218MC MACHINING CENTER
CNC SYSTEM

Brief Introduction

218MC series CNC systems are upgraded products from GSK218M. As the high-speed spline interpolation algorithm is employed in the system, the machining speed and precision and surface fineness are greatly improved. The new-designed interface is user-friendly; The CNC system supports GSK-Link Ethernet bus function and it is much easier to connect; and supports macro programs of statement type (macro B), which makes the programming more concise. The CNC system can be applied in such areas as Milling Machine, Machining Center, high-speed Engraving, Grinding Machine and Gear Hobbing Machine.

Characteristics

- Excellent high-precision and high-speed interpolation performance; complex curve surface machining effective speed: 8m/min; optimum machining speed: 4m/min;
- Max. Positioning speed: 60m/min; max. feedrate: 15m/min;
- Up to 1000 blocks look-ahead capacity, powerful pre-processing function, featuring high speed, high precision and good finish.
- There are three structural types: horizontal, vertical and integrated, which adopting 8.4” or 10.4” color LCD with 800 x 600 resolution.
- The interface is comfortable, friendly and easy to use.
- Support Chinese, English, Russian, Spanish and Turkish language.
- Support PLC online monitoring, edit, compile and signal follow functions.
- Support turret type, circular and servo tool magazines etc.
- Support Statement type macro programs (macro B), which makes the programming more concise.
- With abundant help information and a big amount of prompt information, it is easy for user to learn, operate and debug.
- Support RS232, USB and network interfaces and realize data transfer, DNC machining and USB on-line machining.
Machined Parts

Input of MJB Deconcentrator (Without Relay)

Output of MJB Deconcentrator (Without Relay)

Output of MJB Deconcentrator (With Relay)

Interface

Real-time monitoring of the running state

Machining program preview

Auto tool setting

Support ladder monitoring and edit online

Prompt a big amount of information

Clear meaning of parameters
### Technical Specification

#### Motion control
- Controlled and linked axes: standard; 4-axis with 3-axis linkage (standard) and 4-axis linkage (option); each axis can be set to rotary or linear axis by parameter.
- Interpolation type: positioning (G00), linear (G01), arc (G02, G03), helical interpolation
- Position instruction range: Metric: -9999.999mm~99999.999mm, min. Input increment: 0.001 mm
  Inch: -9999.9999inch~99999.9999inch, min. Input increment: 0.0001 inch
- Electronic gear: instruction multiplication coefficient 1~65536, instruction division coefficient 1~65536
- Rapid traverse speed: max. 60m/min
- Rapid override: F0, 25%, 50%, 100% real-time adjustment in 4 levels
- Cutting feedrate: max. 15m/min (G94) or 500.00mm/r (G95)
- Feed override: 0~200% real-time adjustment in 21 levels, can be controlled by band
  MPG feedrate: 0.001mm, 0.01mm, 0.1mm, 3 levels;
  Single step feedrate: 0.001mm, 0.01mm, 0.1mm, 1mm, 4 levels;

#### Acceleration and deceleration
- Pre acceleration/deceleration: The acceleration/deceleration before interpolation can select the linear or S type, and the acceleration/deceleration time constant can be set by parameter
- Post acceleration/deceleration: the acceleration/deceleration after interpolation can select the linear or exponential type, and the acceleration/deceleration time constant can be set by parameter
- Post acceleration and deceleration is default in manual, MPG and step mode.
  Pre acceleration/deceleration or Post acceleration/deceleration type can be selected in cutting and rapid positioning.

#### Miscellaneous function
- M function can be specified by address M and 2 digits, M function can be user-defined
- M instructions (cannot be defined again): end of program M02, M30; program stop M00; optional stop M01; tool magazine calling M08; subprogram calling M98; end of subprogram M99
- M codes defined by the standard PLC: M03, M04, M05, M06, M08, M10
- M11, M16, M17, M18, M19, M20, M21, M22, M23, M24, M25, M26, M27, M28, M29, M35, M36, M44, M45, M50, M51

#### Tool function
- 5T and 4 digits select the tool ● 256 sets tool offset value ● tool length compensation ● wear compensation ● tool nose radius compensation (C type)
- S: 2 digits (I/O gear control) / S: 5 digits (analog output) ● max spindle speed limit
- Constant surface speed

#### Spindle function
- Spindle encoder: resolutions can be set (100~5000ppr)
- Transmission ratio between encoder and spindle: (1~255) ● (1~255)
- Spindle rate: 500~12000, real-time adjustment in 8 levels real-time adjustment in 8 levels, can be controlled by band
- Tapping cycle: Rigid tapping and flexible tapping

#### Automatic compensation
- Pitch error compensation: interval and origin point of compensation can be set
  Range: -999~+9999 pulse equivalent
- Backlash compensation: compensated by fixed frequency or acceleration / deceleration type can be selected
- Tool length compensation: the type (A or B type) can be selected by parameter
- Tool radius compensation: C type tool compensation
  Max. compensation value: ±999.999mm or ±99.9999inch
| Reliability and safety | State signals: ● emergency stop ● overtravel ● stored stroke limit ● NC ready signal ● servo ready signal ● MST completion signal ● automatic run start light signal ● automatic running signal ● feed hold light signal
| Self-diagnosis function: ● signal abnormality ● system abnormality ● position control abnormality ● servo abnormality ● communication abnormality ● spindle abnormality and so on.
| NC alarm: ● program error ● operation error ● overtravel error: ● servo error; ● connection error ● PLC error ● memory (ROM and RAM) error

| Operation function | ● edit ● auto ● MDT ● zero return ● Manual ● step ● MPG ● DNC ● single block ● skip ● dry run ● M.S.T. Lock ● program restart ● MPG interruption ● step interruption ● Manual intervention ● machine lock ● interlock ● feed hold ● cycle start ● emergency stop ● external reset signal ● external power switch (ON/OFF)

| Display | ● GSK218MC and GSK218MC-V adopt 10.4● color LCD with 800×600 resolution;
| ● GSK218MC-H adopt 8.4● color LCD with 640×480 resolution;
| ● Chinese, English, Russian, Spanish and Turkish interfaces can be selected by parameter.
| ● Position message ● User program ● system setting ● PLC ● diagnosis information ● system parameter ● graph ● alarm information ● Help ● actual federate and spindle speed ● real-time wave diagnosis ● System running time and other NC instructions and state messages

| Program edit | Program capacity: 57MB, max. 400 programs;
| ● program preview ● program edit ● Background edit

| PLC function | PLC processing speed: 3 us/ per step; up to 4700 steps; including 10 basic instructions and 35 functional instructions; ladder can be edited on-line;
| I/O: 48 input / 48 output, expandable

| Communication | Support RS-232 serial port, USB and network interface, can realize data transfer, DNC machining (serial port or net interface) and USB on-line machining.

| Optional drive unit | DA98 series and GS series digital AC Servo etc.

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**Overall Installation Dimensions**

**218MC-H NC Unit**
218MC-H Operation Panel

218MC-V NC UNIT