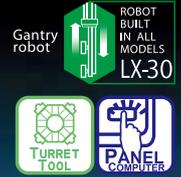


CS SERIES



Front Facing(Parallel)2 Spindle 2 Turret CNC Lathe with Gantry Robot.

This dual spindle, dual turret CNC lathe is engineered for performance, built fully automated with high speed gantry robot. Compact in size, the machine is designed to be highly rigid and accurate. The CSD200 with dual robot is available for high speed and high output production.



CSD300

The above photo includes options.

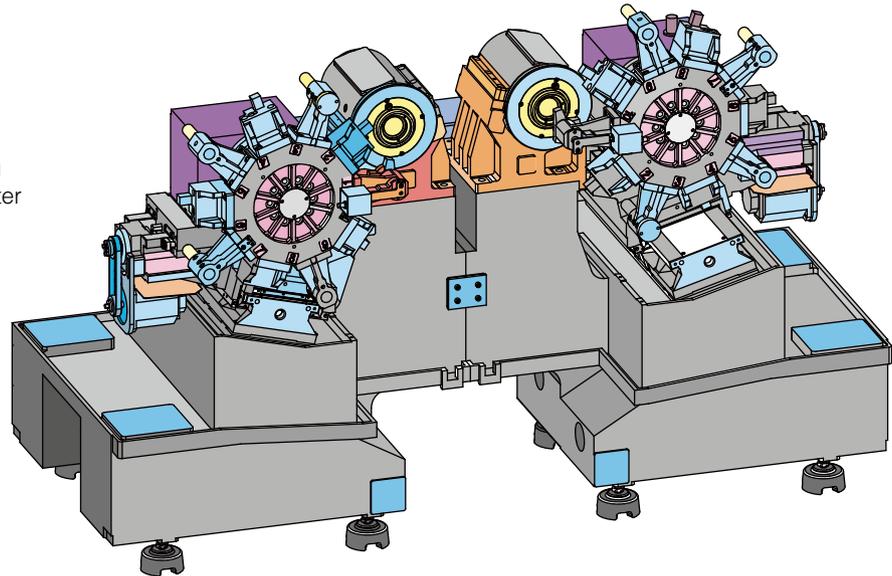
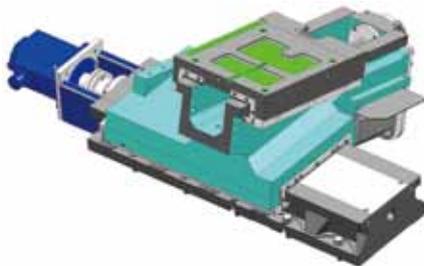
High Rigidity

Column

The thermally stable and space saving design bed is equipped with zero-center type headstock and high speed turret, ensuring optimum quality.

Highly Rigid Slides

The CSD 300/400 utilizes box way construction in both x and z axis. The compact CSD200 utilizes linear roller ways in both axis and long type slide for z axis for high rigidity. Ball screw rigidity has been improved by incorporating a 3 x 3 row x axis support bearing.



High Speed Indexing Turret

Cam type turret with high speed indexing by servo motor. Turret clamps by 3 piece hydraulic coupling eliminating cutting vibration to the lowest possible level.



Front Facing Modular machine with 1 Spindle, 1 Turret and Gantry Robot.

The CSS machine is suitable for line integration such as with the CSD dual spindle lathe for an efficient, automated pass through system.



CSD200 Dual-Gantry

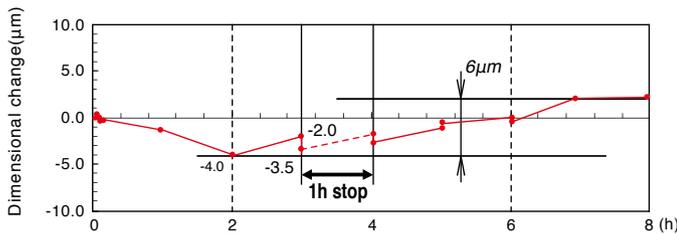


CSS300

The above photo includes options.

Excellent Thermal Displacement Properties

CSD200



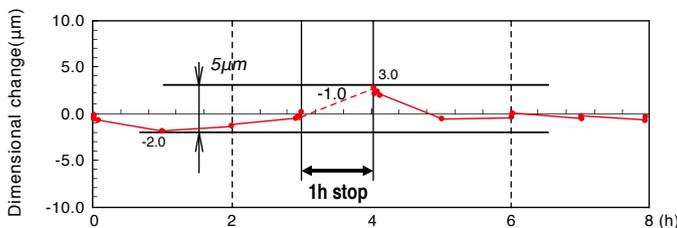
Dimensional change after 8h running

6.0µm

Dimensional change after 1h stop

1.5µm

CSD300/CSS300



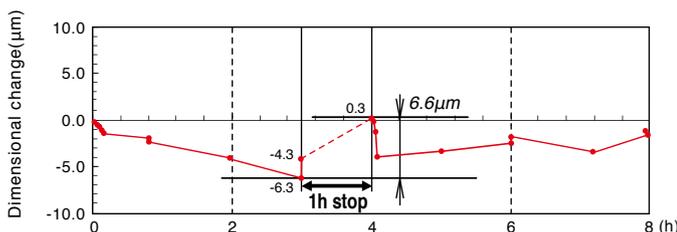
Dimensional change after 8h running

5.0µm

Dimensional change after 1h stop

4µm

CSD400/CSS400



Dimensional change after 8h running

6.6µm

Dimensional change after 1h stop

4.6µm

The above-mentioned data is actual values, but not a performance guarantee.

System Layout

Flexible machine configuration with various optional devices.

The high speed 3-axis gantry robot can access peripheral devices at the left and right of the machine.
With the use of various optional devices highly productive lines are developed.

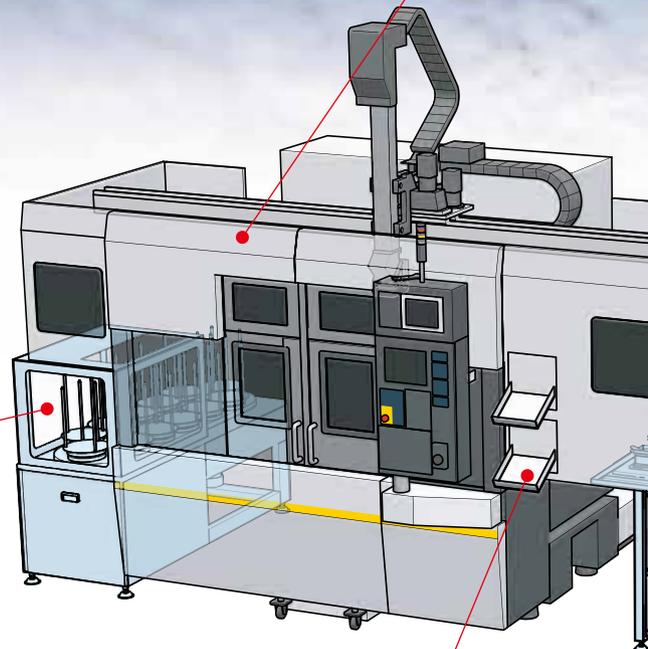
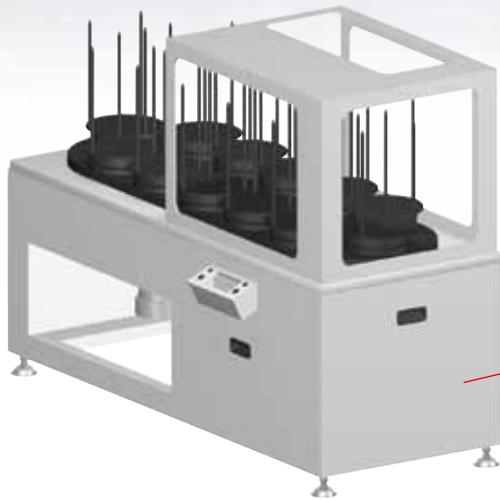
Work Turn Over Device

Enables front and back machining on the same machine. Residing in the robot traverse area, the turn over station has no influence on cycle time.



Work Stocker

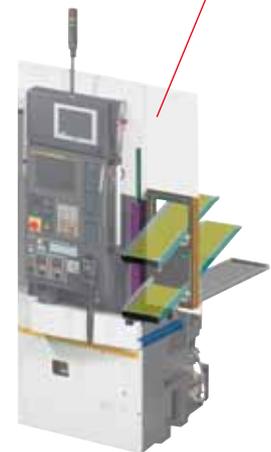
10/12/20 pallet work stockers available.

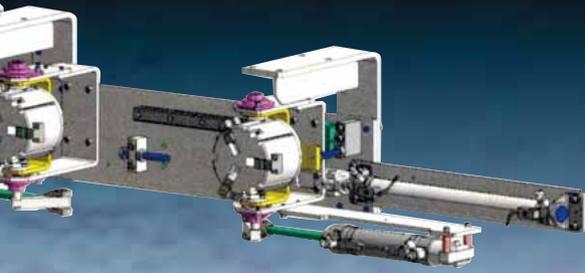


| | MP5-20 | MP5-30 | MP5-40 |
|----------------------|--------|--------|--------|
| Pallet quantity | 20 | 12 | 10 |
| Work size | ø120 | ø203 | ø300 |
| Max. stacking height | 345 | 325 | 315 |
| Max.load (pallet) | 25 | 40 | 50 |

Work Chute

The Robot periodically takes out the workpiece and puts it in the quality check chute. This chute is also used to discharge autogauging and seating confirmation NG parts.



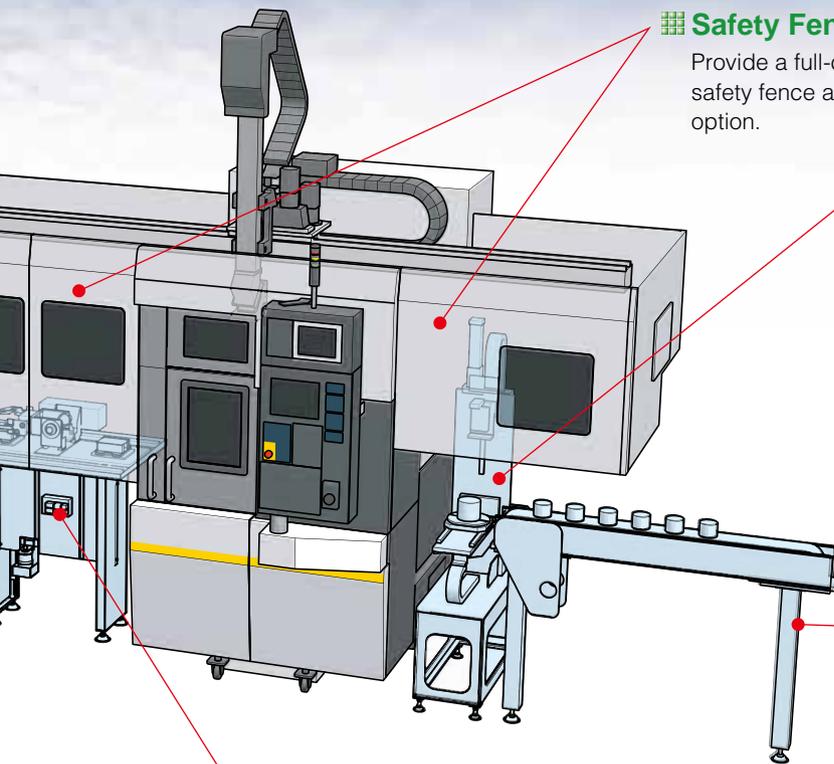


■ Safety Fence

Provide a full-cover type safety fence as an option.

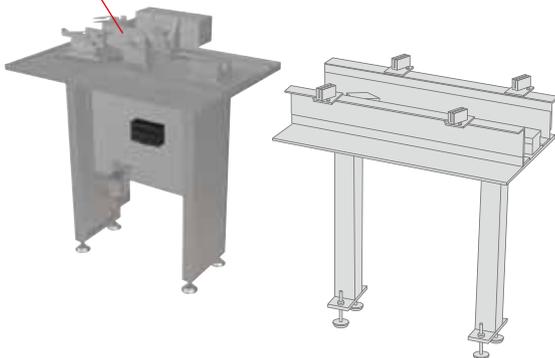
■ Auto Gauge

Placed on the side of the machine, this device ensures part quality by gauging specific process dimensions and automatically feeding back this information to the NC for dimensional compensation.



■ Conveyor

Transfer the work between machines in a fully automated way.



■ Parts Turn Over / Parts Shift Device

Parts shift device to automatically transfer parts to the next robot, or Parts Turn Over Device to present the parts in the correct orientation for the next process.

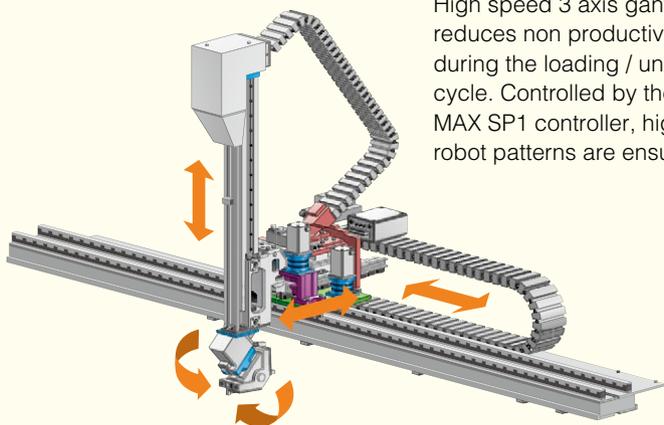
Three Axis Gantry Robot

LX-30

High speed 3-axis gantry robot

The 3-axis robot with Fuji MAX SP1 controller and swivel type robot chuck enables a significant reduction in part load/unload time.

High Speed 3 axis Gantry Robot



High speed 3 axis gantry robot reduces non productive times during the loading / unloading cycle. Controlled by the FUJI MAX SP1 controller, high speed robot patterns are ensured.

Swivel Head Robot Chuck



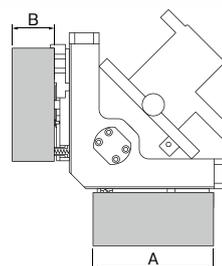
Non productive time reduction utilizing the swivel head design.

Fastest Robot in its class

| | | CSD200 (CSD200 Dual-G) | CSD300 (CSS300) | CSD400 (CSS400) |
|-----------------------|-------|---------------------------|--------------------|--------------------|
| Carrying capacity | kg | 3+3 | 5+5 | 15+15 |
| Max. traverse speed | m/min | 180 | 165 | 135 |
| Max. up/down speed | m/min | 150 | 120 | 75 |
| Max. front/back speed | m/min | 70 | 70 | 50 |
| Min. tact time | sec | 19.0(11.0) | 21.2(13.0) | 36.2(21.0) |

The above-mentioned data is actual values, but not a performance guarantee.

Robot Chuck

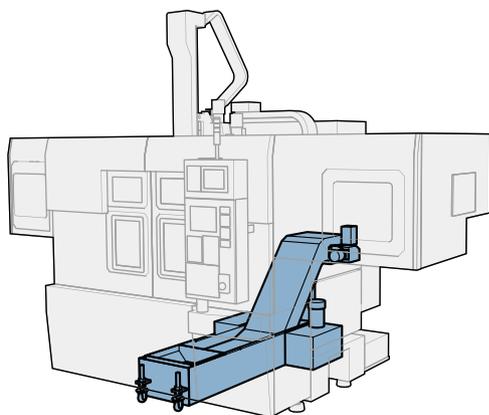


| | Work size (AxB) |
|--------|-----------------|
| CSD200 | ø120mm×60mm |
| CSD300 | ø200mm×100mm |
| CSS300 | |
| CSD400 | ø300mm×150mm |
| CSS400 | |

Class 300/400 utilizes hydraulic robot chucks – yielding better grip for faster robot traverse speeds.

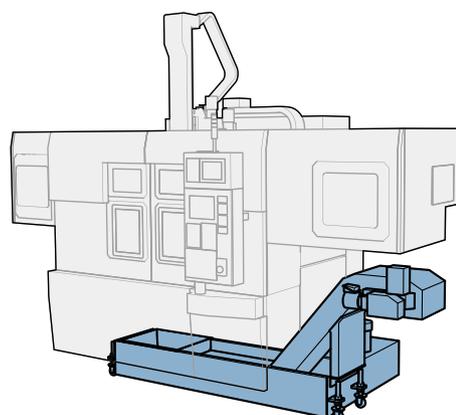
Option

Chip Conveyor



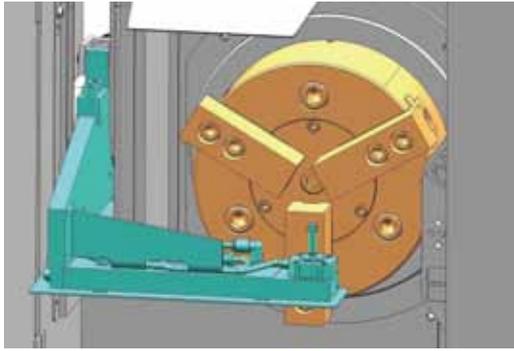
Single chip conveyor. Hinge, scraper or magnetic conveyors available.

Chip Conveyor (side exit)



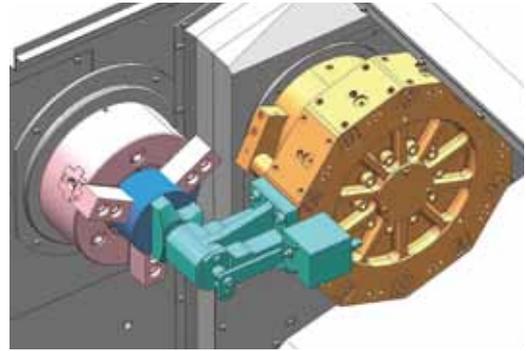
Side exit conveyor can be ordered for floor layouts where rear exit does not work.

Tool detector



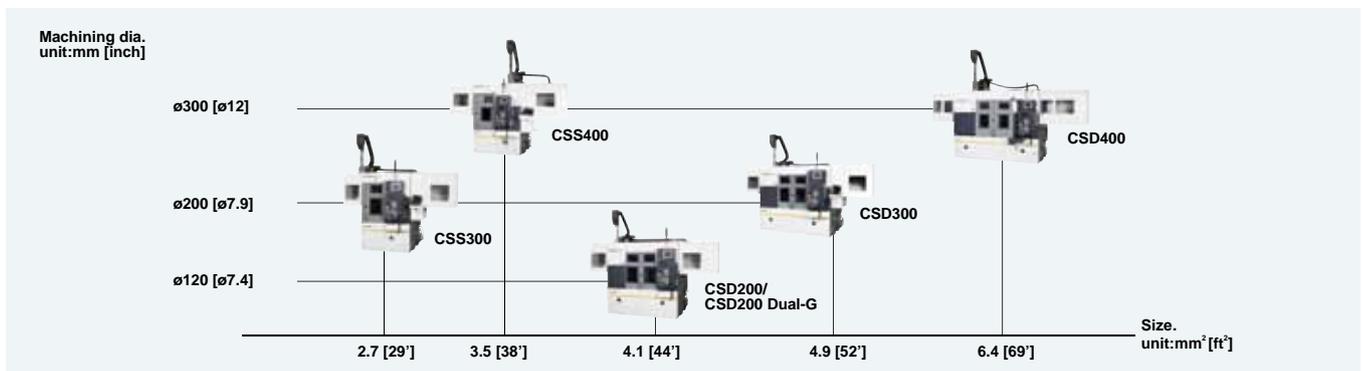
This single unit performs three tasks: automatic tool compensation, tool damage detection and tool setting. An air blower is provided near the sensor to prevent inaccuracies due to trapped chips.

Work Pusher



Work pusher device can be installed on the turret to push the part into the chuck utilizing z axis on the turret slide. This ensures that the work piece is up against the locates. When used in conjunction with air confirmation a stable process is achieved.

CS series Line up



Specification for CS series

Machine Specification

| | | CSD200 / CSD200 Dual-G | CSD300 / CSS300 | CSD400 / CSS400 |
|------------------------|--------------------|--------------------------|---|----------------------------|
| Recommended work size | mm [inch] | ø120 x 60 [ø4.7 x 2.4] | ø200 x 100 [ø7.9 x 3.9] | ø300 x 150 [ø11.8 x 5.9] |
| Spindle dia. | mm [inch] | ø80 [3.1] | ø100 [3.9] | ø120 [4.7] |
| Spindle nose | | A2-5 | A2-6 | A2-8 |
| Spindle bore | mm [inch] | ø42 [1.7] | ø56 [2.2] | ø67 [2.6] |
| Spindle speed | r.p.m | Max. 4000 | Max. 3630 (optional 4000) | Max. 2220 |
| Spindle motor | kw [hp] | 7.5/11 [10 / 15] | 7.5 / 11 [10 / 15] 11 / 15 [15 / 20] | 15 / 18.5 [20 / 25] |
| Number of tool station | | 8+8 | 10+10 / 10 | 12+12 / 12 |
| Turret index time | sec | 0.26 | 0.25 | 0.41 |
| Turret mechanism | | Cam | Cam | Cam |
| Chuck size | inch | 6~8 | 8~10 | 10~12 |
| CNC control | | FANUC Oi-TD | FANUC Oi-TD | FANUC Oi-TD |
| Slide stroke | X-axis mm [inch] | 120 [4.7] | 140 [5.5] | 195 [7.7] |
| | Z-axis mm [inch] | 150 [5.9] | 200 [7.9] | 315 [12.4] |
| Feed motor | X-axis kw [hp] | 1.2 [1.6] | 1.2 [1.6] | 1.8 [2.4] |
| | Z-axis kw [hp] | 1.2 [1.6] | 1.2 [1.6] | 1.8 [2.4] |

Robot Specification

| Robot | LX-30S | LX-30H | LX-30B |
|-------------------|-----------------|---------------|-----------------|
| Carrying capacity | 3+3 [6.6+6.6] | 5+5 [11+11] | 15+15 [33+33] |
| Robot controller | MAX SP1 | MAX SP1 | MAX SP1 |

Machine Size

| Footprint | mm X mm [feet, inch X feet, inch] | 1900 x 2150 [6'3"x7'6.5"] | 2260 x 2150 [7'5" x 7'0.6"] | 1260 x 2150 [4'1.7"x7'0.6"] | 2720 x 2360 [8'11.2"x7'9"] | 1490 x 2360 [4'10.8"x7'0.6"] |
|-------------------------------|-------------------------------------|-----------------------------|-------------------------------|-------------------------------|------------------------------|--------------------------------|
| Machine height [with Robot] | mm [feet, inch] | 3045 [9'12"] | 3240 [10'7.6"] | 3715 [12'2.4"] | | |
| Machine weight [with Robot] | kg [lb.] | 4500 [17600] | 5500 [12125] | 3500 [7716] | 7500 [16534] | 4500 [17600] |

Specifications are subject to change without notice.