLL SPECIFICATIONS

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### CHUCK WORK

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Chuck diameter - (main spindle)..... 8"  
- (sub-spindle)..... 6"  
Type.....hydraulic  
Maximum speed ..... 4000 RPM

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### WORK LENGTH

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Distance between spindle faces ..... 27.5"

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### MACHINING CAPACITY

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Maximum turning diameter ..... 8"  
Maximum turning length ..... 16.93"

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### MAIN SPINDLE

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Draw-tube capacity ..... 2.75"  
Spindle through bore capacity ..... 3.15"  
Spindle speed range (infinitely variable) ..... 4000  
Variable speed steps ..... Direct drive  
Spindle motor (Fanuc 22S)..... 35 HP  
Motor type.....S series  
Spindle nose..... A2-6

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### SUB-SPINDLE

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Drawtube capacity ..... 1.77"  
Spindle through bore capacity ..... 2.17"  
Spindle speed range (infinitely variable) ..... 5000  
Spindle drive motor (variable speed) max. rating ..... 10 HP  
Spindle nose..... A2-5  
Slide movement - (B-axis)..... NC control  
- (X-axis)hi-lo ..... Hydraulic  
Slide stroke - (B-axis)..... 16.53"  
- (Z-axis)..... 9.44"

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### UPPER TURRET

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Number of tool stations (main spindle)..... 12  
Turret indexing time ..... 0.15 sec/pos.  
Turret indexing type ..... Fanuc servo-driven bi-directional  
Slide stroke:  
Z-axis..... 15.0"  
X-axis ..... 6.5"

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### LOWER TURRET

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Number of tool stations (main spindle) ..... 12  
Turret indexing time ..... 0.15 sec/pos.  
Turret indexing type.. Fanuc servo-driven bi-directional  
Slide stroke:  
Z-axis ..... 9.4"  
X-axis.....5.8"

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### REVOLVING TOOL ATTACHMENT UPPER/LOWER TURRET

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Number of upper turret positions ..... 12 max  
Number of lower turret positions ..... 12 max  
Drive motor – maximum rating  
(upper and lower turrets) ..... AC HP 5  
Speed range (infinitely variable)..... 4000  
Machine capacity (upper and lower turrets)  
- Drilling ..... 3/4" dia.  
- End Mill..... 3/4" dia.  
- Tapping..... 1/2" dia.  
Revolving tool axis..... X,C, & Z

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### GENERAL INFORMATION

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Voltage required..... 230 volt AC, 3-phase  
Air Supply ..... 80 psi @ 4 CFM  
Amperage Draw ..... 120 Amp.

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### MACHINE DIMENSIONS

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Width ..... 83.8"  
Height ..... 86.7"  
Length ..... 122.7"  
Length with chip conveyor ..... 161.7"  
Machine weight with conveyor ..... 14,700 lbs.

NOTE: Horsepower given are the 30 min. ratings.

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## EUROTECH FANUC 18i-TT CONTROL STANDARD FEATURES

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- 32-bit hi-speed Pentium CPU
- 10.4" color LCD display
- Full keyboard
- Graphic parts cutting display
- Background editing
- Extended editing functions  
(copy, move, merge, change)
- Free position turret indexing
- Tool geometry offsets - 64 pairs
- Part program storage capacity - 1054 ft.
- Minimum input resolution - .0001"
- Absolute/incremental dimensioning system
- Decimal point programming
- Direct drawing input. (A=angle, C=chamfer,  
R=radius)
- Radius designation for circular  
interpolation
- Sub-program nesting up to four deep
- Sudden interruption protection (crash protection)
- Canned cycles: turning, drilling, and threading  
(G80)
- Multiple repetitive cycles (G70,G71,G72,G73)
- By-pass feed and speed override w/M-code
- Manual rapid traverse
- Manual pulse generator
- Programmable data input (G10)
- Straight, taper, and face threading
- Thread pull out
- Constant cutting speed control (G96)
- Direct spindle speed RPM designation
- Work coordinate system (G54-G59)
- Program input of offset amount
- Tool nose radius compensation (G40,G41,42)
- Workshift
- Call of Macro programs (G65-G66)
- Custom Macro A and B
- B-axis offset
- 125 registered programs
- Up to three M-codes per line
- Six additional M-codes
- Program protect
- Preset parts counter
- Run time, cycle time, and parts counter display
- Preventive maintenance screen
- RS232C (serial) interface
- Error detect
- Advanced diagnostic functions
- Display of axis and spindle motor current loads
- Alarm message system

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**710 SLL STANDARD EQUIPMENT**

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**TOOL HOLDERS**

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(4) 3/4" turning tool holders .....	# 10.57.82.00
(6) 1 1/4" boring bar holders .....	# 10.57.84.00
(2) 3/4" Cut-off tool holder w/block.....	# 10.57.85.00
(1) 1" Cut-off tool holder w/block.....	# 10.57.99.00
(4) 3/4" turning tool holders .....	# 10.88.14.00
(2) 3/4" turning tool holders.....	# 10.88.17.00
(2) Plug for boring bar holder .....	# 10.54.04.07
(1) Rotating Bar Stop .....	# T189-00001
(12) Live tool station plugs .....	# 10.54.04.07
(2) Plug for boring bar holder .....	# 10.57.84.03.1
(12) Live tool station plugs .....	# 10.54.04.07
(2) X-axis drill/mill ER25 .....	# 10.57.88.00
(2) Z-axis drill/mill ER25 .....	# 10.57.87.00

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**CHUCKS COLLET**

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(1) A6-B60 Collet Chuck .....	# A6-B60
(1) A5-B42 Collet Chuck .....	# A5-B42

# EUROTECH ELITE MULTIFLEX Quattroflex 710 SLL SLANT BED

## STANDARD EQUIPMENT

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- (1)..... Fanuc 18i-TT 32-bit Pentium microprocessor control
- (1) ..... 10.4" color LCD graphic monitor with full keyboard
- (1) .....4000 RPM main spindle speed
- (1) ..... 35 horsepower AC wide range spindle drive motor (230 volts)
- (1) ..... 5000 RPM sub-spindle speed
- (1)..... 10 horsepower AC wide range sub-spindle drive motor (230 volts)
- (1) ..... 12 station upper turret (12-live tooling)
- (1) ..... 12 station lower turret (12-live tooling)
- (1) .....Main and sub-spindle C-axis
- (4) .....5-horsepower revolving tools
- (1) ..... Rigid tapping on main, sub-, and live-tool spindles
- (1) .....Double tool probe
- (1) ..... Eurotech tool monitoring system
- (1) ..... 710SLL tooling package including (4) revolving tools
- (1) .....Coolant flush system
- (1) .....Sub-spindle ejector and airblow

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**THE ABOVE SPECIFICATIONS ARE REFLECTIVE OF WHEN THIS MACHINE WAS NEW. THIS IS A USED MACHINE TOOL AND MAY NOT MEET ALL SPECIFICATIONS NOTED ABOVE.**

**USED 1998 EUROTECH ELITE 710 SLL**

SERIAL # 6240

IN GOOD – VERY GOOD CONDITION

UNDER POWER AND READY FOR DEMO

**INVESTMENT. .... \$ 79,500.00**

SUBJECT TO PRIOR SALE

WARRANTY: NONE...AS IS WHERE IS