# SANDE S.A.

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600 600 0900

## MANDRINADORA CNC

## NEWAY PB110S

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# PB110S

## Horizontal Boring and Milling Center

PB110S CNC horizontal milling and boring center is a high-end research and development of advanced design technology in the field of structural design and manufacturing technology. It adopts the latest design technology (such as finite element analysis, virtual prototype simulation) in accordance with the modular design concept CNC machine tools, suitable for multi-step processing of face milling, boring / drilling, tapping, threading, car outer circle, and three-dimensional curved surface of medium-sized parts, which can be completed in multiple processes at one time

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## Machine Parameter

| | |
|---|---|
| • **Work range** | |
| Travel（X/Y/Z/W） | 2000/1600/1400/600 mm |
| B axis travel | 0~360° |
| Spindle center to work table（Y） | 100~1700 mm |
| Spindle end face to worktable | -40~1960 mm |
| • **Work table** | |
| Size | 1250×1400 mm |
| Loading weight | 5 Tons |
| T slot width | 28 mm |
| Guideway type | Linear guide way |
| • **Spindle** | |
| Spindle power | 15/18.5 kW |
| Spindle type | BT50 |
| Pull-stud type | MAS403 P50T-1 |
| Spindle speed | 10-2500 r/min |
| Spindle dia | φ110 mm |
| Torque | 1205/1487 Nm (30min) |
| Max Axial force | 15000 N |
| • **Speed** | |
| Rapid travel X/Y/Z/W | 9/9/9/6 m/min |
| Feeding rate X/Y.Z/W | 6/6/6/6 m/rpm |
| • **Axis moving** | |
| X axis ballscrew | 63X10 mm |
| Y axis ballscrew | 63X10 mm |
| Z axis ballscrew | 63X10 mm |
| • **Accuracy** | |
| Position Accuracy X/Y/Z/W | 0.02/0.02/0.02/0.02 mm |
| Position Accuracy B | 8" |
| Re position accuracy X/Y/Z/W | 0.01/0.01/0.01/0.015 mm |
| Re position accuracy B | 5" |
| • **Lubrication system** | |
| Lubrication tank volume | 3*4L |
| Lubrication pump power | 100W |
| • **Coolant system** | |
| Coolant tank volume | 900L |

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| | |
|---|---|
| Coolant tank motor power | 2.2 kW |
| Filter | First layer 16 mesh/ secound 40 mesh |
| Max. Coolant pressure | 0.9Mpa |
| Max flow | 4m³/h |
| • **Others** | |
| Power supply | 160A |
| Voltage/Hertz | 380V/50HZ |
| Air source pressure | 0.5~0.8MPa |
| Air flow | 500 L/min |
| Power volume | 55 KVA |
| Machine weight | 20000 Kg |
| Dimension | 5200X7200X4650 mm |

## Standard configuration

- FANUC 0i-MF5 CNC controller, 2MB system memory, 15/18.5KW spindle motor
- Max. 2,500 rpm spindle speed
- MPG
- B axis with linear scale
- High accuracy encoder from Germany/Spain
- Working light & lamp
- Auto chip conveyer and chip tank
- Spindle air blow
- Spindle air curtain
- Documents
- Tool kits
- Oil cooler for spindle
- Lubrication system

## OPTIONAL ACCESSORIES:

| NO. | Optional items |
|---|---|
| 1 | Coolant tank and chip conveyer |
| 2 | X/Y/Z axis with linear scale |
| 3 | CTS 20 bar |
| 4 | Full cover for worktable |
| 5 | 40 tools ATC |
| 6 | Spindle strong supporting sleeve |

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**Features**

NEWAY PB110S extra rigid design of main machine body and column ensure outstanding structural stability. One-piece machine base design with hybried box and linear ways on all axes provides fully support at the table. This machine is composed by main machine, rotary worktable and other options. Y axis apply electrical brake, B axis apply hydraulic brake. B axis is equipped with the circular encoder to realize full closed loop control. The 15/18.5KW 50 taper spindle runs with 2-speed gear headstock that generates maximum 1487NM to overcome most tough material cutting condition. The fully programmable rotary table comes with an angular scale that indexes minimum 0.001 degrees with 15 arc sec in positioning accuracy. The maximum part load is even up to 5 tons. The high quality of German INA C3 grade ball screws assure the machine positioning in 0.015mm always. The optional 40 or 60-tool magazine with double arm ATC accepts tool's weight up to 55 lbs.

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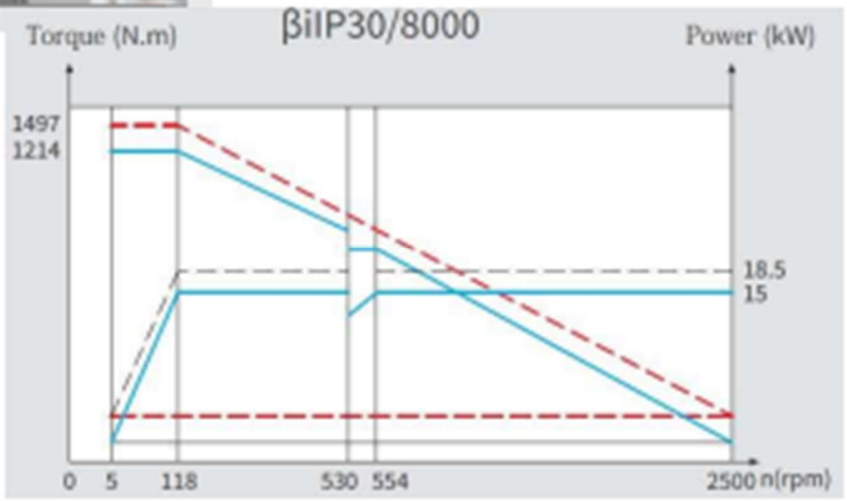
## Spindle

Expand and contract type high precision spindle is composed by boring shaft, milling shaft, tool pull system to realize big spindle torque and high speed milling.



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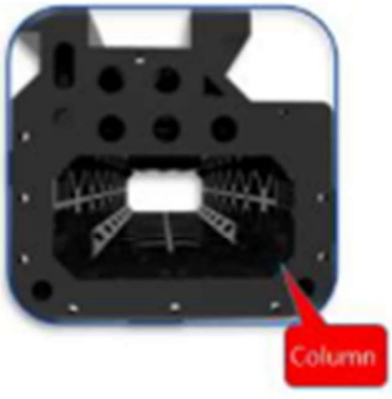
**Structure**

Compact structure, high quality components and precise machining to realize high machining accuracy and high machining stability. Equipped with the linear way to realize high torque, high precision, high loading capacity and good vibration absorption, good machining capacity, good machining precision and long using life.



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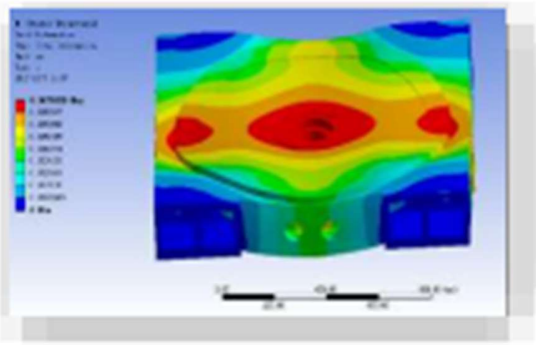
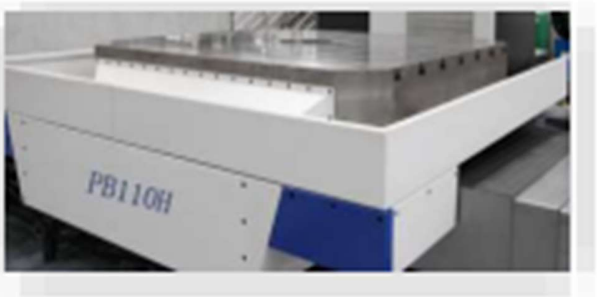
**High rigidity supporting system**

High quality steel HT300, second time gaining treatment and FEA analysis to guarantee high rigidity and stable precision






**Balance system**

Apply nitrogen balance cylinder to balance the spindle box to realize convenient adjust and accurate balance. Double nitrogen cylinder and double balance point to improve the spindle box precision, realize effective balance and anti-drop.

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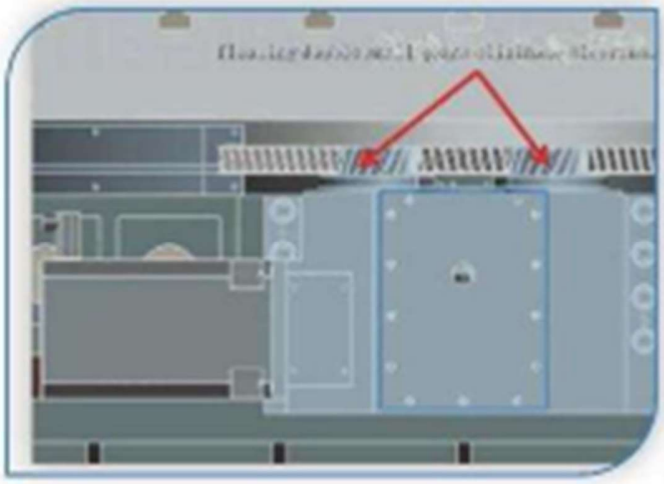
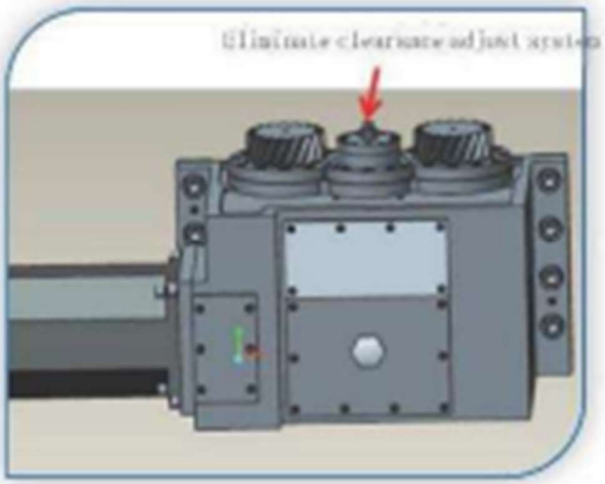
**B axis drive system**

Standard equipped transmission system, which is composed by servo motor, worm, worm shaft, floating double small gear and large gear ring to clear the reverse clearance, guarantee transmission precision and transmission rigidity.





**X/Y/Z axis drive system**

The X/Y/Z axis drive apply high precision ball screw, double nut preloading, imported synchronous belt drive to guarantee big drive force.

High precision synchronous belt drive

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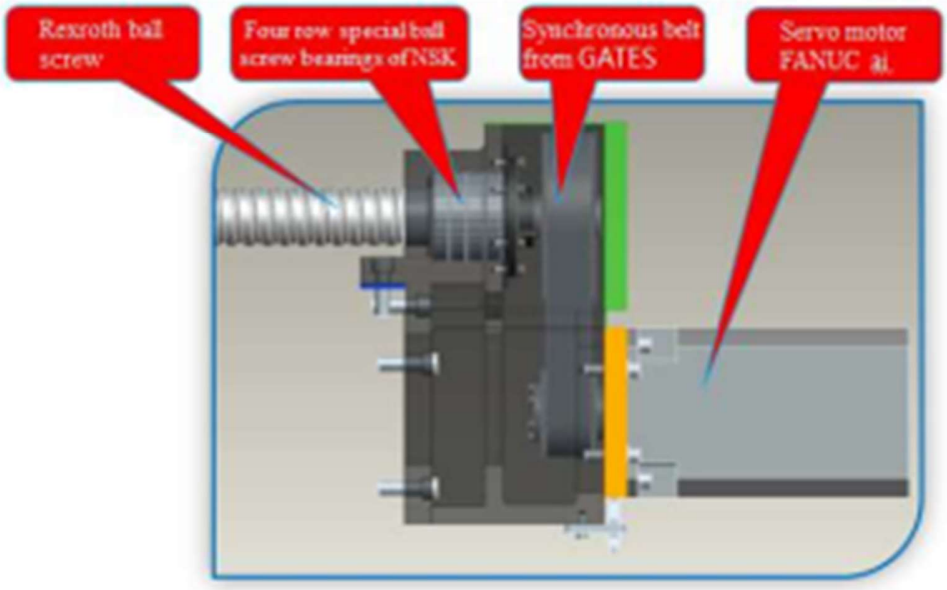
Rexroth ball screw
Four row special ball screw bearings of NSK
Synchronous belt from GATES
Servo motor FANUC ai.

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**Testing and feedback system**

B axis equipped with high precision Heidenhain angle encoder

X/Y/Z linear scale is optional.

**Humanized control box and auxiliary devices**

Humanized control panel, interface and rotary arm for convenient operation

Separated MPG for easy operation

Pull tool and loos tool buttons on the side of the spindle box to realize quick pull tool and quick emergency stop operation.

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**Details:**

Lubrication pipes

Neat pipe layout

Manual scrapping

Clean producing

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**Options:**

**Milling head**

Angular head | Extension angular head | Universal milling head

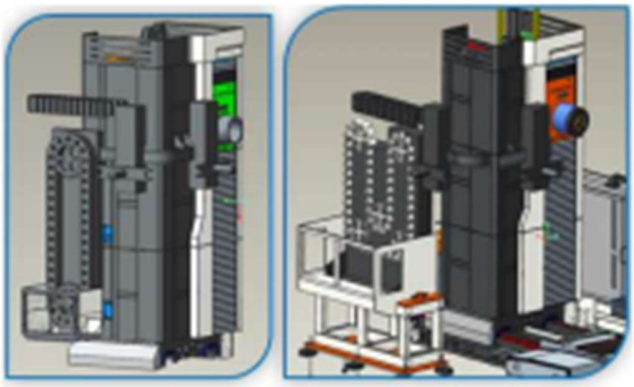
**Spindle supporting sleeve**

**Facing head**

Facing head A | Facing head B

**ATC Modularization design, universal for switching**

40 tools or 60 tools ATC can be equipped on the machine to improving machining efficiency. Two kinds installation type according to actual requirement.



Moving type | Floor type

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**Renishaw wireless tool and part probe**

**Neway 450 PSI high pressure coolant through spindle (CTS) with external 100 gallons coolant tanl and dual filters system.**

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## System controller

1. FANUC

● Standard ○ Optional X N/A

| No. | Item | | Spec. | 0I-MF Plus | |
|---|---|---|---|---|---|
| | | | | Type 1 | Type 5 |
| 1 | Controlled axis | Controlled axes | | 5 | 5 |
| 2 | | Additional controlled axes | | 7 | 6 |
| 3 | | Least command increment | 0.001 mm / 0.0001" | ● | ● |
| 4 | | Least input increment | 0.001 mm / 0.0001" | ● | ● |
| 5 | | Interpolation type pitch error compensation | | ● | ● |
| 6 | Interpolation & Feed Function | 2nd reference point return | G30 | ● | ● |
| 7 | | 3rd / 4th reference return | | ● | ● |
| 8 | | Inverse time feed | | ● | X |
| 9 | | Cylinderical interpolation | G07.1 | ● | ○ |
| 10 | | Bell-type acceleration/deceleration before look ahead interpolation | | ● | ● |
| 11 | | Automatic corner override | G62 | ● | ● |
| 12 | | Automatic corner deceleration | | ● | ● |
| 13 | | Manual handle feed | Max. 3unit | ● | ● |
| 14 | | Handle interruption | | ● | ● |
| 15 | | Manual handle retrace | | ● | ● |
| 16 | | Nano smoothing | AI contour control II is required. | ○ | X |
| 17 | | AICC I | 40 BLOCK | X | ● |
| 18 | | AICC II | 200 BLOCK | ● | X |
| 19 | | AICC II(Preview block number increase) | 400 BLOCK(Special hardware and AI contour control II) | ○ | X |
| 20 | Spindle & M | M- code function | | ● | ● |

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| | | | | | |
|---|---|---|---|---|---|
| 21 | code Function | Retraction for rigid tapping | | • | • |
| 22 | | Rigid tapping | G84, G74 | • | • |
| 23 | Tool Function | Number of tool offsets | 400 | 400 ea | 400 ea |
| 24 | | Tool nose radius compensation | G40, G41, G42 | • | • |
| 25 | | Tool length compensation | G43, G44, G49 | • | • |
| 26 | | Tool life management | | • | • |
| 27 | | Tool offset | G45 - G48 | • | • |
| 28 | Programming & Editing Function | Custom macro | | • | • |
| 29 | | Macro executor | | • | • |
| 30 | | Extended part program editing | | • | • |
| 31 | | Part program storage | 2MB(5120m) | • | • |
| 32 | | Inch/metric conversion | G20 / G21 | • | • |
| 33 | | Number of Registerable programs | 400 ea | 400 ea | 400 ea |
| 34 | | Number of Registerable programs | 1000 ea | ○ | ○ |
| 35 | | Optional block skip | 9 BLOCK | • | ○ |
| 36 | | Optional stop | M01 | • | • |
| 37 | | Program file name | 32 characters | • | • |
| 38 | | Sequence number | N 8-digit | N8 digit | N8 digit |
| 39 | | Playback function | | • | • |
| 40 | | Addition of workpiece coordinate system | G54.1 P1 - 48 (48 pairs) | 48 pairs | 48 pairs |
| 41 | | Addition of workpiece coordinate system | G54.1 P1 - 300 (300 pairs) | ○ | ○ |
| 42 | OTHER FUNCTIONS (Operation, setting & Display, etc) | Embeded Ethernet | | • | • |
| 43 | | Graphic display | Tool path drawing | • | • |
| 44 | | Loadmeter display | | • | • |
| 45 | | Memory card interface | | • | • |
| 46 | | USB memory interface | Only Data Read & Write | • | • |
| 47 | | Operation history display | | • | • |
| 48 | | DNC operation with memory card | | • | • |
| 49 | | Optional angle chamfering / corner R | | • | • |
| 50 | | Run hour and part number display | | • | • |
| 51 | | High speed skip function | | • | • |
| 52 | | Polar coordinate command | G15 / G16 | • | • |
| 53 | | Programmable mirror image | G50.1 / G51.1 | • | • |

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| | | | | | |
|---|---|---|---|---|---|
| 54 | | Scaling | G50, G51 | • | • |
| 55 | | Single direction positioning | G60 | • | • |
| 56 | | Pattern data input | | • | ○ |
| 57 | | Jerk control | AI contour control II is required. | ○ | X |
| 58 | | Fast Data server with1 GB PCMCIA card | | ○ | ○ |
| 59 | | Fast Ethernet | | ○ | ○ |
| 60 | | 3-dimensional coordinate conversion | | ○ | X |
| 61 | | Figure copying | G72.1, G72.2 | ○ | ○ |
| 62 | | Machining time stamp function | | ○ | ○ |
| 63 | | Manual Guide I with 10.4" Color TFT | | ○ | ○ |
| 64 | | Dynamic graphic display (with 10.4" screen) | | • | • |

**NOTE:**

- Price and specifications are subject to change without prior notice.
- Pictures and graphics are representative and may not be from the actual machine
- All specified values age given at standard electric power conditions (380v/50Hz).
- Machine dimension and weight are changed according to optional specification.
- Please refer to lay-out and foundation drawing in relation to installation.
- All specified values of pressure, flow rate of coolant, lubrication and hydraulic pump are given at pump outlet.
- Refer to the separated spec.sheets in relation to specification, function and option on controller.
- Available environment temperature: 10 ℃ to 40 ℃; best environment temperature 15 ℃ to 25 ℃, temperature shall not exceed ± 2 ℃ / 24 h. When the environment temperature is 20 ℃, humidity should be 40 ~ 75%.
- Coolant recommendation: water-soluble cutting fluid or oily cutting fluid is suitable for the cooling system. Note: the used cutting fluid cannot be dumped at will. It should be disposed to avoid environmental pollution.
- Read the mechanical and electric operation manual, and follow all the safety instructions before using the machine.
- One year control and spare part warranty for standard machine.
- Turn-key is available for all the inquires. Please inquire Neway application department for the turn-key proposal if needed
- For more details, please refer to the machine manual
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