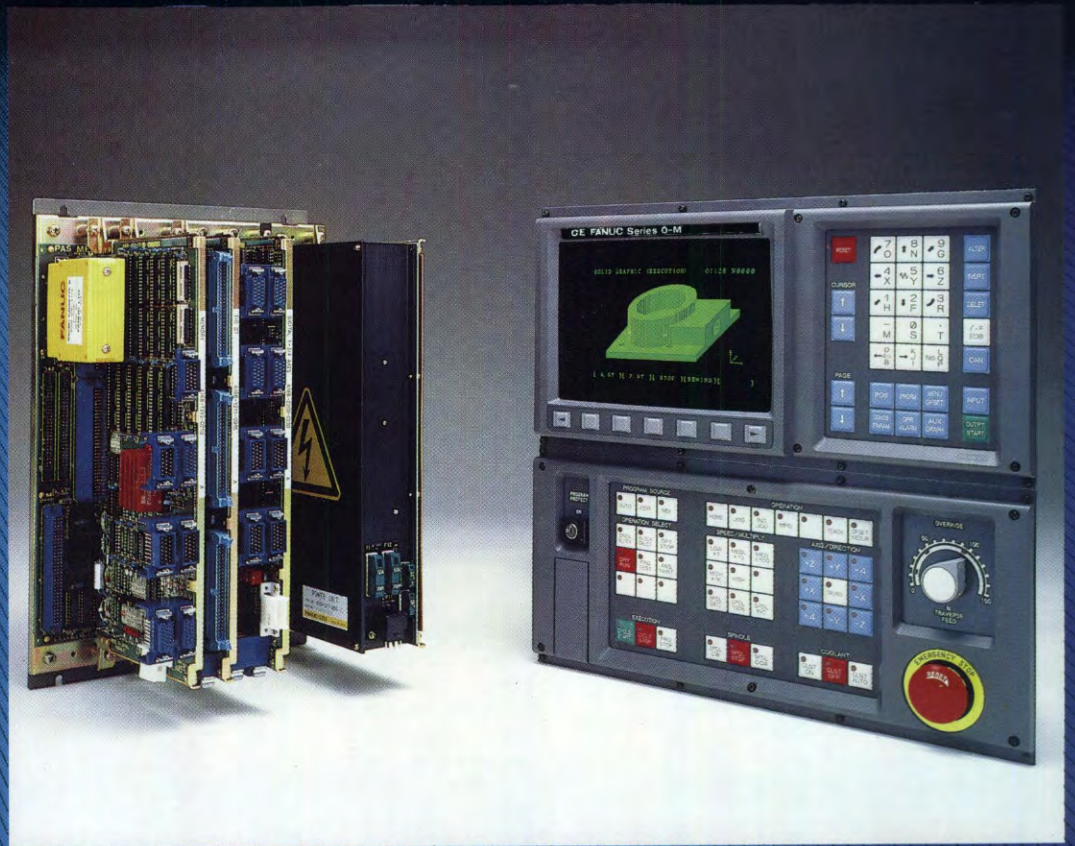


GE Fanuc Automation

Series 0 Computer Numerical Control



32-Bit Microprocessor-Based CNCs for High Speed, High Precision and High Effectiveness Machining

The GE Fanuc Series 0 are high-performance CNCs developed to provide the outstanding speed, precision and efficiency demanded to accomplish the machining of the future and all in a remarkably compact machine configuration. They achieve a substantial boost in machining productivity thanks to their high-precision digital servo system, PMC functions, and abundant CNC functions made possible through the adoption of a high-speed 32-bit microprocessor.

Outstanding machining speed

The Series 0 is capable of machining short, continuous blocks at remarkably high speed. This feature is extremely useful for machining centers used to machine dies, automobile parts and aircraft parts, as well as for woodworking machines and laser cutting machines.

High resolution, high speed feed

| | | |
|--|--------------------------------|------------------------|
| 0.1 μm (increment system: 1/10) | cutting feed rapid traverse | 12 m/min 24m/min |
| 1 μm | cutting feed rapid traverse | 100 m/min 100 m/min |

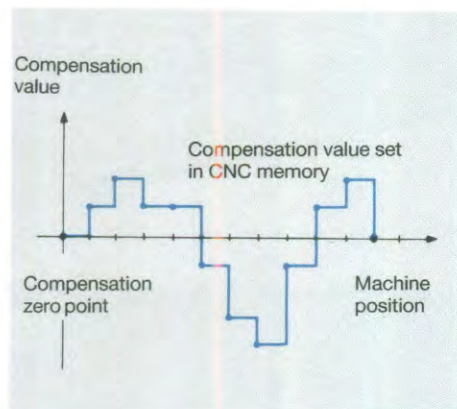
High-speed machining of short, continuous blocks (1 mm, continuous, 3-axis simultaneous, 38.4k baud)

| | |
|---|---------|
| High-speed remote buffer A (binary format) | 15m/min |
| High-speed remote buffer B (NC tape format) | 12m/min |

Superlative machining precision

Various compensation functions enable high precision machining.

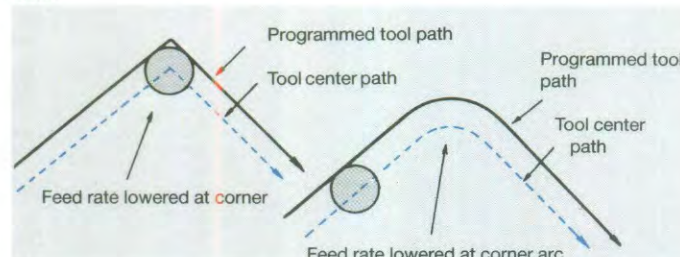
Stored pitch error compensation



With this feature, compensation is carried out for errors relating to mechanical positioning, such as leadscrew pitch error. Compensation data is stored in the CNC memory in the form of parameters, thereby eliminating the need for a dog or other compensation mechanism.

Automatic Corner Override

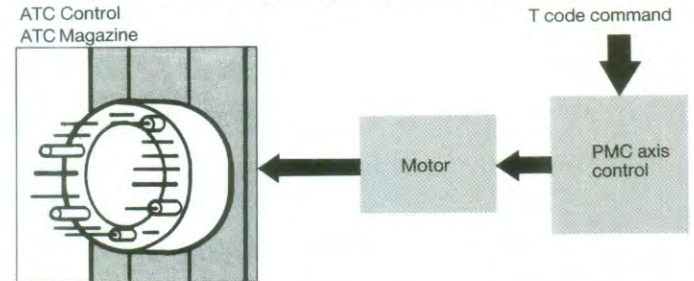
With this feature, the feedrate is automatically lowered when cutting inner corners in the cutter compensation mode. This prevents overloading of the cutter at the corner, for smoother cutting surfaces.



Remarkable machining efficiency

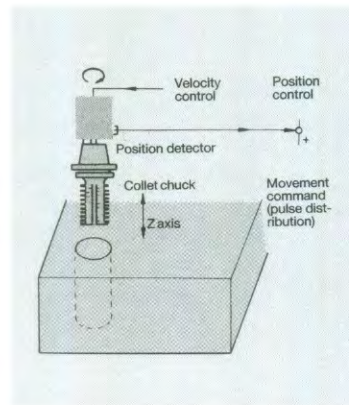
Axis control by PMC (Patent pending)

Independent axis control can be achieved through commands issued by PMC rather than CNC. PMC can control maximum of 3 axes (T), 4 axes (M), which operate independently from the axes controlled by CNC. PMC axis control is useful for applications such as ATC control and rotary table indexing.



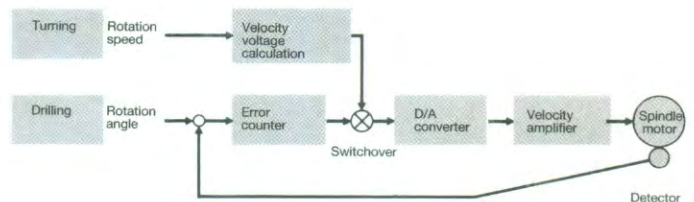
Rigid Tapping

Unlike conventional tapping, which simply performs speed control of the spindle, rigid tapping also controls position. In this respect, it controls the spindle motor just like a feed motor, causing the spindle to move in synchronism with the movement of the Z-axis. Rigid tapping also enables outstanding speed and precision without the use of a special tool (floating tapper) as previously. The adoption of a new operating method (patent pending), in which the acceleration/deceleration time constant is changed according to spindle speed, permits tapping over a wide range of speeds, with optimum machining time.



Spindle Positioning (Patent Pending)

With this feature, the spindle can be positioned to any angle using the spindle motor. No servo motor is necessary.



Specifications

| Item | Specification | Series 0 | | | | |
|---|--|----------|----|----|----|-----|
| | | MC | MF | TC | TF | TTC |
| Controlled axes | 2 axes | — | — | ○ | ○ | — |
| | 3 axes | ○ | ○ | ☆ | ☆ | — |
| | 4 axes | ☆ | ☆ | ☆ | ☆ | — |
| | 2 + 2 axes | — | — | — | — | ○ |
| | 3/4 + 2 axes | — | — | — | — | ☆ |
| Simultaneous controllable axes | 2 axes | ○ | ○ | ○ | ○ | — |
| | 3/4 axes | ☆ | ☆ | ☆ | ☆ | — |
| | 2 + 2 axes | — | — | — | — | ○ |
| | 3/4 + 2 axes | — | — | — | — | ☆ |
| Cf-axis control | | — | — | ☆ | ☆ | ★ |
| Cs-axis control | | — | — | ☆ | ☆ | ★ |
| Y-axis control (T) | | — | — | ☆ | ☆ | ★ |
| Axis control by PMC | Max. 4 axes (T)/Max. 3 axes (M)/Max. 2 axes (TT) | ☆ | ☆ | ☆ | ☆ | ★ |
| Least input increment | Refer to Table 1.3 | ○ | ○ | ○ | ○ | ○ |
| Least command increment | Refer to Table, 1.3 | ○ | ○ | ○ | ○ | ○ |
| Incremental system 1/10 | 0.1 μm | ☆ | ☆ | ☆ | ☆ | ☆ |
| Max. programmable dimensions | ± 8 digits | ○ | ○ | ○ | ○ | ○ |
| Rapid traverse rate | Refer to Table 1.3 | ○ | ○ | ○ | ○ | ○ |
| Rapid traverse override | Fo. 25, 50, 100 % | ○ | ○ | ○ | ○ | ○ |
| Range of feedrate | Feed per minute(/min) | ○ | ○ | ○ | ○ | ○ |
| | Feed per revolution(/rev) | ☆ | ☆ | ○ | ○ | ○ |
| Automatic acceleration/deceleration | | ○ | ○ | ○ | ○ | ○ |
| Linear acceleration/deceleration after cutting feed interpolation | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Feedrate override | 0 to 150 % | ○ | ○ | ○ | ○ | ○ |
| Jog override | | ☆ | ☆ | — | — | — |
| Override cancel | | ○ | ○ | ○ | ○ | ○ |
| Manual continuous feed | Max. simultaneous 3 axes | ○ | ○ | ○ | ○ | ○ |
| Manual synchronous feed | | — | — | ○ | ○ | ○ |
| Positioning | | ○ | ○ | ○ | ○ | ○ |
| Single direction positioning | | ☆ | ☆ | — | — | — |
| Linear interpolation | | ○ | ○ | ○ | ○ | ○ |
| Circular interpolation | | ○ | ○ | ○ | ○ | ○ |
| Polar coordinate command | | ☆ | ☆ | — | — | — |
| Polar coordinate interpolation | | — | — | ☆ | ☆ | ★ |
| Cylindrical interpolation | | — | — | ☆ | ☆ | ★ |
| Helical interpolation | | ☆ | ☆ | — | — | — |
| Thread cutting, synchronous feed | | ☆ | ☆ | ○ | ○ | ○ |
| Thread cutting retract | | — | — | ☆ | ☆ | ☆ |
| Continuous thread cutting | | — | — | ☆ | ☆ | ☆ |
| Variable lead thread cutting | | — | — | ☆ | ☆ | ☆ |
| F1-digit feed | | ☆ | ☆ | — | — | — |
| Reference point return | | ○ | ○ | ○ | ○ | ○ |
| Reference point return check | | ○ | ○ | ○ | ○ | ○ |
| 2nd reference point return | | ○ | ○ | ○ | ○ | ○ |
| 3rd/4th reference point return | | ☆ | ☆ | ☆ | ☆ | ☆ |
| 9" CRT/MDI (small type) | High-resolution monochrome | ○ | ○ | ○ | ○ | ○ |
| Thin-profile display/MDI (small type) | Monochrome | ☆ | — | ☆ | — | ☆ |
| 9" CRT/MDI (small type) | Colour | ☆ | ☆ | ☆ | — | ☆ |
| 9" CRT/MDI (full key) | High-resolution monochrome | ☆ | ☆ | ☆ | ☆ | ☆ |
| 9" CRT/MDI (full key) | Colour | ☆ | — | ☆ | — | ☆ |
| 14" CRT/MDI (full key) | Colour | ☆ | ☆ | — | — | — |
| Softkey for MDI | 5 + 2 pieces (For 9") | ☆ | ○ | ☆ | ○ | ☆ |
| | 10 + 2 pieces (For 14") | * | * | — | — | — |
| Manual handle feed | 1 unit | ☆ | ☆ | ☆ | ☆ | ☆ |
| | 2 units | ☆ | ☆ | ☆ | ☆ | ☆ |
| | 3 units | * | * | — | — | — |
| Manual handle feed rate | x 1, x 10, x M | * | * | * | * | * |
| Handle interruption | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Jog and handle simultaneous mode | | ○ | ○ | ○ | ○ | ○ |
| Incremental feed | x 1, x 10, x 100, x 1000 | ○ | ○ | ○ | ○ | ○ |
| Rigid tapping | | ☆ | ☆ | — | — | — |
| Program restart | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Reader/puncher interface | Reader/puncher (Ch. 1)/ASR 33 interface | ☆ | ☆ | ☆ | ☆ | ☆ |
| | Reader/puncher (Ch. 2) interface | ☆ | ☆ | ☆ | ☆ | ☆ |

| Item | Specification | Series 0 | | | | |
|--|--|----------|----|----|----|-----|
| | | MC | MF | TC | TF | TTC |
| Dwell (per sec.) | | ○ | ○ | ○ | ○ | ○ |
| Interlock | | ○ | ○ | ○ | ○ | ○ |
| Machine lock | All axes | ○ | ○ | ○ | ○ | ○ |
| Stored stroke check 1 | | ○ | ○ | ○ | ○ | ○ |
| Stroke limit external setting | | ☆ | ☆ | — | — | — |
| Extended stored stroke check | | ☆ | ☆ | ☆ | ○ | ☆ |
| Tool post interference check | | — | — | — | — | ☆ |
| Z-axis command cancel | | ○ | ○ | — | — | — |
| Additional axis neglect | | * | * | — | — | — |
| Mechanical handle feed | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Skip function | | ○ | ○ | ○ | ○ | ○ |
| High-speed skip function | | ☆ | ☆ | ☆ | ☆ | ★ |
| External deceleration | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Position signal output | | — | — | ☆ | ☆ | ☆ |
| Battery alarm output | | ○ | ○ | ○ | ○ | ○ |
| Exact stop mode | | ○ | ○ | — | — | — |
| Exact stop | | ○ | ○ | ○ | ○ | ○ |
| Servo off | | ○ | ○ | ○ | ○ | ○ |
| Manual absolute on/off | | ○ | ○ | ○ | ○ | ○ |
| Chamfering on/off | | — | — | ○ | ○ | ○ |
| Backlash compensation | | ○ | ○ | ○ | ○ | ○ |
| Stored pitch error compensation | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Clock function | | ☆ | ☆ | ☆ | ☆ | ☆ |
| MDI operation | | ○ | ○ | ○ | ○ | ○ |
| MDI operation B | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Y-axis offset (T) | | — | — | ☆ | ☆ | ★ |
| Analog signal input | 4 points | ☆ | ☆ | ☆ | ☆ | ☆ |
| High-speed cycle machining | | ☆ | — | ☆ | — | — |
| Simple synchronous control | | — | — | ☆ | ☆ | ★ |
| Order made macro | 64 KB/128KB/256KB/512KB | ☆ | — | ☆ | — | ★ |
| Macro executer | 64KB/128KB | ☆ | ☆ | ☆ | ☆ | ★ |
| | 256KB/512KB | ☆ | — | ☆ | — | ★ |
| Reset | | ○ | ○ | ○ | ○ | ○ |
| Dry run | | ○ | ○ | ○ | ○ | ○ |
| Single block | | ○ | ○ | ○ | ○ | ○ |
| Program protect signal | | ○ | ○ | ○ | ○ | ○ |
| Self-diagnosis function | | ○ | ○ | ○ | ○ | ○ |
| Emergency stop | | ○ | ○ | ○ | ○ | ○ |
| Status display | | ○ | ○ | ○ | ○ | ○ |
| Position coder | 4000 rpm/6000 rpm | ☆ | ☆ | ○ | ○ | ○ |
| Control unit external dimensions | Control unit A 250(W) x 400(H) x 185 (D)mm | ○ | ○ | ○ | ○ | ○ |
| | Control unit B 450(W) x 400(H) x 185(D)mm | ○ | ○ | ○ | ○ | ○ |
| Power supply | 200 VAC +10%, -15% | ○ | ○ | ○ | ○ | ○ |
| | 50/60 Hz ± 1 Hz | ○ | ○ | ○ | ○ | ○ |
| | 220 VAC +10%, -15% | ○ | ○ | ○ | ○ | ○ |
| | 60 Hz ± 1 Hz | ○ | ○ | ○ | ○ | ○ |
| Connectable servo motor | FANUC AC SERVO MOTOR (Digital) | ○ | ○ | ○ | ○ | ○ |
| Connectable spindle motor | Fanuc AC SPINDLE Motor, etc. | ○ | ○ | ○ | ○ | ○ |
| Machine operator's panel | | | | | | |
| Software operator's panel | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Software operator's panel general purpose switch | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Standard machine operator's panel | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Position detector | | | | | | |
| Incremental pulse coder interface | | ○ | ○ | ○ | ○ | ○ |
| Absolute pulse coder interface | | ○ | ○ | ○ | ○ | ○ |
| PMC | | | | | | |
| PMC-L | 6 μs/step Display/editing of ladder 3000 steps 5000 steps | ☆ | ☆ | ☆ | ☆ | — |
| | DI/DO Max. 104/72 points | ☆ | ☆ | ☆ | ☆ | — |

○ Standard ☆ Option ★ Option available for TTC 1st tool post
* Function included in another option

| Item | Specification | Series 0 | | | | |
|-------|---|----------|----|----|----|-----|
| | | MC | MF | TC | TF | TTC |
| PMC-M | 2 μs/step Display/editing of ladder 3000 steps 5000 steps 8000 steps 12000 steps | ☆ | ☆ | ☆ | ☆ | ☆ |
| | DI/DO Max. 208/144 points | ☆ | ☆ | ☆ | ☆ | ☆ |

| Program input | | | | | | |
|--|---------------------|---|---|---|---|---|
| Coordinate system setting | | ○ | ○ | ○ | ○ | ○ |
| Automatic coordinate system setting | | ○ | ○ | ○ | ○ | ○ |
| Work coordinate system | G52, G53 G54 - G 59 | ☆ | ☆ | — | — | — |
| Direct input of work coordinate system shift amount measured | | ○ | ○ | — | — | — |
| Decimal point input | | ○ | ○ | ○ | ○ | ○ |
| Pocket calculator type decimal point input | | ○ | ○ | ○ | ○ | ○ |
| Direct drawing dimension programming | | — | — | ☆ | ○ | ☆ |
| Special G code input | | — | — | ☆ | — | ☆ |
| Programming input of offset data | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Custom macro A | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Custom macro B | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Interrupt type custom macro | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Macro variables common with both tool posts | | — | — | — | — | * |
| Chamfering/corner R | | — | — | ☆ | ○ | ☆ |
| Optional angle chamfering/corner R | | ☆ | ○ | — | — | — |
| Inch/metric conversion | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Cutter compensation B | | ☆ | — | — | — | — |
| Cutter compensation C | | ☆ | ○ | — | — | — |
| Tool nose radius compensation | | — | — | ☆ | ○ | ☆ |
| Canned cycles | | — | — | ○ | ○ | ○ |
| Multiple repetitive cycles | | — | — | ☆ | ○ | ☆ |
| Canned cycles for drilling | | ☆ | ○ | ☆ | ☆ | ★ |
| X-axis diameter/radius programming | | — | — | ○ | ○ | ○ |
| Playback | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Counter input of offset value | | — | — | ○ | ○ | ○ |
| Radius designation on arc | | ○ | ○ | ○ | ○ | ○ |
| EIA/ISO automatic recognition | | ○ | ○ | ○ | ○ | ○ |
| Mirror image | | ○ | ○ | — | — | — |
| Mirror image for double turret | | — | — | ☆ | ☆ | ☆ |
| X-axis mirror image | | — | — | ☆ | ☆ | ☆ |
| Automatic corner override | | ☆ | ☆ | — | — | — |
| Scaling | | ☆ | ☆ | — | — | — |
| Coordinate system rotation | | ☆ | ☆ | — | — | — |
| Menu programming | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Tape format for F10/11 | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Pattern data input | | ☆ | — | — | — | — |
| Conversational programming with graphic function | | ☆ | ○ | ☆ | ☆ | — |
| Conversational programming function with figure for machining center | | ☆ | — | — | — | — |
| Graphic conversation for machining center | | — | ○ | — | — | — |
| Graphic conversation for 2-axis lathe | | — | — | — | ○ | — |
| Polygon turning | | — | — | ☆ | ☆ | ★ |
| Balance cut | | — | — | — | — | ☆ |

| Auxiliary function | | | | | | |
|--------------------------------|--------------------------|---|---|---|---|---|
| Miscellaneous function | M-3 digit | ○ | ○ | ○ | ○ | ○ |
| 2nd auxiliary function | B-6 digit | ☆ | ☆ | — | — | — |
| | B-8 digit | — | — | ☆ | ☆ | ☆ |
| Miscellaneous function look | | ○ | ○ | ○ | ○ | ○ |
| Tool post waiting function | | — | — | — | — | ○ |
| Spindle function | | | | | | |
| S-2 digit | | ○ | — | ○ | — | ○ |
| S-4/S-5 | Spindle analog output | ☆ | ○ | ☆ | ↺ | ☆ |
| Constant surface speed control | | ☆ | ☆ | ☆ | ○ | ☆ |
| Spindle speed override | 50 to 120 % | * | * | * | * | * |
| Spindle gear selection | 4 stages (T)/3 stages(M) | * | * | * | * | * |
| Actual spindle speed output | | — | — | ☆ | ☆ | ☆ |

| Item | Specification | Series 0 | | | | |
|-------------------------------------|---------------|----------|----|----|----|-----|
| | | MC | MF | TC | TF | TTC |
| Spindle speed fluctuation detection | | — | — | ☆ | ☆ | ☆ |
| Analog voltage control by PMC | | * | * | * | * | * |
| Multi spindle control | | — | — | ☆ | ☆ | — |

| Tool function | | | | | | |
|---|------------------------------------|---|---|---|---|---|
| Tool function | T1 + 1/T2 + 2 | — | — | ○ | ○ | ○ |
| | T2/T4 | ○ | ○ | — | — | — |
| Tool offset memory | ±6 digits, 32 pieces | ○ | ○ | — | — | — |
| | 64 pieces/99 pieces/ 200 pieces | ☆ | ☆ | — | — | — |
| | ± 6 digits, 9/16 pairs 32 pairs | — | — | ○ | ○ | ○ |
| Tool offset memory B | | ☆ | ☆ | — | — | — |
| Tool length compensation | | ○ | ○ | — | — | — |
| Tool offset | | ☆ | ☆ | ○ | ○ | ○ |
| Tool geometry/wear offset | | — | — | ☆ | ○ | ☆ |
| Simple tool life management | | — | — | ☆ | ○ | ☆ |
| Tool life management | | ☆ | ☆ | — | — | — |
| External tool offset | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Tool length automatic measurement | | ☆ | ☆ | — | — | — |
| Automatic tool offset | | — | — | ☆ | ☆ | ☆ |
| Direct input of offset value measured A | | — | — | ○ | ○ | ○ |
| Direct input of offset value measured B (Tool setter) | | — | — | ☆ | ☆ | ☆ |

| Editing/Operation | | | | | | |
|-------------------------------------|-----------------------|---|---|---|---|---|
| Part program storage length | 10 m | ○ | — | ○ | — | ○ |
| | 20 m/40 m/80 m | ☆ | — | ☆ | — | ☆ |
| | 120 m | ☆ | ○ | ☆ | ○ | ★ |
| | 320 m | ☆ | ☆ | ☆ | ☆ | ★ |
| Registered programs | 63 pieces | ○ | ○ | ○ | ○ | ○ |
| | 125 pieces/200 pieces | ☆ | ☆ | ☆ | ☆ | ☆ |
| Sequence number search | | ○ | ○ | ○ | ○ | ○ |
| Program number search | | ○ | ○ | ○ | ○ | ○ |
| Optional block skip | 1 piece | ○ | ○ | ○ | ○ | ○ |
| | 9 pieces | ☆ | ☆ | ☆ | ☆ | ☆ |
| Sequence number comparison and stop | | * | * | * | * | * |
| External work number search | 15 pieces | ○ | ○ | ○ | ○ | ○ |
| Program protect | | ○ | ○ | ○ | ○ | ○ |
| Background editing | | ☆ | ○ | ☆ | ○ | ☆ |
| Extended part program editing | | ☆ | ☆ | ☆ | ☆ | ☆ |

| Display | | | | | | |
|--|---|---|---|---|---|---|
| Multi-language display | English | ○ | ○ | ○ | ○ | ○ |
| | Japanese/German/French/ Chinese/Korean/Italian/ Spanish | ☆ | ☆ | ☆ | ☆ | ☆ |
| Run hour and parts count display | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Display of spindle speed and T code at all screens | | * | * | ○ | ○ | ○ |
| Actual speed display | | ○ | ○ | ○ | ○ | ○ |
| Directory display of floppy cassette | | ☆ | ☆ | ☆ | ☆ | ★ |
| Graphic display | | ☆ | — | ☆ | ○ | ☆ |
| Dynamic graphic display | | ☆ | ○ | — | ○ | — |

| External data input/output | | | | | | |
|-------------------------------------|-------------------|---|---|---|---|---|
| External key input | | ☆ | ☆ | ☆ | ☆ | ☆ |
| External tool offset | | ☆ | ☆ | ☆ | ☆ | ☆ |
| External message | | ☆ | ☆ | ☆ | ☆ | ☆ |
| External data input | | ☆ | ☆ | ☆ | ☆ | ☆ |
| External work number search | 15 pieces | ○ | ○ | ○ | ○ | ○ |
| External I/O device control | | ☆ | ☆ | ☆ | ☆ | ☆ |
| Remote buffer | | ☆ | ☆ | ☆ | ☆ | — |
| High-speed remote buffer A | | ☆ | ☆ | ☆ | ☆ | — |
| High-speed remote buffer B | | ☆ | ☆ | — | — | — |
| Input/Output simultaneous operation | | ☆ | ☆ | — | — | — |
| External machine zero point shift | | ☆ | ☆ | ☆ | ☆ | ☆ |
| GE Fanuc FA Card | 20m, 80m, 160m | ☆ | ☆ | ☆ | ☆ | ☆ |
| GE Fanuc FLOPPY CASSETTE | 2.500 m | ☆ | ☆ | ☆ | ☆ | ☆ |
| GE Fanuc PROGRAM FILE Mate | 50.000m, 100.000m | ☆ | ☆ | ☆ | ☆ | ☆ |
| GE Fanuc PPR | | ☆ | ☆ | ☆ | ☆ | ☆ |

Distinguished Control Capabilities

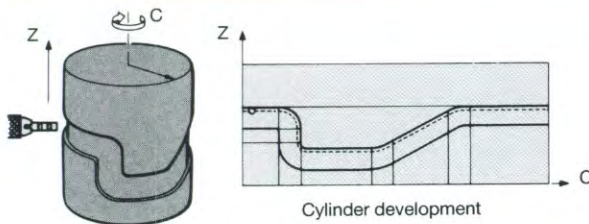
Tool Life Management

| TOOL LIFE DATA | | | | 00001 N0001 | |
|--------------------|------|------|------|-------------|-----------|
| GROUP | 001 | LIFE | 0100 | COUNT | 0000 |
| SELECTED GROUP 000 | | | | | |
| 0001 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| GROUP | 002 | LIFE | 0150 | COUNT | 0000 |
| 0052 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| 0000 | 0000 | 0000 | 0000 | 0000 | 0000 |
| TO BE CHANGED : | | | | | |
| NUM | | | | | |
| (OFFSET){MACRO } | | AUTO | | { WORK } | {TOOLLF } |

Tools can be classified into various groups, and the tool life and the tool numbers for each group can be arranged in the NC memory in the form of a table. In the event that a certain tool in a group reaches its life while machining is in progress, it is automatically replaced by another tool in the same group which is still useful. This feature enables automation of tool

life management and thereby can be of great assistance in achieving full Factory Automation.

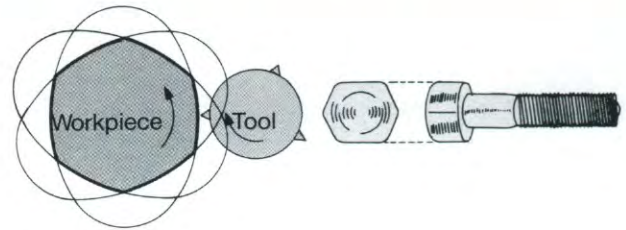
Cylindrical Interpolation



This feature is ideally suited to cylindrical groove cutting needs. Programming can be performed precisely as the cylinder is developed. Cutter radius compensation is also carried out simply using the G41 or G42 command. The CNC converts this information into rotary axis movement based on the cylinder radius as instructed.

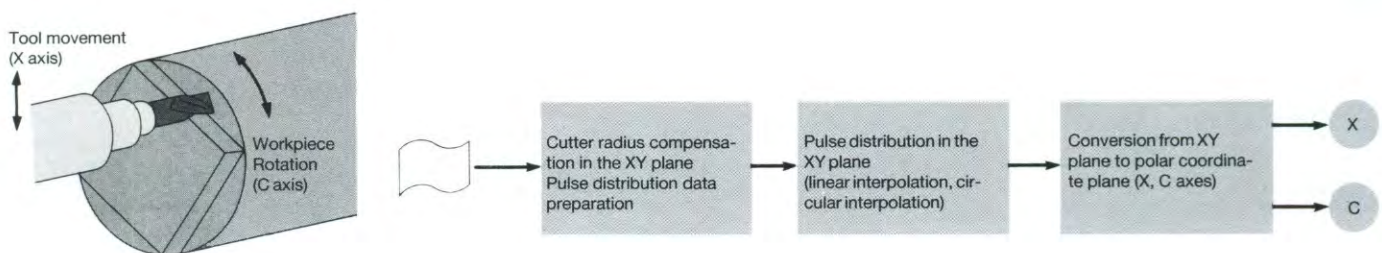
Polygon Turning

Polygon machining is a method of machining whereby polygonal shapes are achieved by rotating the workpiece and a tool at a fixed ratio. The result – tetragon, hexagon, etc. – varies according to two machining conditions: (1) the rotation ratio between the workpiece and the tool, and (2) the number of cutters. Because it is impossible to achieve a perfect polygon, machining of this type is generally suited to applications such as square or hexagonal bolt heads and hexagonal nuts. (Example) Workpiece/tool rotation ratio: 1:2, 3 cutters at 120° intervals: hexagon



Polar Coordinate Interpolation

This feature is ideal for cam grinding and face milling (X, C axis) using a lathe. The machining profile can be programmed using a cartesian coordinate system. Cutter radius compensation can also be carried out simply by commanding G41 or G42. Thereafter, movement of the linear axis (X axis) and rotary axis (C axis) is converted in the CNC.



Background Editing

While performing one machining process, it is possible to edit the program for the subsequent process. Because machining and programming can thereby be performed simultaneously, maximum cost efficiency can be obtained for the machine tool.

Fully Electronic Absolute Position Detector (Patent pending)

The AC servo motor features a built-in fully electronic absolute position detector which retains the specified machine coordinates even if power to the CNC is turned off. This greatly simplifies operation by eliminating the need to carry out reference point return normally required when power is turned on. The absolute position detector is fully electronic and uses no gears or other mechanical components. The result is extremely high reliability with no problems relating to wear, etc.

Ladder Diagram Display

When using ladder diagram type programs, it is possible to display the ladder on the CRT screen. Display can also be prevented by a special lock feature (patent pending). So called dynamic display is performed and it enables to monitor switching status of contacts.

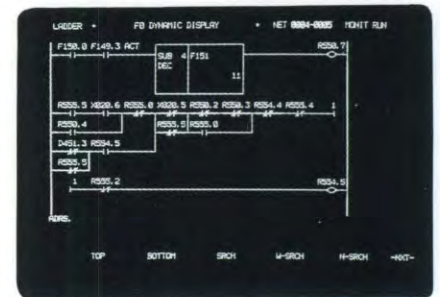


Table 1. Range of command value (In case of increment system 0.001mm, 0.0001 inch)

| | | Metric thread for feed screw | | Inch thread for feed screw | |
|-----------------------------|----------|--|--|--|--|
| | | Metric input | Inch input | Metric input | Inch input |
| Least input increment | | 0.001mm | 0.0001 inch | 0.001mm | 0.0001 inch |
| Least command increment | | 0.001mm | 0.0001 inch | 0.001mm | 0.0001 inch |
| Interpolation unit | | 0.001mm | 0.0001 inch | 0.001mm | 0.0001 inch |
| Max. programmable dimension | | ± 99999.999mm | ± 99999.999 inch | ± 99999.999mm | ± 99999.999 inch |
| Rapid traverse range | | 30~10000mm/min | 30~10000mm/min | 3.0~4000.0inch/min | 3.0~4000.0inch/min |
| Feedrate range | Feed/min | 1~10000mm/min | 0.01~4000.00inch/min | 1~10000mm/min | 0.01~4000.00inch/min |
| | Feed/rev | T system 0.0001~500.0000mm/rev M system 0.01~500.00mm/rev | T system 0.000001~9.999999inch/rev M system 0.0001~9.9999inch/rev | T system 0.0001~500.0000mm/rev M system 0.01~500.00mm/rev | T system 0.000001~9.999999inch/rev M system 0.0001~9.9999inch/rev |
| Jog feed range | | 0~1260mm/min | 0~50.0inch/min | 0~1260mm/min | 0~50.0inch/min |
| Max. programmable thread | | 5000.000mm | 9.999999inch | 500.000mm | 9.999999inch |
| Tool compensation | | ± 999.999mm | ± 99.9999inch | ± 999.999mm | ± 99.9999inch |
| Backlash compensation | | 0~0.255mm | 0~0.255mm | 0~0.0255inch | 0~0.0255inch |
| Pitch error compensation | | 0~± 0.007mm | 0~± 0.007mm | 0~± 0.0007inch | 0~± 0.0007inch |
| Dwell time | | 99999.999sec | 99999.999sec | 99999.999sec | 99999.999sec |

(Note) Range of command value may be prescribed otherwise depending on the machine tool.

Table 2. Detailed format classification (including options)

| | |
|---------------|--|
| Metric system | O04. N04. G02. αL + 053. βL + 053. R + 053. F034. S02/S05. T02/T04. P08. M03 * |
| Inch system | O04. N04. G02. αL + 044. βL + 044. R + 044. F016. S02/S05. T02/T04. P08. M03 * |

(Note) α, β: X, Z, C, Y, U, W, H or V

Table 3. Range of command value (In case of increment system 0.0001mm, 0.00001 inch)

| | | Metric thread for feed screw | | Inch thread for feed screw | |
|-----------------------------|----------|---|--|---|--|
| | | Metric input | Inch input | Metric input | Inch input |
| Least input increment | | 0.0001mm | 0.00001 inch | 0.0001mm | 0.00001 inch |
| Least command increment | | 0.0001mm | 0.00001 inch | 0.0001mm | 0.00001 inch |
| Interpolation unit | | 0.0001mm | 0.00001 inch | 0.0001mm | 0.00001 inch |
| Max. programmable dimension | | ± 9999.9999mm | ± 393.70078 inch | ± 9999.9999mm | ± 999.99999 inch |
| Rapid traverse range | | 3~24000mm/min | 3~24000mm/min | 3.0~960.0inch/min | 3.0~960.0inch/min |
| Feedrate range | Feed/min | 1~12000mm/min | 0.01~480.00inch/min | 1~12000mm/min | 0.01~480.00inch/min |
| | Feed/rev | T system 0.0001~500.0000mm/rev M system 0.01~99.99mm/rev | T system 0.000001~9.999999inch/rev M system 0.0001~9.9999inch/rev | T system 0.0001~500.0000mm/rev M system 0.01~99.99mm/rev | T system 0.000001~9.999999inch/rev M system 0.0001~9.9999inch/rev |
| Jog feed range | | 0~1260mm/min | 0~50.0inch/min | 0~1260mm/min | 0~50.0inch/min |
| Max. programmable thread | | 99.9999mm | 9.999999inch | 99.9999mm | 9.999999inch |
| Tool compensation | | ± 999.9999mm | ± 99.99999inch | ± 999.9999mm | ± 99.99999inch |
| Backlash compensation | | 0~0.2550mm | 0~0.2550mm | 0~0.02550inch | 0~0.02550inch |
| Pitch error compensation | | 0~± 0.0007mm | 0~± 0.0007mm | 0~± 0.00007inch | 0~± 0.00007inch |
| Dwell time | | 9999.9999sec | 9999.9999sec | 9999.9999sec | 9999.9999sec |

(Note) Range of command value may be prescribed otherwise depending on the machine tool.

Table 4. Detailed format classification (including options) (In case of increment system 0.0001mm, 0.00001 inch)

| | |
|---------------|--|
| Metric system | O04. N04. G02. αL + 044. βL + 044. R + 044. F034. S02/S05. T02/T04. P08. M03 * |
| Inch system | O04. N04. G02. αL + 035. βL + 035. R + 035. F016. S02/S05. T02/T04. P08. M03 * |

(Note) α, β: X, Z, C, Y, U, W, H or V

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