Specifications

Spindle specifications (Please select the spindle specifications)

1. Standard spindle (BM-Q)
2. Universal head spindle (BM-U)
3. High speed spindle (BM-H)

Standard spindle (BM-Q) Accessories

1. Mist unit for spindle gear

Optional Accessories for standard spindle (BM-Q)

1. High-Power 45kW (60.3HP) spindle

Universal head spindle (BM-U) accessories

1. A-axis rotary scale
2. Step-up transformer

High speed spindle (BM-H) accessories

1. Step-up tranformer

Pallet Specifications

1. 1 000 × 1 000mm [39.4 × 39.4in] 36×M20 (Standard pallet specifications)
2. 1 250 × 1 250mm [49.2 × 49.2in] 60×M20 (Optional pallet specifications)
3. 800 × 1 000mm [31.5 × 39.4in] 34×M16 (Optional pallet specifications)
4. 1 000 × 1 000mm [39.4 × 39.4in] T slot 22mm [0.9in] (JIS3 Grade) 6 pieces (Optional pallet specifications)
5. 1 250 × 1 250mm [49.2 × 49.2in] T slot 22mm [0.9in] (JIS3 Grade) 8 pieces (Optional pallet specifications)
6. 800 × 1 000mm [31.5 × 49.2in] T slot 18mm [0.7in] (JIS3 Grade) 5 pieces (Optional pallet specifications)

Standard Accessories

1. Numerical control system TOSNUC PX200
2. Auto power OFF unit
3. Plug socket for connecting an external device (AC 100 V, 5 A)
4. Pallet edge locators (3 pieces / 1 pallet)
5. Table bed cover (X-axis cover, Telescopic steel cover, Horizontal)
6. Column cover (Y-axis cover, bellows cover, Longitudinal)
7. Column bed cover (Z-axis cover, Telescopic steel cover, Horizontal)
8. Lubrication unit (for B-axis)
9. Operator call lamp (3 colors: red, yellow and green)
10. Hinged plate conveyor (X-axis, 2 set)
11. Coil conveyor (Z-axis, 2 set)
12. Splash cover
13. Automatic tool changer (60 tools)
14. Automatic pallet changer (2 pallets)
15. APC stage for setup (Checkered plate)
16. Hydraulic unit (*)
17. Oil cooler (*)
18. Installation parts
19. Assembly and reassembly tools for maintenance

*: Specifications differ by the spindle specification.

Optional accesories

1. Flood coolant set
2. Through-spindle coolant set
   ・Pump source pressure 1.0 MPa [145.0 psi]
   ・Pump source pressure 2.0 MPa [290.1 psi]
3. Through-tool coolant set (only BM-Q)
   ・Pump source pressure 1.0 MPa [145.0 psi]
   ・Pump source pressure 2.0 MPa [290.1 psi]
4. Chip blow air unit (only BM-Q)
5. Mist coolant system
6. Coolant / air blow unit (only BM-Q)
7. Shower coolant set
8. APC cover
9. APC fence
10. X, Y, Z-axis Ball Screw Cooling System
11. The maximum loading 4 500 kg [9 920.8 lb]
12. Automatic tool changer (ATC)
    Tool storage capacity: Choose one type from "90, 120 tools".
13. Optional pull stud
14. Automatic measuring function
15. Calibration block (for automatic measuring function)
16. Automatic tool length measuring function
17. Master tool (for automatic tool length measuring function)
18. Test bar
    ・tool diameter: 60 mm [2.4 in]
    ・tool length: 310 mm [12.2 in]
19. Earth leakage protection device
20. Linear scale feedback: X, Y, Z-axis
21. Rotary scale feedback: B-axis
22. Chip bucket (C)
    Bucket capacity: Approx. 0.18 m³ [180 L] [47.6 gal]
23. Customer's designated machine exterior painting color
24. External M-code output.
25. Multi-pallet magazine system
    The number of pallets will be changed for your choice from basic 2 pallets. Choose one type from "6, 8, 10 pieces".
26. Collet MAS-II (BM-Q, BM-U)
    Collet is changed from MAS-TYPE I to MAS-TYPE II.
27. Through-spindle air blow
28. Through-spindle coolant / air blow
29. Change scoffolding to grating for APC
30. APC step for APC cover
31. APC step for APC fence
32. Operator call lamp addition
33. Safety specification conformity with CSA (CANADA).

CNC system specifications TOSNUC PX200 standard specifications

1 Controlled axes
- 1-1.Controlled axes
  - X,Y,Z,B,W 5 axis (BM-Q)
  - X,Y,Z,B,A 5 axis (BM-U)
  - X,Y,Z,B, 4 axis (BM-H)
- 1-2.Simultaneously controllable axes
  - 5 axis (X,Y,Z,B,W) (BM-Q)
  - 5 axis (X,Y,Z,B,A) (BM-U)
  - 4 axis (X,Y,Z,B) (BM-H)
  - Positioning(G00),Linear interpolation (G01)
  - 2 axes for circular interpolation (G02,G03) X-Y,Y-Z,Z-X

2 Programming methods
- 2-1.Programming resolution
  - Linear axis: 0.001mm
  - Rotary axis:B-axis:0.0001 deg
  - A-axis:0.0001 deg (BM-U)
- 2-2.Maximum programmable dimension
  - Linear axis: ±99999.999mm
  - Rotary axis: ±9999.9999deg
- 2-3.Data code
  - Automatic recognition of ISO/EIA code
- 2-4.Data format
  - Variable blocks with Decimal point programming Word address format
- 2-5.Decimal point input
  - Calculator type/Programming resolution type

3 Interpolation
- 3-1.Positioning
- 3-2.Linear interpolation
- 3-3.Circular interpolation

4 Feed
- 4-1.Rapid traverse rate
- 4-2.Feedrate
- 4-3.Dwell
- 4-4.Manual continuous feed
- 4-5.Rapid traverse rate override
- 4-6.Feedrate override
- 4-7.Automatic acceleration / deceleration
- 4-8.S type acceleration / deceleration for rapid traverse rate
- 4-9.High quality mode function
- 4-10.Feedrate clamp

5 Part program storage and edit
- 5-1.Part program storage 2GB
- 5-2.Part program edit function
- 5-3.Background edit function
- 5-4.Program name
- 5-5.Sequence number
- 5-6.Sequence number search
- 5-7.Program nesting list
- 5-8.Program offset list
- 5-9.Program check

6 Operation and display
- 6-1.Customized keys
- 6-2.Parameter editing
- 6-3.Tool file
- 6-4.Display function
- 6-5.Display clear function
- 6-6.S.F. manual setting
- 6-7.S.F. auto setting
- 6-8.Spindle drive motor load display
- 6-9.Working time display
- 6-10.Counting of lot number
- 6-11.Calendar timer
- 6-12.Machining record
- 6-13.Register of users' names
- 6-14.Memory operation
- 6-15.MDI operation
- 6-16.PC HMI
- 6-17.Machining display
- 6-18.Home display
- 6-19.Instruction manual viewer

7 I/O function and devices
- 7-1.RS232C interface port A
- 7-2.USB memory

8 S,T and M functions
- 8-1.Spindle speed function (S-function)
- 8-2.Spindle speed override
- 8-3.Tool function (T-function)
- 8-4.Miscellaneous function (M-function)

9 Tool offset
- 9-1.Tool length offset
- 9-2.Tool offset
- 9-3.Cutter compensation C
- 9-4.Nunmber of tool offsets

10 Coordinate system
- 10-1.Coordinate system setting
- 10-2.Fixture offset
- 10-3.Fixture offset 2
- 10-4.Return to 2nd, 3rd or 4th reference point

11 Operation support function
- 11-1.Control in/out
- 11-2.Single block
- 11-3.Optional block skip
- 11-4.Dry run
- 11-5.Machine lock
- 11-6.Auxiliary function lock
- 11-7.Axis feed cancel
- 11-8.Manual absolute ON/OFF
- 11-9.Override cancel
- 11-10.Mirror image
- 11-11.All clear
- 11-12.Command Reset
- 11-13.Feed hold
- 11-14.Cycle stop
- 11-15.Restart
- 11-16.Sequence number collation and stop
- 11-17.Manual numerical command
- 11-18.Single block control
- 11-19.Feed hold control
- 11-20.Override control
- 11-21.Handwheel feed interruption control
- 11-22.Manual interruption and manual return
- 11-23.Program command alarm detailed display

12 Programming support function
- 12-1.Plane selection
- 12-2.Circular interpolation by radius Programming
- 12-3.Circle cutting
- 12-4.Machine coordinate system positioning command
- 12-5.Subprogram call
- 12-6.Random angle chamfering and corner R programming
- 12-7.Canned cycle
- 12-8.Automatic acceleration / deceleration for feed
- 12-9.Automatic corner override

13 Mechanical error compensation
- 13-1.Backlash compensation
- 13-2.Pitch error compensation
- 13-3.Zero point correction function
- 13-4.Non-linear compensation control
- 13-5.Preview positioning control + feed forward
- 13-6.Uni-directional positioning

14 Machine control support function
- 14-1.Integrated PLC
- 14-2.Feed interlock

15 Safety and maintenance
- 15-1.Emergency stop
- 15-2.Overtravel check
- 15-3.Stored stroke check
- 15-4.Interference check II
- 15-5.Self-diagnosis
- 15-6.Software configuration display
- 15-7.Alarm display and alarm history
- 15-8.History of key operation, alarm and operating condition
- 15-9.Display copy
- 15-10.Machine operating status
- 15-11.Dairy inspection
- 15-12.Fault diagnosis
- 15-13.Life management
- 15-14.Motor load

CNC system specifications TOSNUC PX200 pack specification

Q BM-Q *Items marked are included in the pack specification   U BM-U *Items marked are included in the pack specification   H BM-H *Items marked are included in the pack specification

Item	Q	U	H
1 Controlled axes			
1-1.Synchronously controlled axes	Q	U	H
1-2.Additional controlled axes			
2 Programming methods			
2-1.Inch/metric selection			
3 Interpolation			
3-1.Helical circle interpolation	Q	U	H
3-2.Hypothetical axis interpolation			
3-3.Cylindrical interpolation			
3-4.Involute interpolation			
3-5.Archimedean interpolation			
3-6.Spindle normal direction control (i.e., spring necked turning function)			
3-7.Parabolic interpolation			
4 Feed			
4-1.Synchronous tapping	Q	U	H
4-2.Thread cutting			
4-3.Feed per revolution/feed per minute			
4-4.Dwell per revolution			
4-5.Tapping range selection	Q	U	H
4-6.Random angle thread cutting			
4-7.Spindle inertia thread-cutting			
4-8.Position encoder			
4-9.Handwheel feed	Q	U	H
4-10.Synchronous thread cutting			
4-11.Inverse time feed			
5 Part program storage and edit			
5-1.Part program storage			
6 Operation and display			
6-1.Display combination			
6-2.External position display			
6-3.MPG with display			
7 I/O function and devices			
7-1.DNC I/F			
7-2.Remote buffer operation			
7-3.Binary operation			
7-4.External data input			
7-5.High-speed LAN-linkage			
8 S,T and M functions			
8-1.Constant surface speed control			
9 Tool offset			
9-1.Additional number of tool offsets	Q	U	H
9-2.Tool wear compensation memory			
9-3.Three (3)-dimensional tool compensation			
9-4.Tool length offset in tool axial direction		U	
10 Operation support function			
10-1.Manual alignment (or centering) function	Q	U	H
10-2.Handwheel feed interruption	Q	U	H
10-3.Handwheel feed in tool axial direction		U	
10-4.Foreground plotting function			
10-5.Manual tool length and tool diameter measurement	Q	U	H
10-6.S.F. increase/decrease			
10-7.Additional optional block skip			
10-8.Manual reverse function			
11 Programming support function			
11-1.Teaching	Q	U	H
11-2.Programmable mirror image			
11-3.Programmable data input			
11-4.Programmable parameter input			
11-5.Macro program	Q	U	H
11-6.Pattern cycle	Q	U	H
11-7.Coordinate conversion	Q	U	H
11-8.Three (3)-dimensional coordinate conversion			
11-9.Figure copy function			
11-10.Circle compensation cutting			
11-11.Hole position pattern cycle division into NC statements			
11-12.Zone machining			
11-13.Orbit boring function			
11-14.Spindle C-axis control			
11-15.In-corner machining			
12 Mechanical error compensation			
12-1.Pitch error gradient compensation	Q	U	H
12-2.Multiple gradient compensation	Q	U	H
13 Machine control support function			
13-1.External deceleration	Q	U	H
14 Automation support function			
14-1.Tool breakage and tool wear detection			
14-2.Counting of tool working time	Q	U	H
14-3.Feedrate regulation			
14-4.Spare tool selection	Q	U	H
14-5.Pallet retract function	Q	U	H
14-6.Program check & creation of slated tools			
14-7.Cutting start detection			
14-8.Tool wear coefficient function	Q	U	H
14-9.Tool ID interface function			
14-10.Interruptive macro			
14-11.W-axis travel distance conversion function			
14-12.Schedule operation			
14-13.Pallet schedule operation	Q	U	H
15 Safety and maintenance			
15-1.Interference check I	Q	U	H
15-2.Rotating axis stroke check			
15-3.Servo error display			
15-4.Servo temperature display			
15-5.Energy Monitoring			
15-6.Sensor-less cutting force detection			
16 High-accuracy machining & servo system			
16-1.Shape recognition preview control function (CNC SHAPE II)			
16-2.NURBS interpolation			
16-3.Load inertia measurement			
16-4.Tool tip position control			
16-5.5-axis Machine assembly error compensation		U	
16-6.SHAPE-SF function type III			
16-7.Work weight setting			