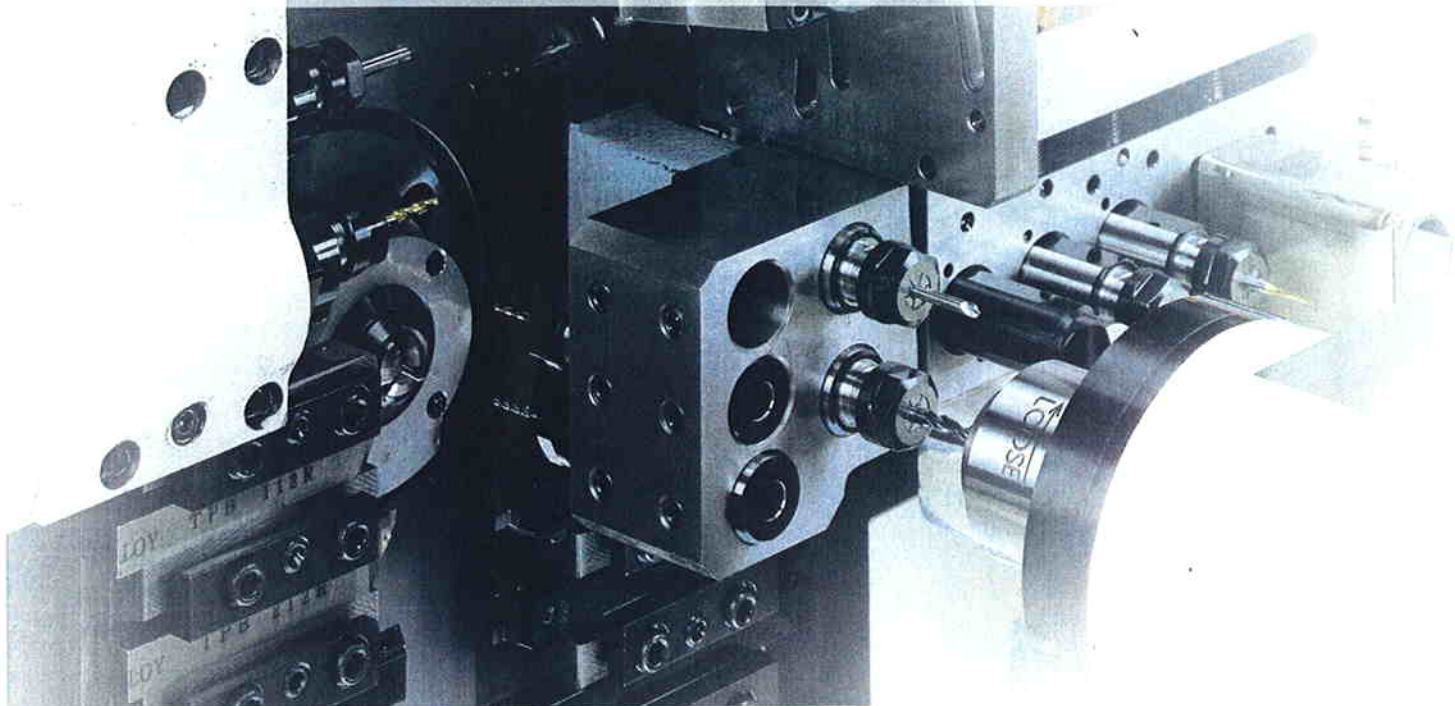


PRECISION TSUGAMI

TSUGAMI

**CNC Precision Automatic Lathe
BW07/12/20-III**



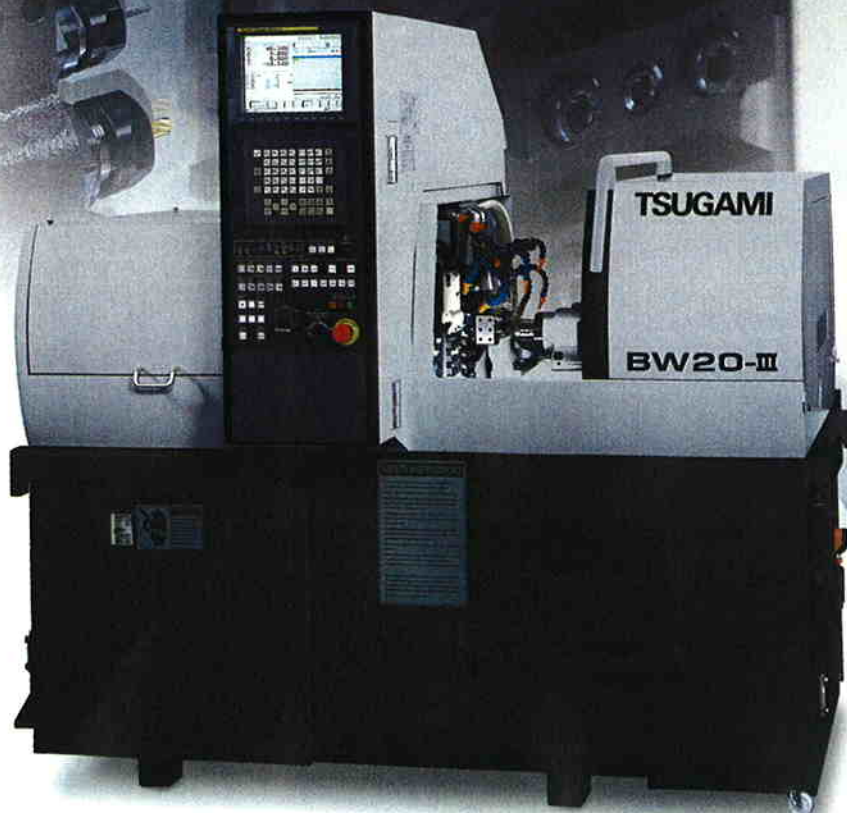
**2 Spindles and 2 Independent
Slide Gang type Tool Posts
Next Generation Swiss-type
Automatic Lathes with Superior
Accuracy, Productivity,
and Multi-function Cpability**



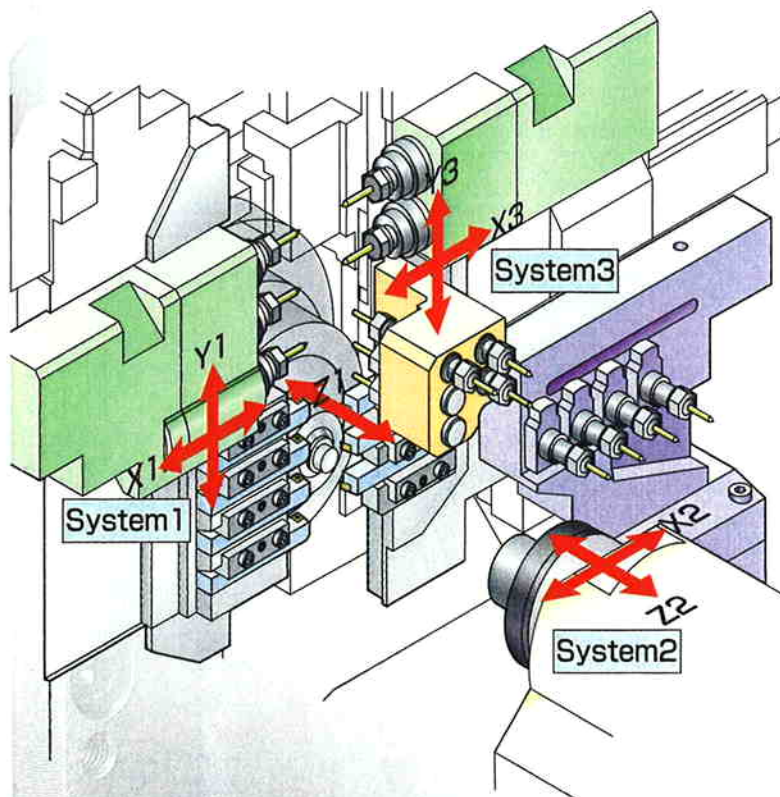


Dedicated Pursuit of Productivity

3-path system, 7-axis Control CNC Automatic Lathes
High Efficiency Machining of Complex Workpieces

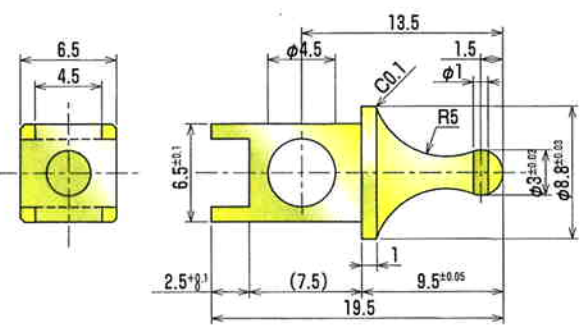


- Short Cycle Time
Simultaneous 3-path
system control
Overlapping simultaneous
machining
- Open Tooling
Arrangement

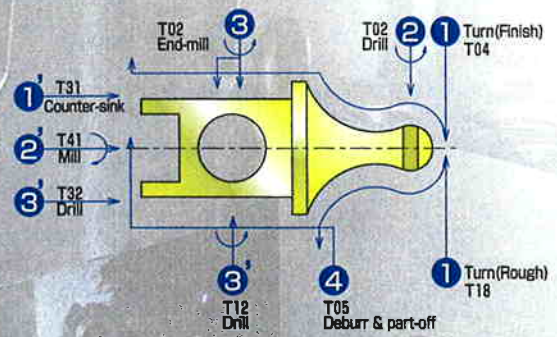


Machining Example

Material : Brass
 Workpiece : Connector
 Operating hours : 24 hours x 25 days
 Operating rate : 95 %



Machining Process



Cycle Time Comparison with Conventional Machine

Ultimate cycle time reduction from 58 seconds to 17 seconds on the same cutting conditions



Factors of Cycle Time Reduction

- Simultaneous rough and finish OD turning (Balanced OD turning by X1 axis and X3 axis)
- Simultaneous 2-face end-milling with cross rotary tools (Simultaneous machining by Y1 axis and Y3 axis)
- Simultaneous front side machining with front tool post and rear side machining with angular drilling unit on the rear tool post (Overlapped machining by X1-Z1 axes and X3-Z2 axes)
- Zero tool change time by 3-system control (Without any interruption of actual machining)

Monthly production estimate

Conventional	35,340 pieces
BW07	120,707 pieces

■ Cutting time
 ■ Idle time