



*Super NTX*



*Super NTJX*

High Production Multitasking Machine

# NAKAMURA-TOME

High Production Multitasking Machine



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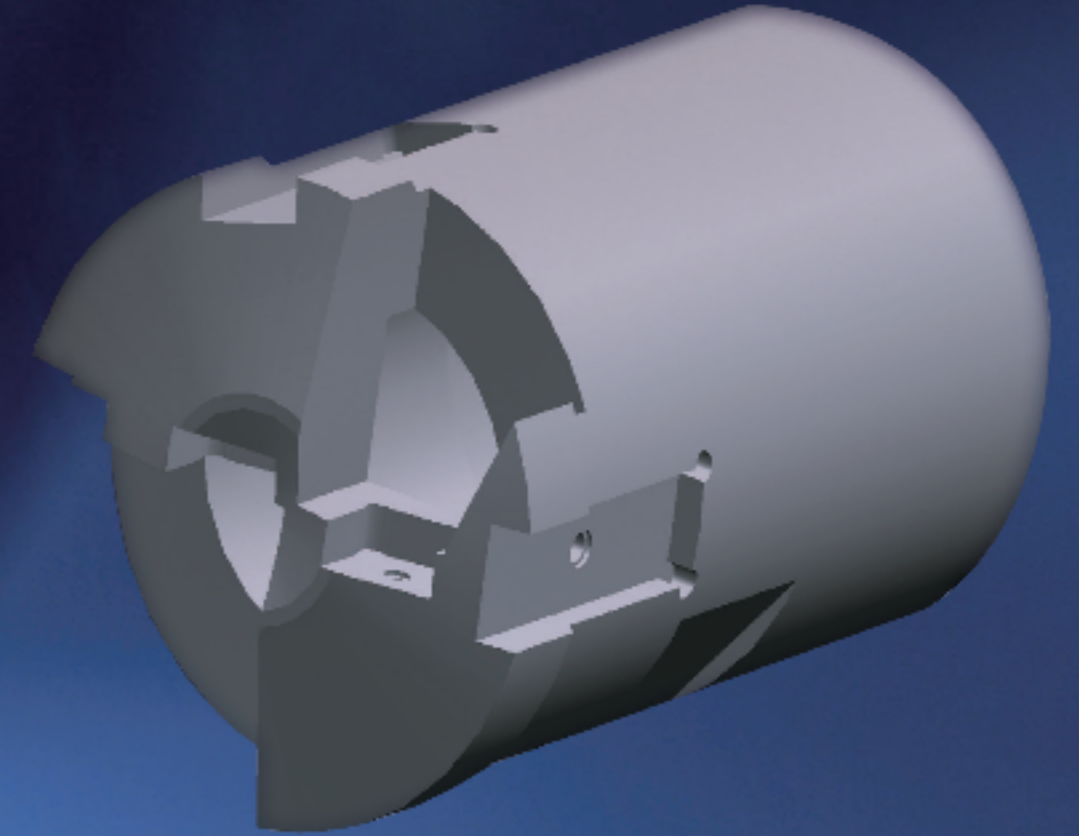
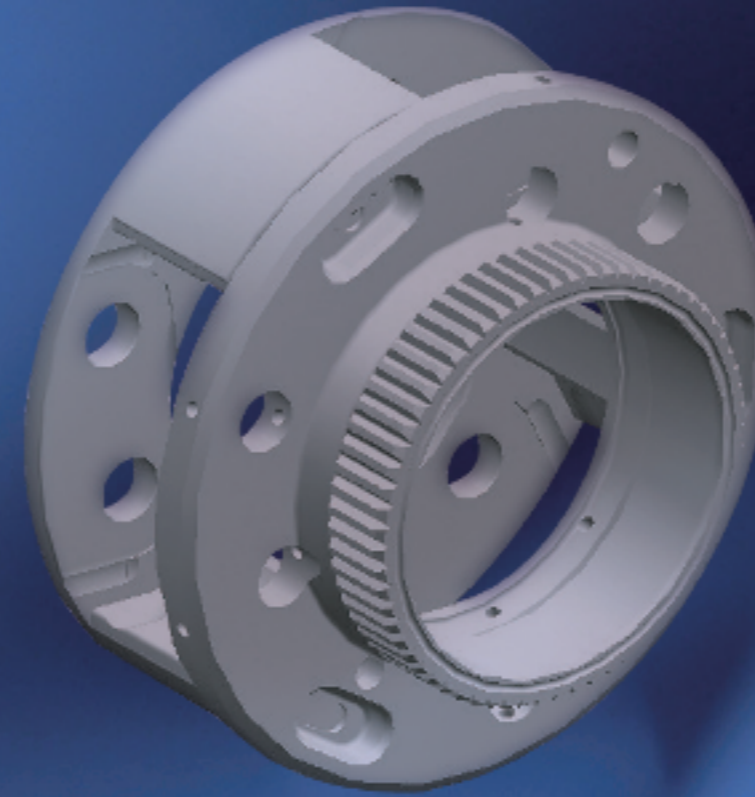
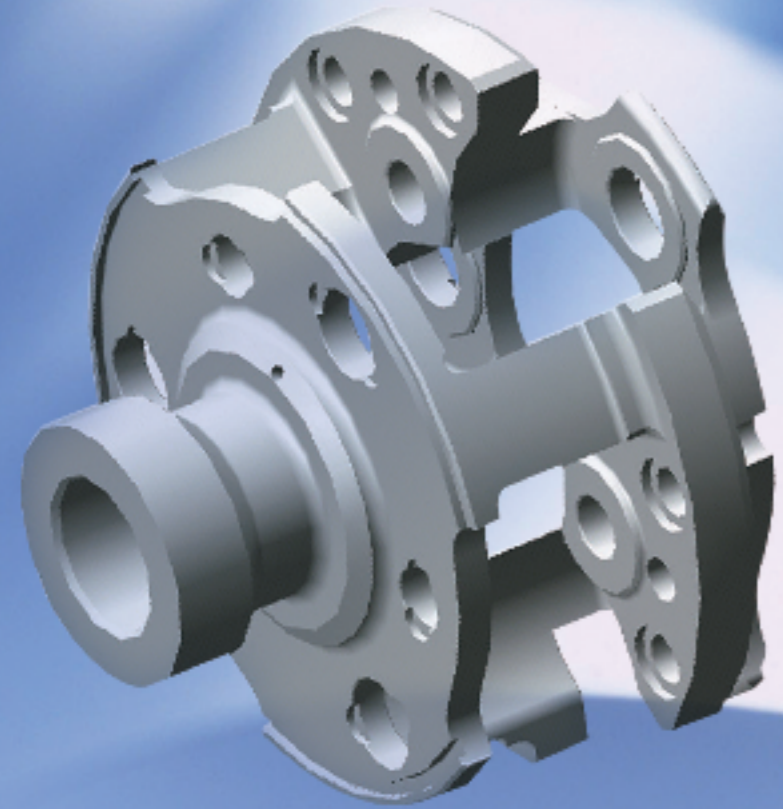
<http://www.nakamura-tome.co.jp>

NAKAMURA-TOME  
PRECISION INDUSTRY CO.,LTD.

# World leader! Processing Ability is a Wonder!

## High Volume Production Multitasking Machine

Turning and Milling Operations are made by One Machine. High Productivity is achieved with Combined Processes and best performance for small lot production.



Less fixtures

First machining  
Repetitive machining

Less set-up

Whether Machine related,  
or Program related

Less skills

Less Jig Fixture! One Hit Machining



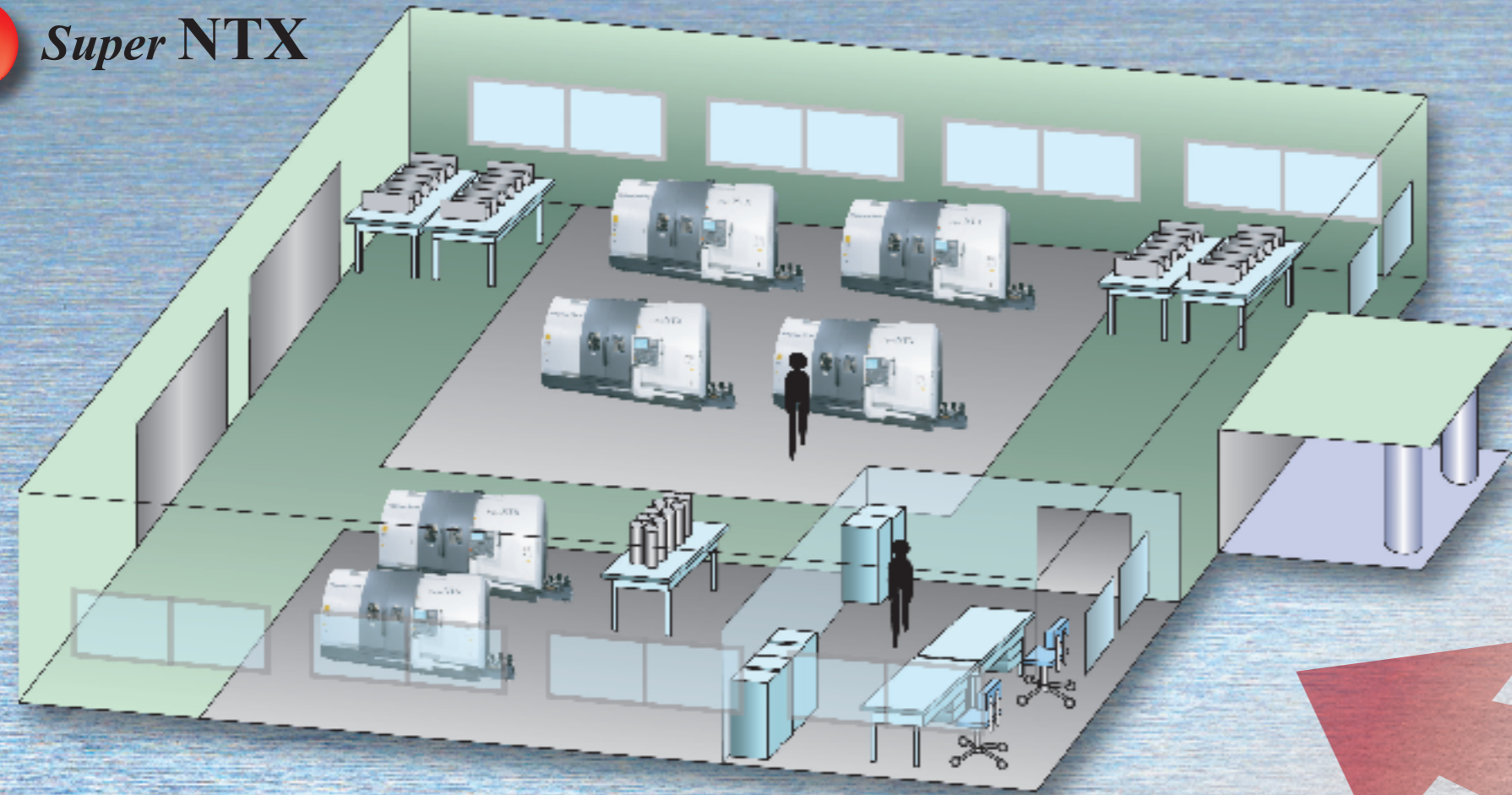
Super NTX



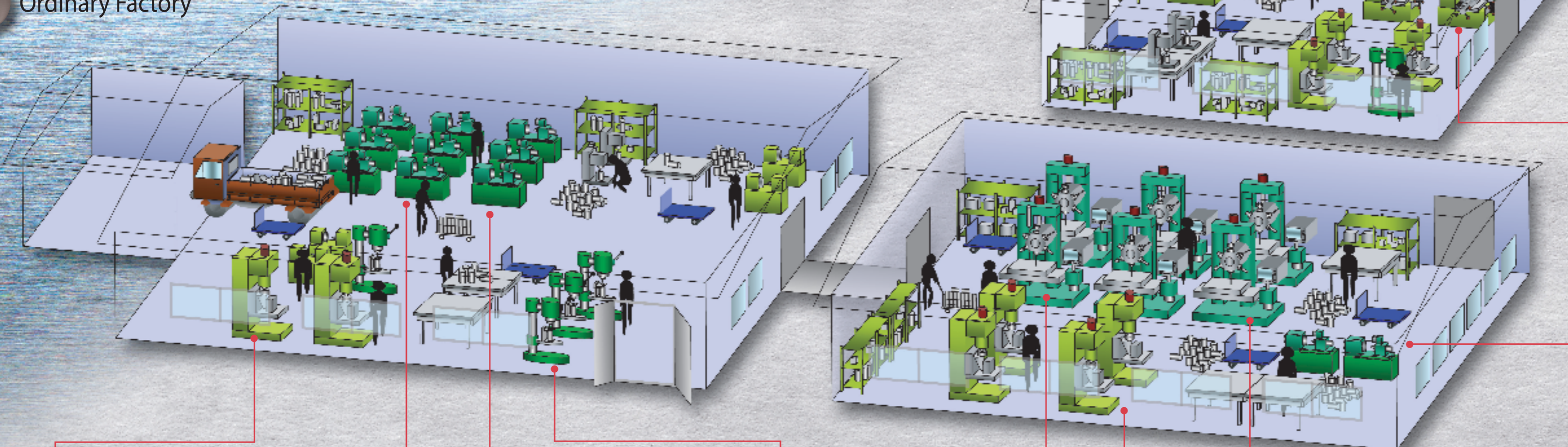
Super NTJX

# Simple factory layout with combined machining processes

## Super NTX

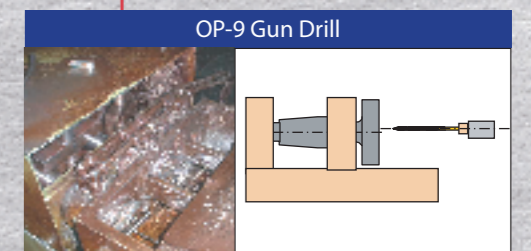
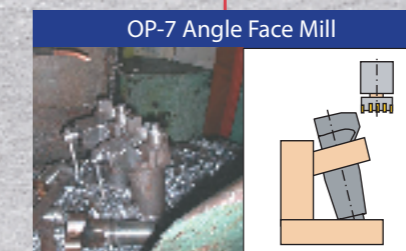
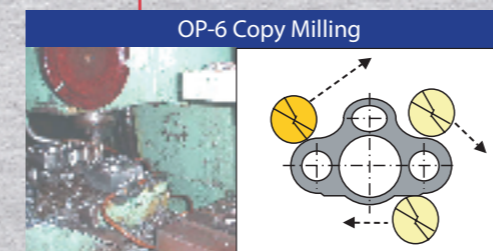
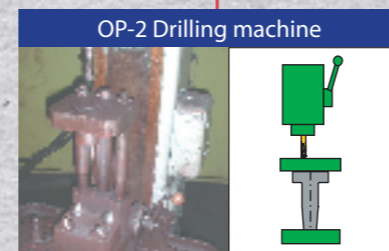
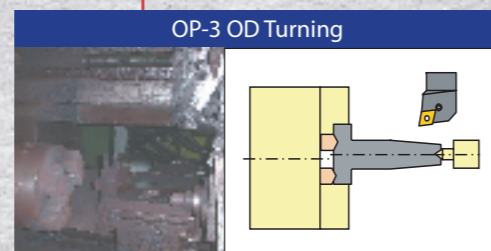
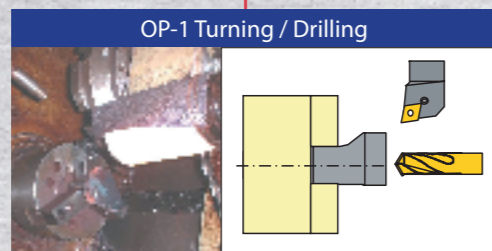
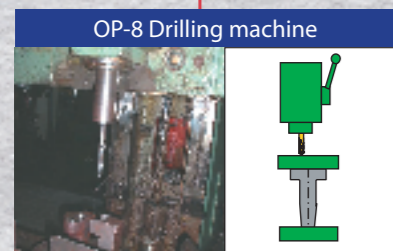
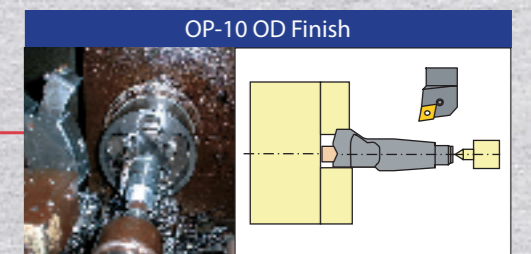
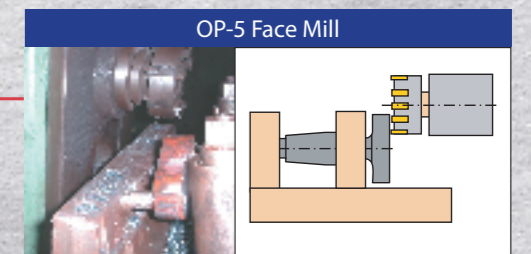
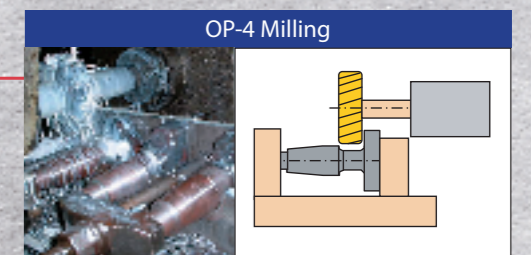


## Ordinary Factory



## Total cost saving with combined processes

- Floor space saving = Machines floor space and stock space for WIP.
- Accuracy and Dimension Control (One Hit Machining)
- Process Control Improvement = Elimination of Jig fixtures, handling of WIP.
- Less Man Power Cost.
- Minimized Set-up time (Less Jig Fixture)
- Minimized Cycle Time = Quicker delivery and Easy to control the Production schedule.



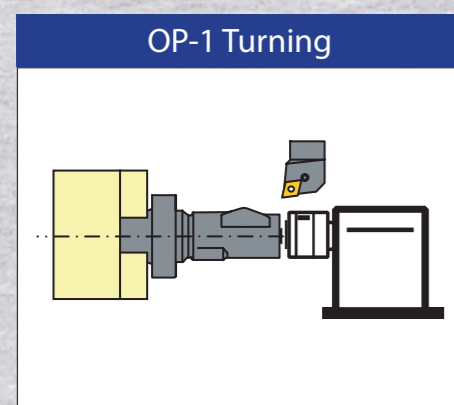
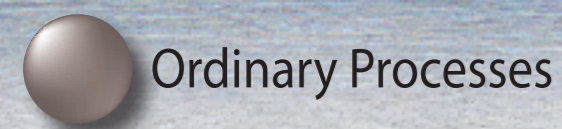
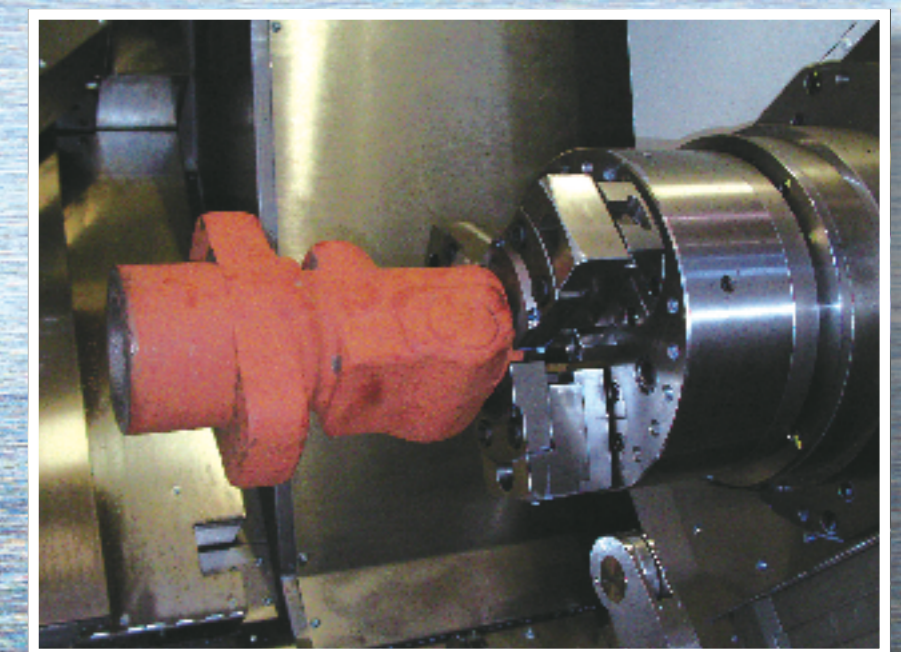
# Big different between Processes Separation and Combined Processes

Many Machines, Jig Fixtures and Operators are required with Processes Separation

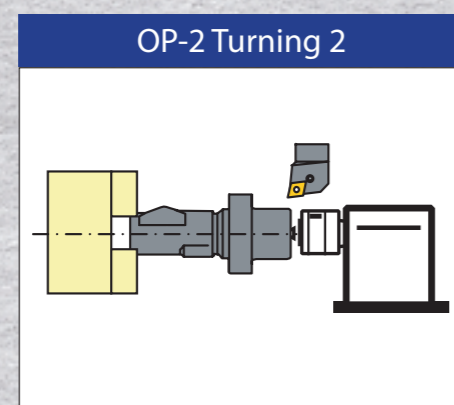


One Hit Machining by Combined Processes

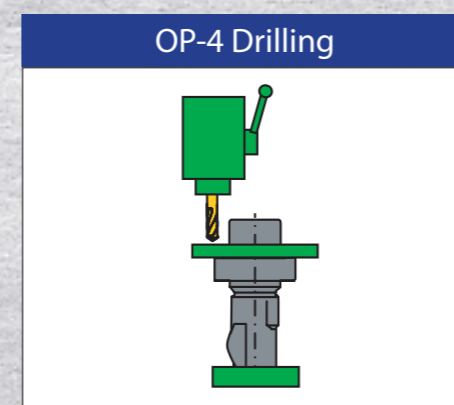
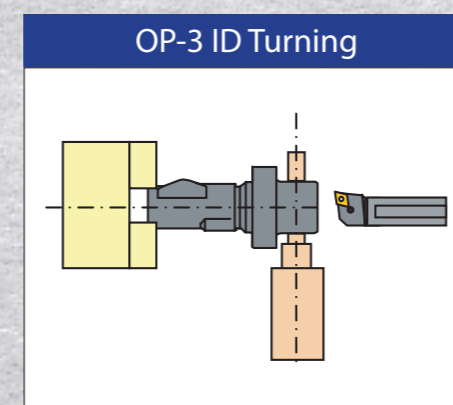
From Raw Material to Finished Part in One Operation



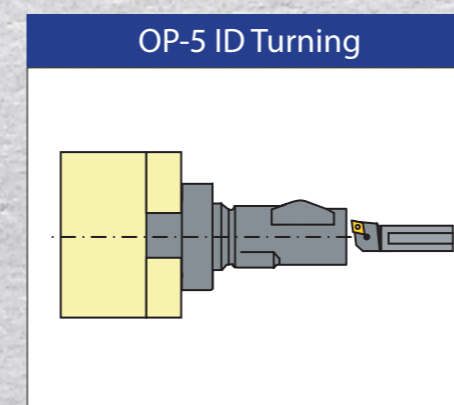
Original machining methods  
OD chucking with Tailstock support => OD and Flange both facing.



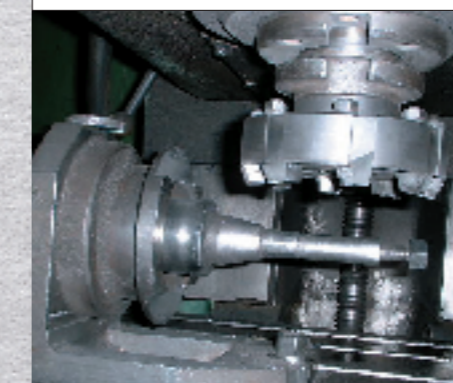
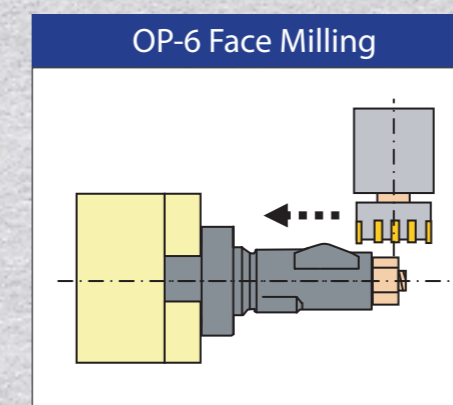
Face and ID Drill / ID Rough



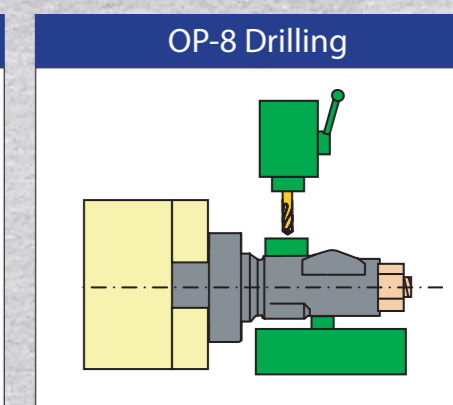
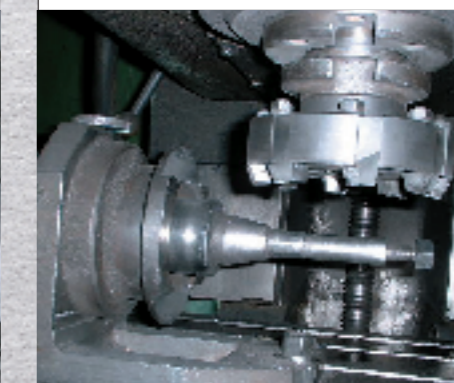
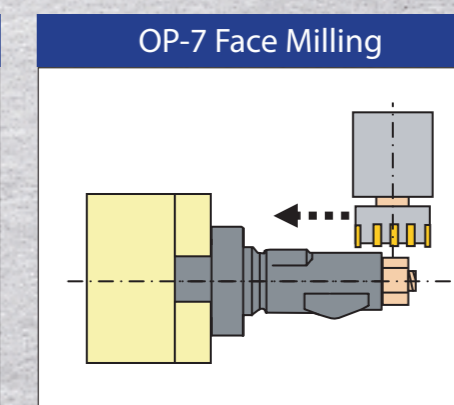
Face and 4 drill hole



Face and ID Turning



Cross flat milling



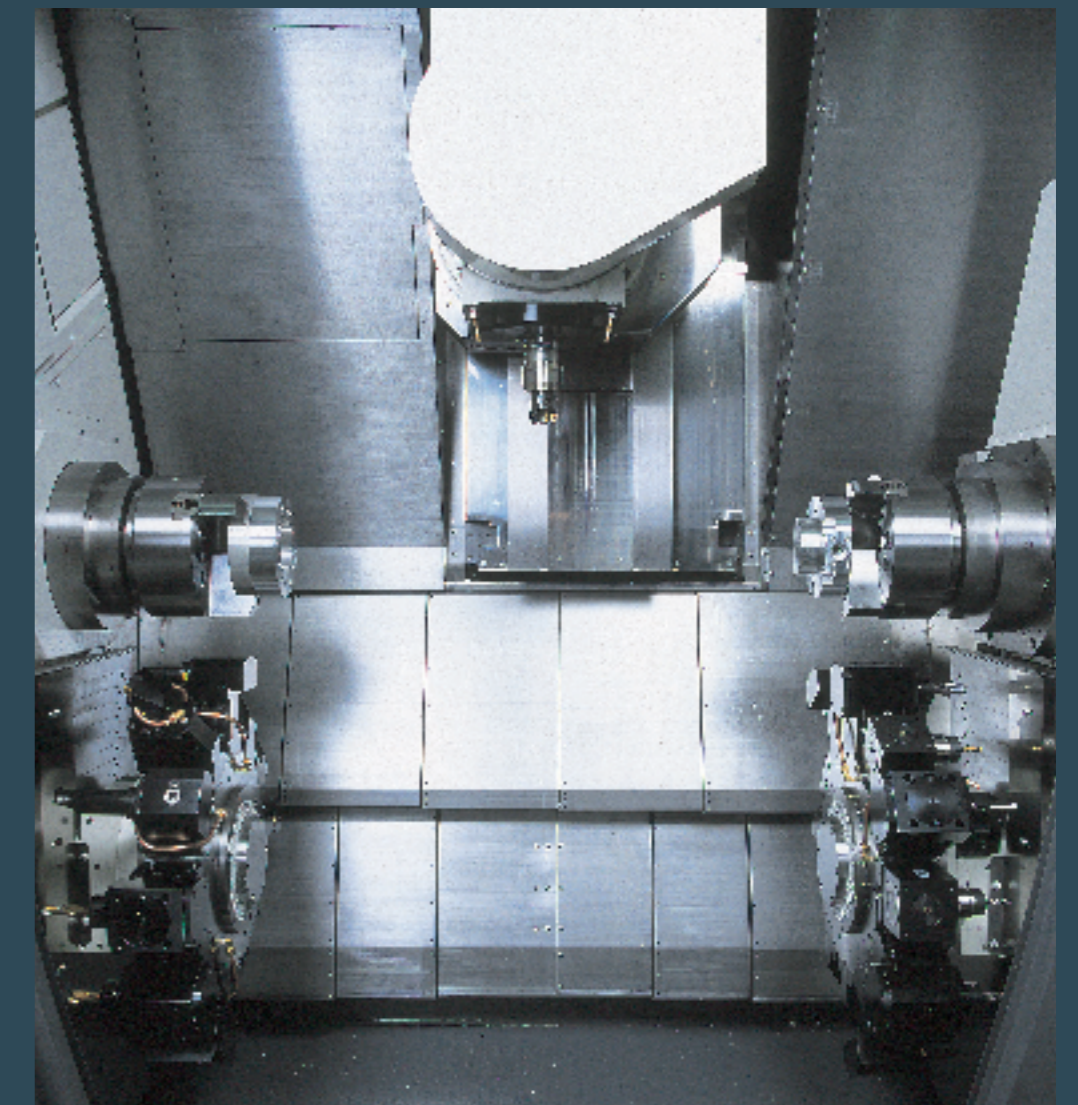
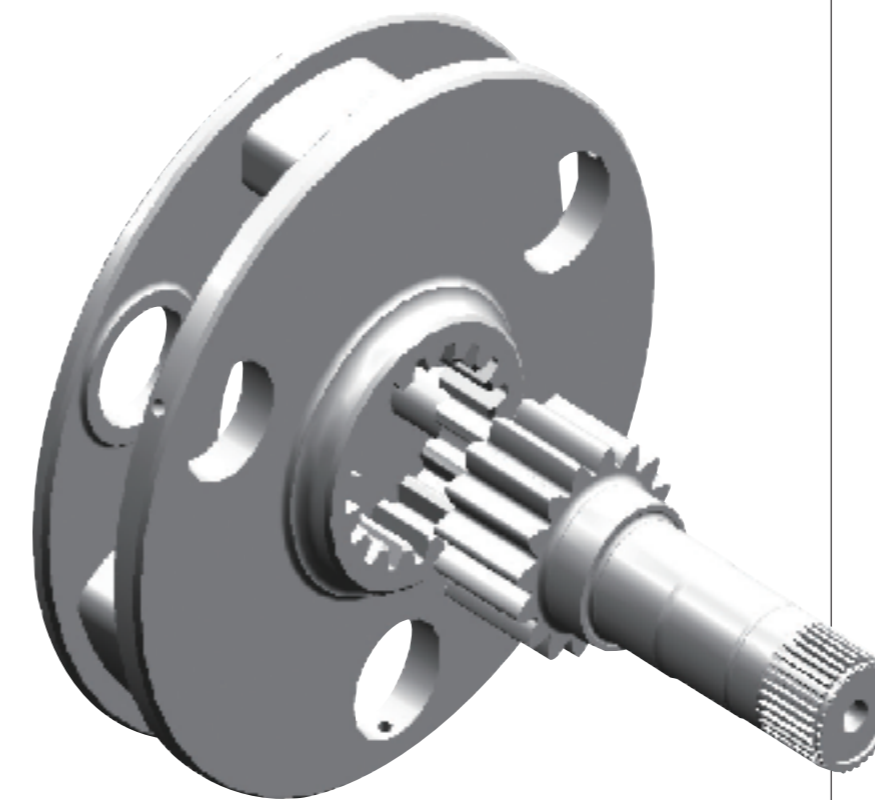
Cross drilling

One hit machining for simple part and for complex part  
 High volume production with minimized cycle time

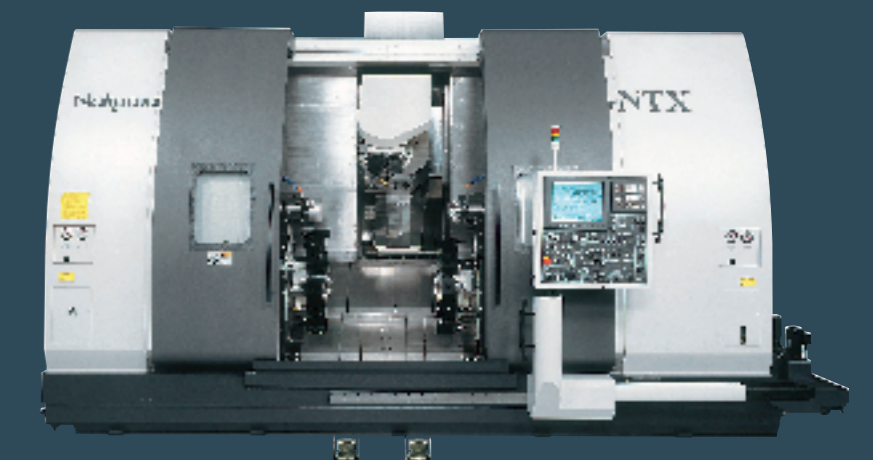
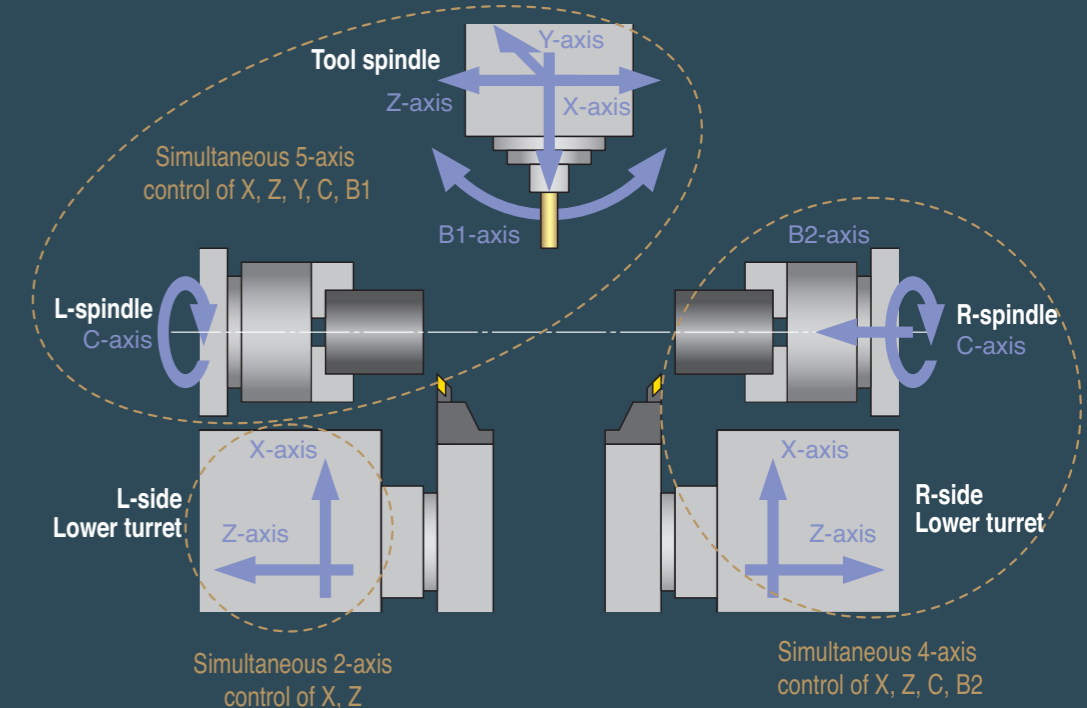


# Super NTX

Whether it is turning or milling, it can be done easily on this machine.  
 High efficiency multi-tasking for process integration.  
 In addition to excellent process integration,  
 requirements for flexible manufacturing are met.



World established Multi-Tasking  
 11-axis Machine with simultaneous  
 5+4+2-axis control



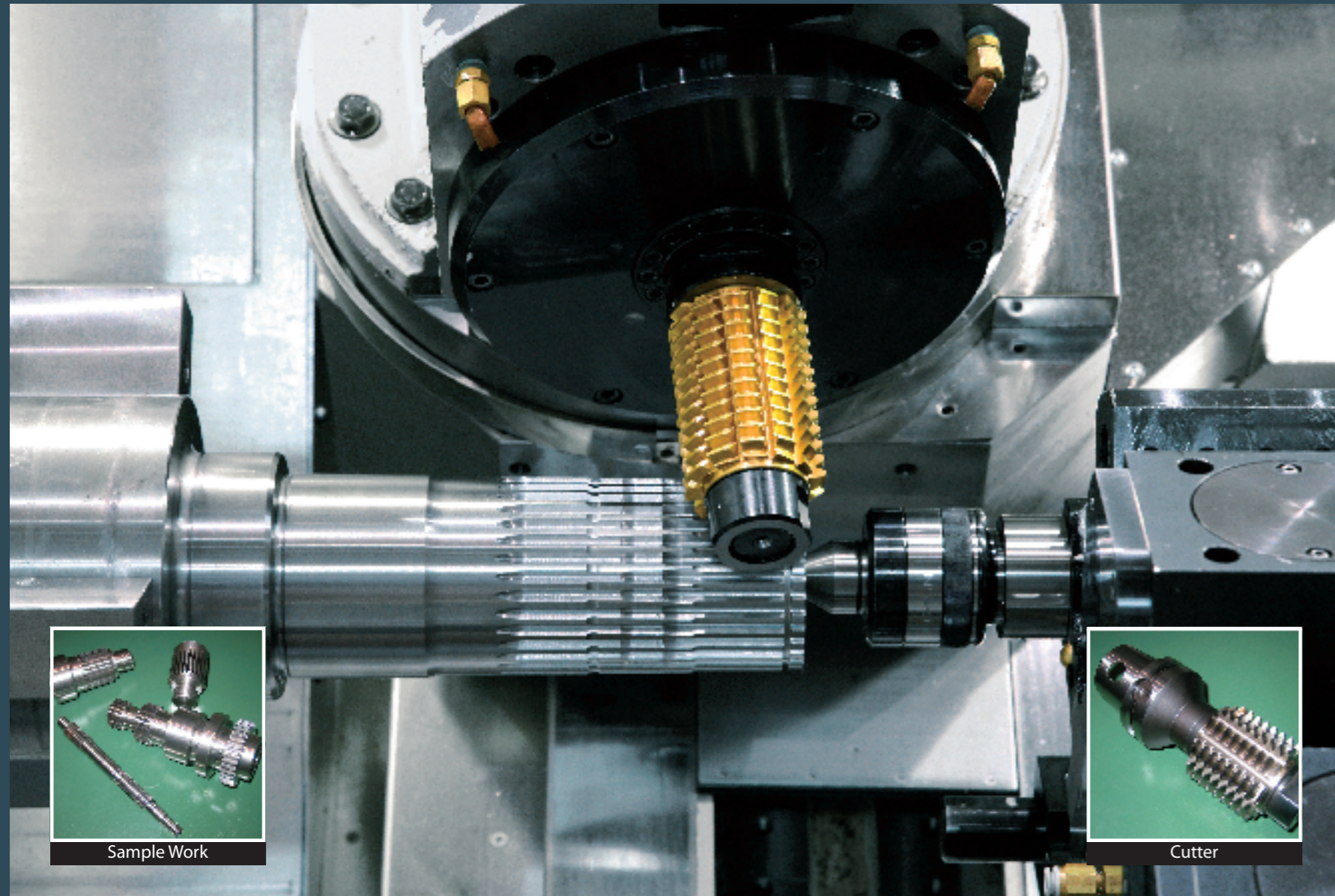
# Various Machining Methods

Super NTX

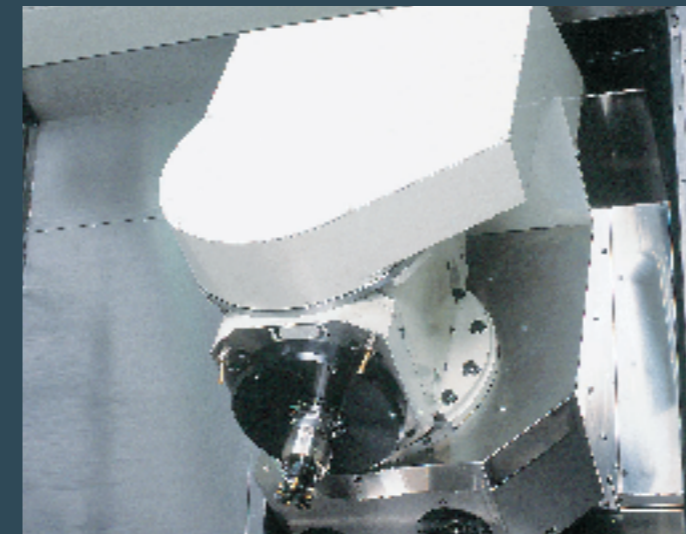
## High Accuracy C-axis / Milling Synchronized control can be achieved.

Work-piece (C-axis) and Cutter (Milling) speed need to be controlled in certain ratio while Hobbing operation to make spline on the shaft. C-axis / Milling synchronize is much better performance compared to Spindle / Milling synchronize.

The cutting result / quality is same as Hobbing machine operation.

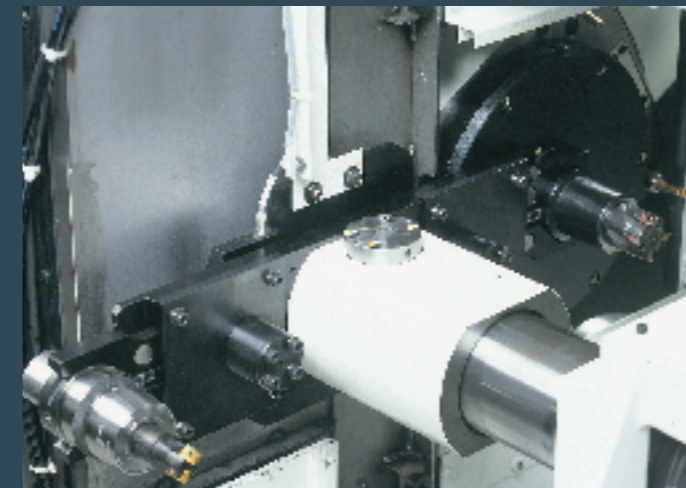


## Upgraded Tool Spindle with ATC (Auto Tool Changer) Twin Spindle Turning Center with Machining Center Capabilities



### Upgraded Tool Spindle and Standardized Tooling

Kennametal KM63 or Sandvik Capto-C6 can be selected for Tool Spindle. Any Angle can be Set with B-axis positioning. Turning Tools and Milling Tools can be mounted on Tool Spindle.



### Double arm System for ATC

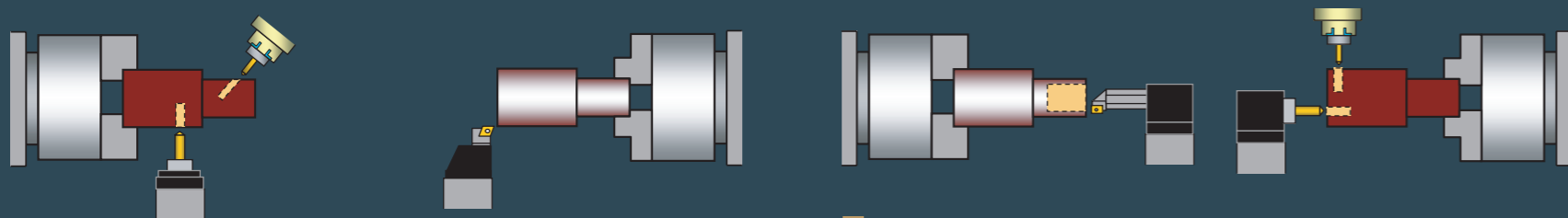
Quick Tool Change in 2 seconds



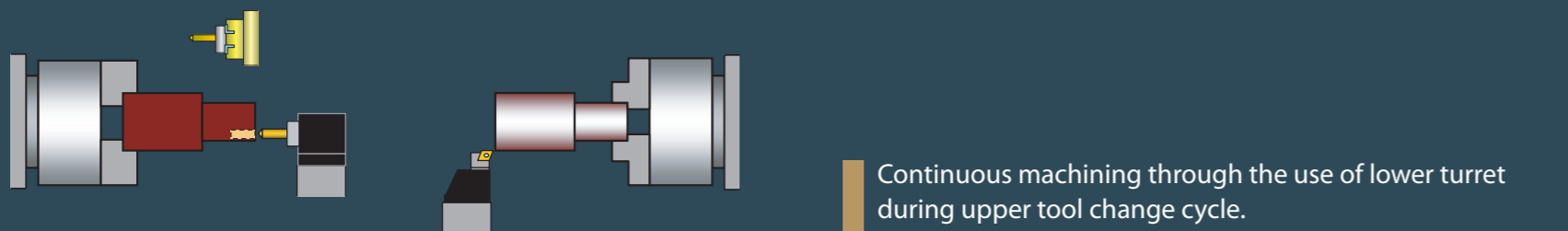
### Tool magazine

24 Tools as Standard, 40, 80, 120 Tools as Option. Best performance for Small lot and Big lot production.

## Simultaneous machining (Tool spindle + L / R lower turrets)



4-axis turning on one spindle while machining on the other spindle.



Continuous machining through the use of lower turret during upper tool change cycle.



Using lower turret to support the part while machining with the upper turret. At the same time, machining on the second spindle continues.

### Air Bag

Excess Load detection  
NO broken parts even if collision occurs.

This feature minimizes the damage to machine in case of crash caused by mistake in operation or programming. It works by detecting excessive load immediately (8 / 1000 sec.) and tarking back.



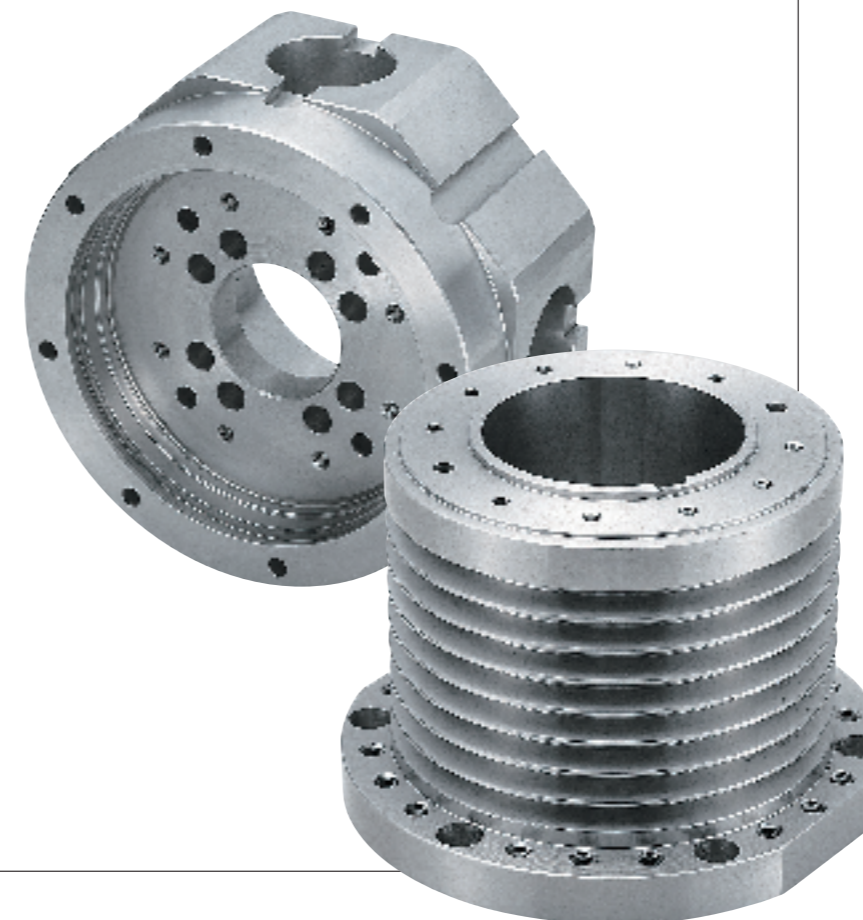
Lead time is reduced by 1 chucking for all machining



# Super NTJX

## Y-axis on high rigidity lower turret

When a Y-Axis is introduced on a lower turret featuring high rigidity tools, machining limitations are further reduced. By using the Y-Axis for simultaneous machining with the upper and lower turrets, machining process layout optimization becomes a reality. Whether machining with multiple tools simultaneously on one side, or on both the left and right hand sides, cycle time is dramatically reduced.



## Y-axis on high rigidity lower turret

- Y-axis stroke : ±70mm
- Milling motor : 7.5 / 3.7kW Max54N-m
- Max. Rotation speed : 8000min<sup>-1</sup> op.12,000min<sup>-1</sup>
- ATC : 40 tools op. 80, 120
- Tool to Tool 1.3sec. : Chip to Chip 7.0sec.
- Bar capacity dia.51mm
- Spindle motor : 11/7.5kW 208/115N-m
- Max. rotation speed 6000min<sup>-1</sup>

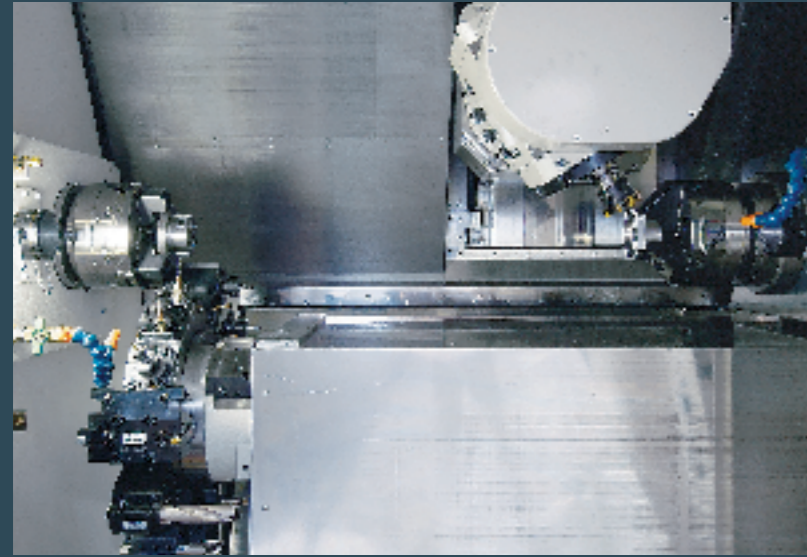


- Bar capacity dia : 51mm op.Φ65
- Spindle motor : 11 / 7.5kW 208 / 115N-m
- Max. Rotation speed : 6000min<sup>-1</sup> (op. Φ65 4,500min<sup>-1</sup>)
- Y-axis stroke : +20mm -50mm
- Milling moto : r5.5/3.7kW Max24N-m
- Max. Rotation speed : 6000min<sup>-1</sup>
- 12 station 24-tool
- 12 driven-tool stations



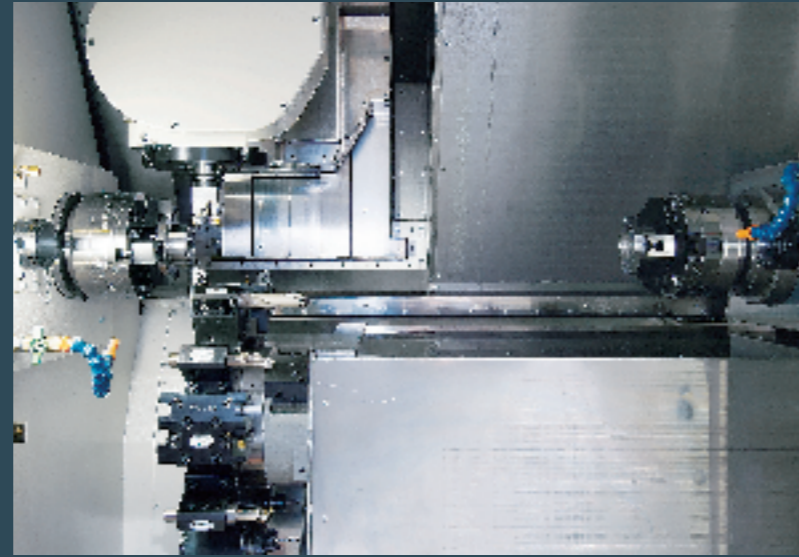
# Flexible!

The compact design of the tool spindle and the between spindle center distance of 1290, minimize tooling interference and provide a wide working area for a variety of parts such as shaft, bar or flange work. Furthermore, each saddle has its own independent slide, eliminating any limitations in slide movement.



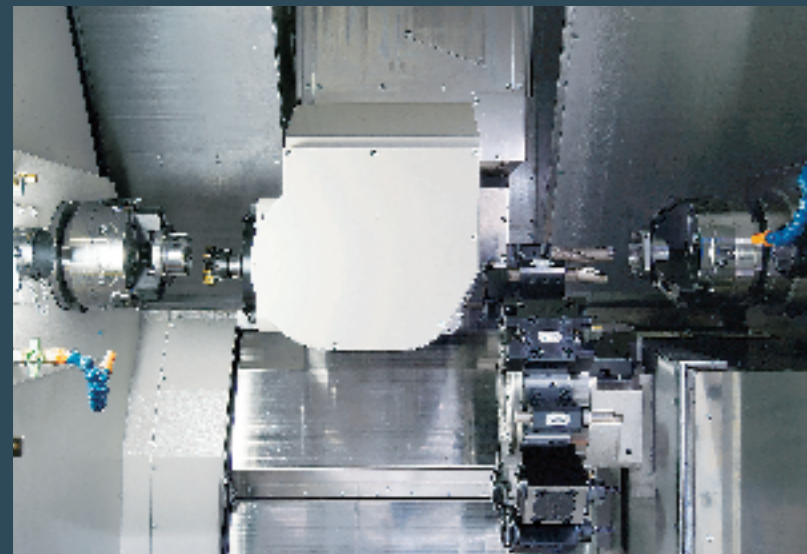
**Milling / Tool spindle milling on right side spindle, lower turret machining on the L side.**

Through compact turret and tool spindle, tooling interference is minimized.



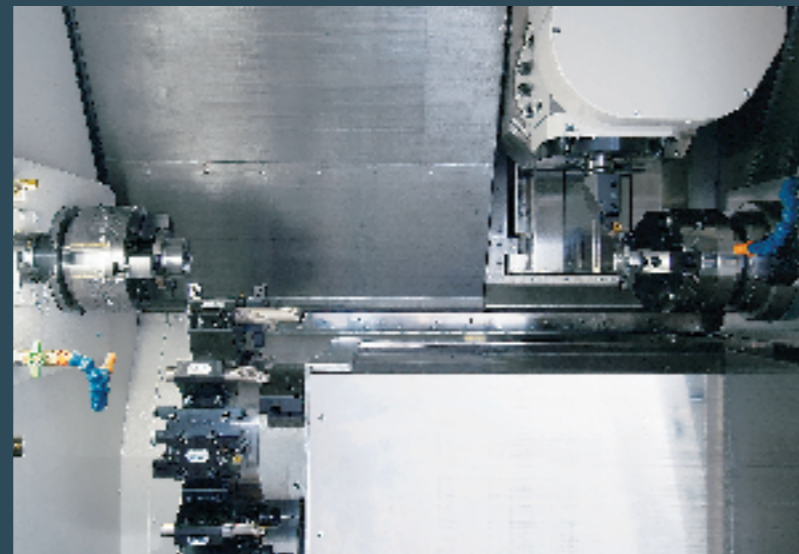
**Simultaneous turning with upper and lower tools.**

Thanks to tool spindle orientation, a multi-tool holder can be used.



**Milling on tool spindle / Drilling on lower turret**

With a large between spindle distance and compact tool spindle, drilling with the lower turret during machining on tool spindle can be achieved.



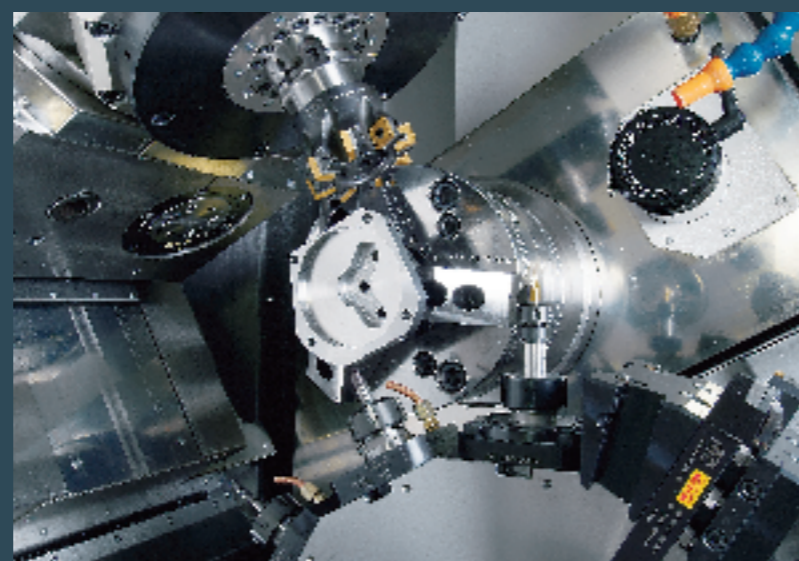
**Turning / Tool spindle machining on the right hand side, lower tool on the left hand side spindle.**

Adjustment of the center height of cutting tool, using Y-axis positioning on upper and lower turrets, provides the possibility for high accuracy machining.



**Parts transfer process**

By directly chucking the work piece, a highly accurate positioning and phase synchronization is obtained.

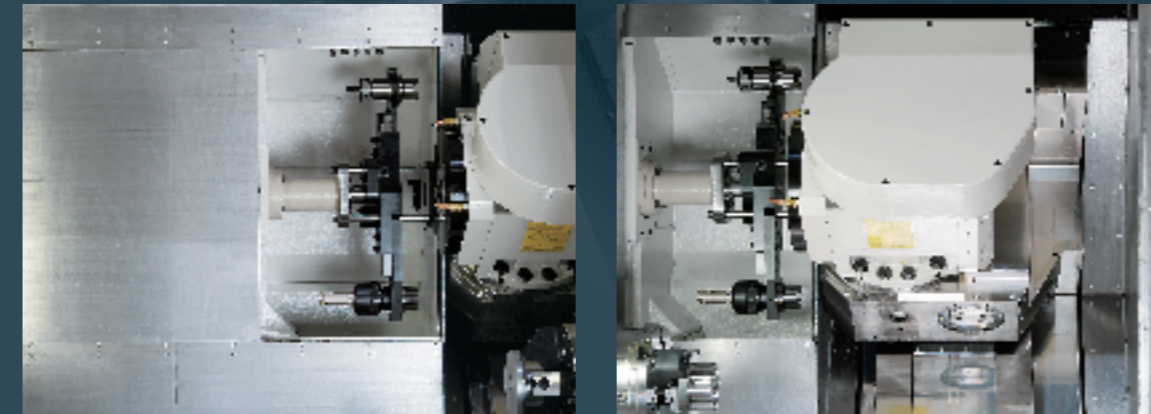


**Simultaneous Y-axis machining with Upper and Lower tools.**

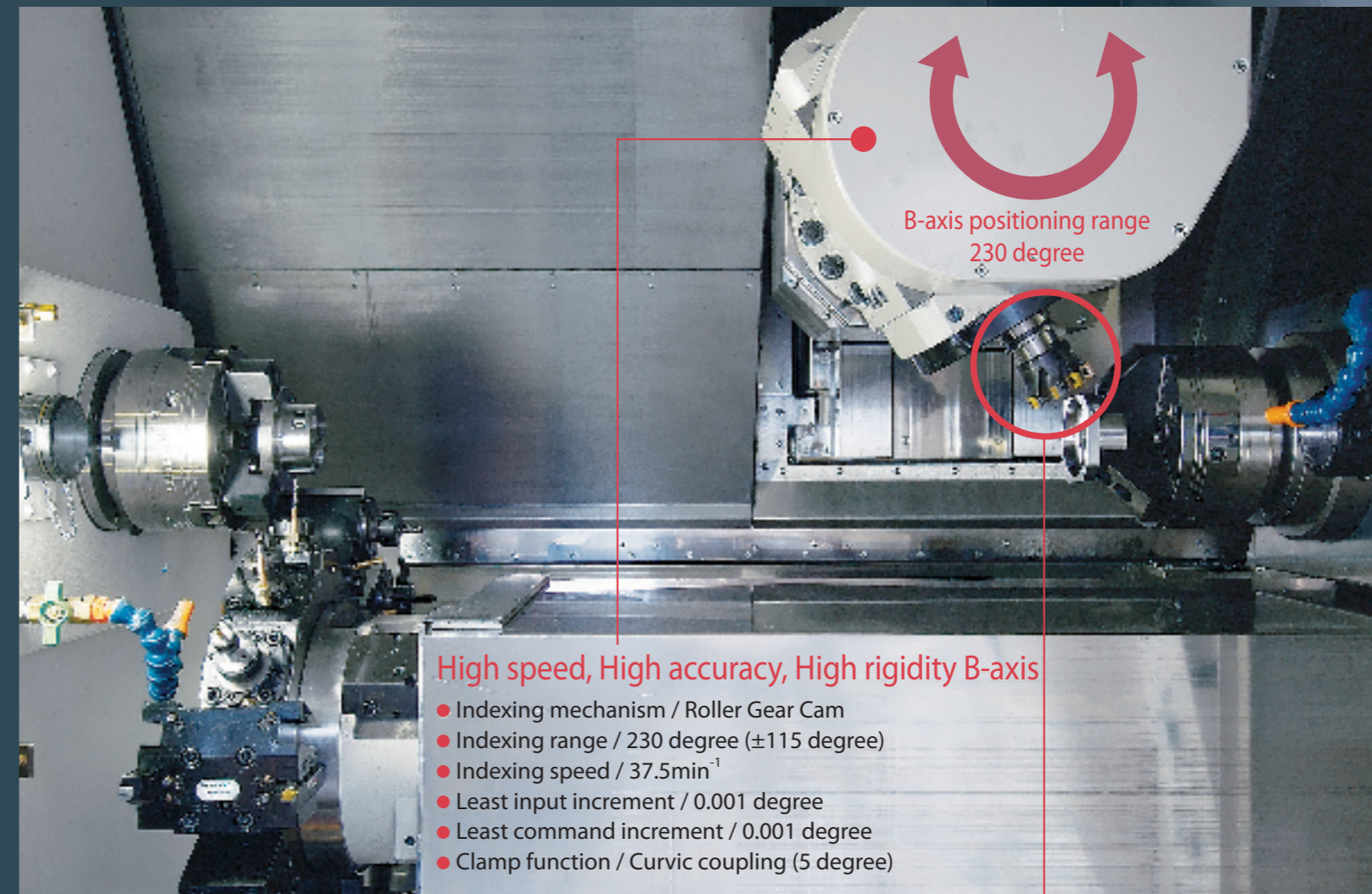
Tool spindle  $\pm 70\text{mm}$ , Lower turret  $+20\text{mm}$ ,  $-50\text{mm}$

# Super NTJX

Quiet, servodriven ATC Tool to Tool 1.3sec.



- Tool magazine / 40 tools (op.80,120 tools)
- Max. tool diameter / 70mm
- Max. tool diameter (without adjacent tool) / 90mm
- Max. tool length / 280mm
- Max. tool weight / 8kg



B-axis positioning range 230 degree

**High speed, High accuracy, High rigidity B-axis**

- Indexing mechanism / Roller Gear Cam
- Indexing range / 230 degree ( $\pm 115$  degree)
- Indexing speed /  $37.5\text{min}^{-1}$
- Least input increment / 0.001 degree
- Least command increment / 0.001 degree
- Clamp function / Curvic coupling (5 degree)



HSK-A63



CAPTO C6



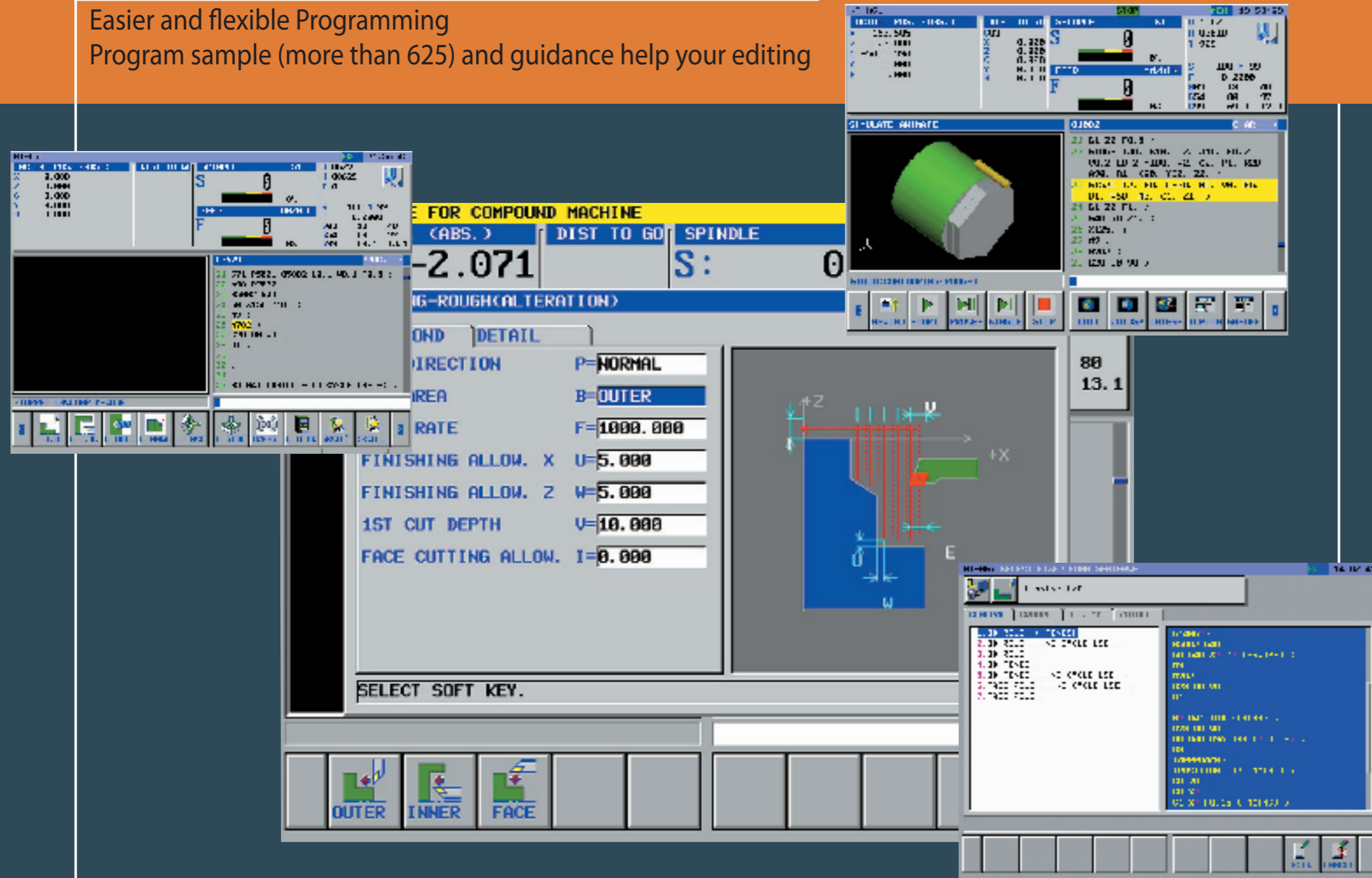
Sandvik

Kennametal



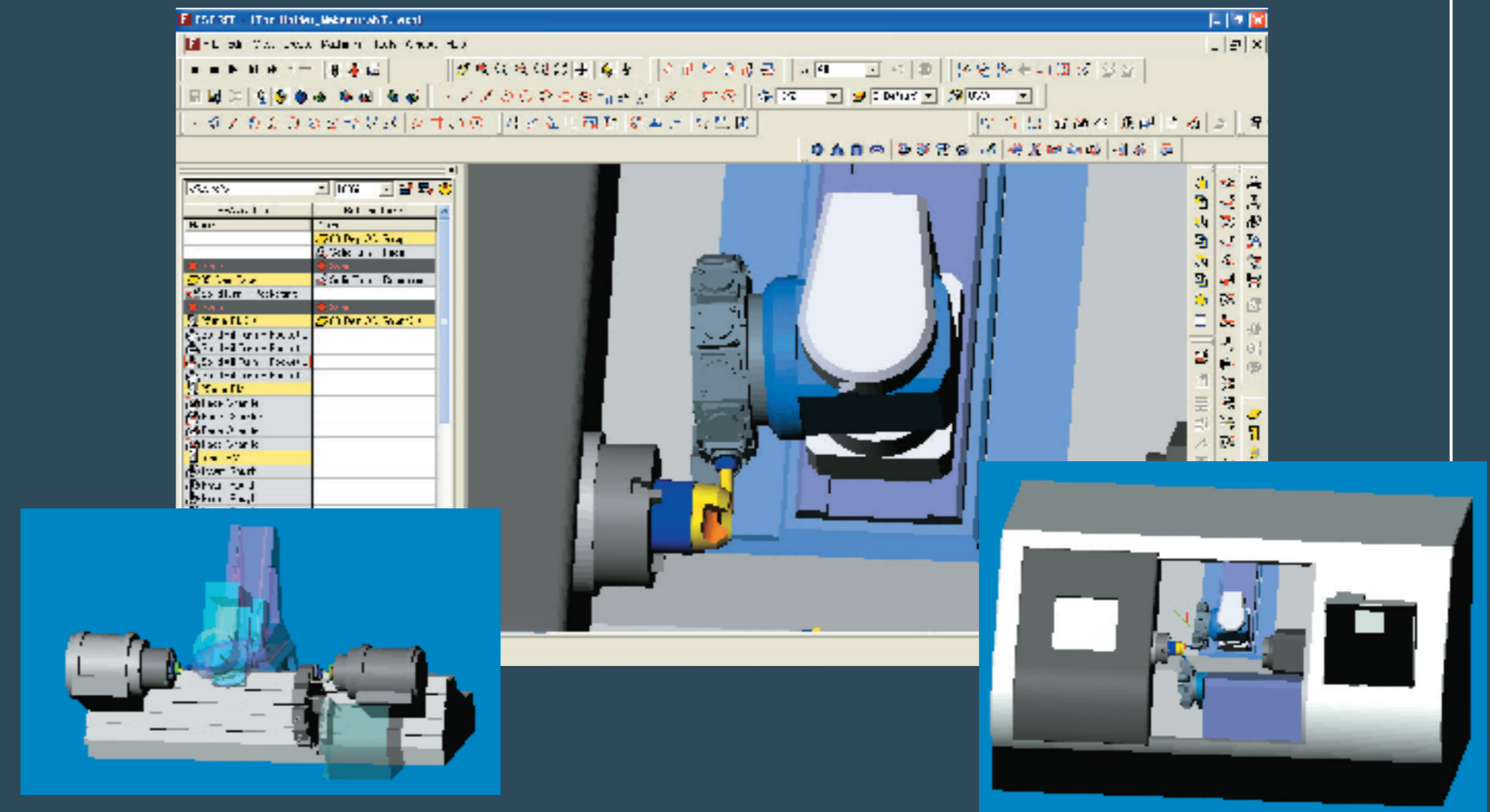
# Newly developed NT-MGi

Easier and flexible Programming  
Program sample (more than 625) and guidance help your editing



# Programming simulation is same as Machining simulation

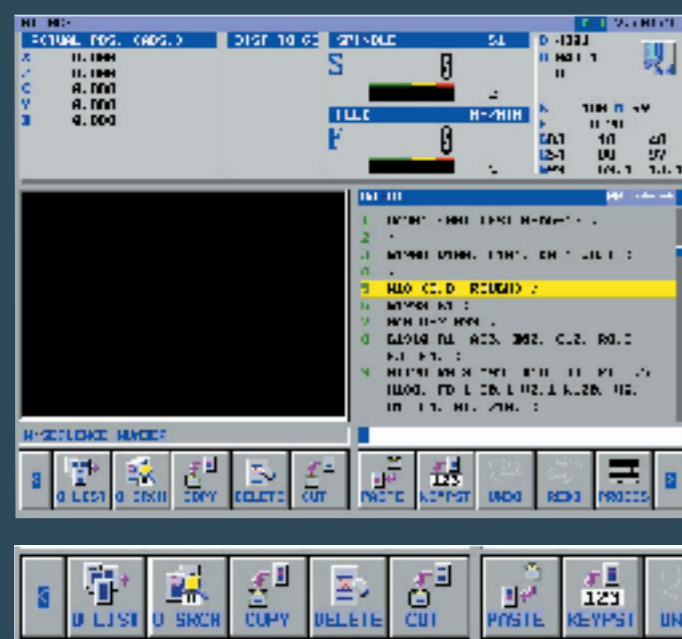
Including Turret and Tool spindle B-axis motion help for real machining simulation.  
Tooling interference can be checked before machining.



## ON MACHINE PROGRAMMING

Level up of Program editing on the machine display

NT-MGi



### GUIDANCE MESSAGE Function

The meaning of all of G-codes and M-codes are displayed according to cursor position.  
Program editing without manual.

### Easy Process editing

Process can be changed with drag and drop as personnel computer (Waiting M-codes will be editing automatically)



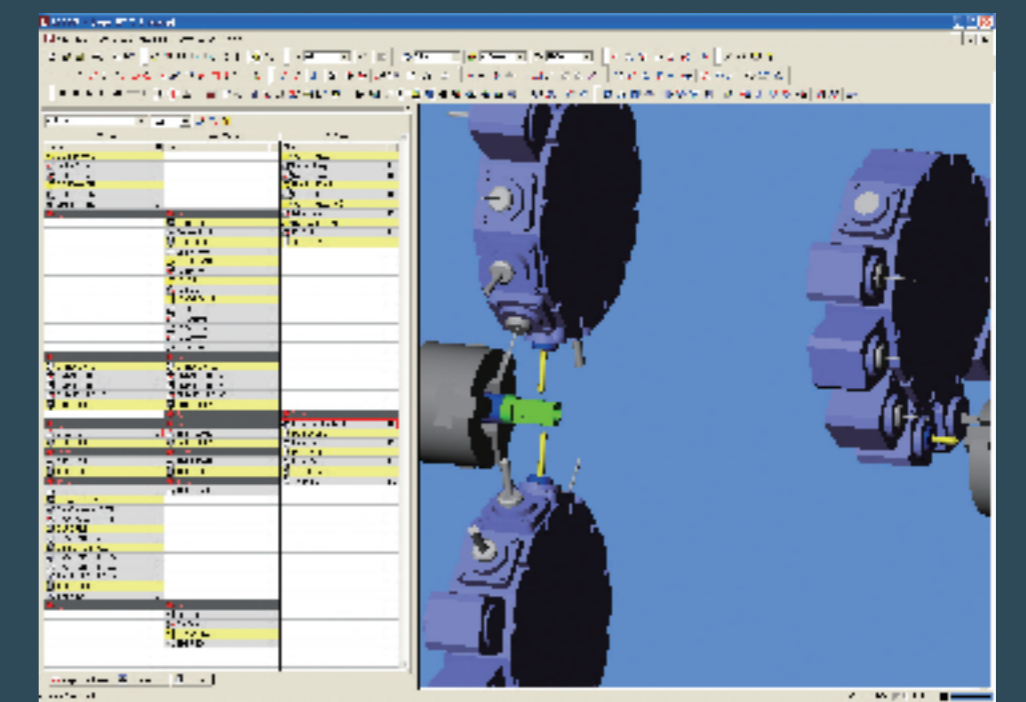
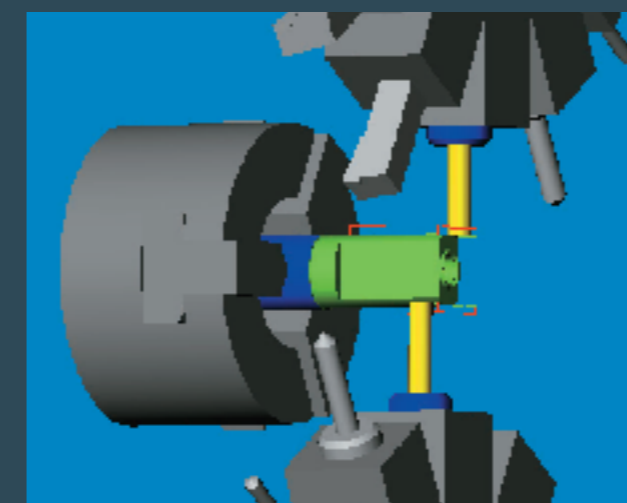
### Level up of Program editing

UNDO, REDO, CUT & PASTE for back-up for programming edition Same operation as Personnel computer.

## OFF MACHINE PROGRAMMING

Complex part programming for Multitasking machine

Programming check through on screen simulation help you for creating best machining process and shorter machining time even 3 or 4 Turrets machine.



### Easier Process editing

Process can be changed with drag and drop as personnel computer (Waiting M-codes will be editing automatically)  
Easy to check the machining process even if the Y-axis is used on upper and lower Turret.

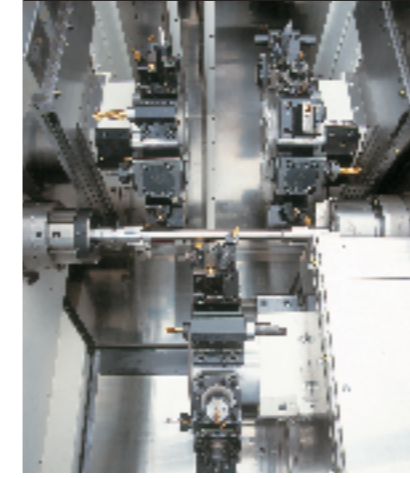


# Advanced lineups satisfying versatility of Machining

Choose suitable machine model from Multitasking complex machine to simple single spindle machine.



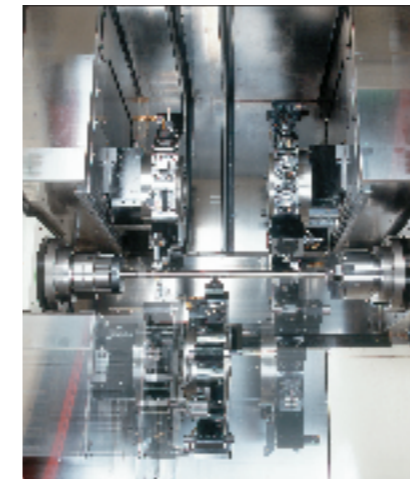
Super NTJX	
High productivity multitasking machine Y-axis on both Tool spindle and Lower Turret	
Super NTJX	
L / R Spindle	Chuck size 6" Chuck (8" op.) Bar capacity 51mm (65mm op.) Spindle motor L: 15 / 11kW R: 11 / 7.5kW Spindle speed 6000 min <sup>-1</sup> (4500 op.) Spindle distance 1290mm
Tool spindle	Tool size KM63 (CAPTO C6 / HSK63 op.) Magazine 40 tools (80, 120 op.) Motor 7.5 / 3.7kW Spindle speed 8000min <sup>-1</sup> (op. 12000) Y-axis stroke +/-70mm B-axis range +/-115 deg.
Turret	Type 12 station Turret Y-axis stroke +50mm -20mm Milling motor 5.5 / 3.7kW



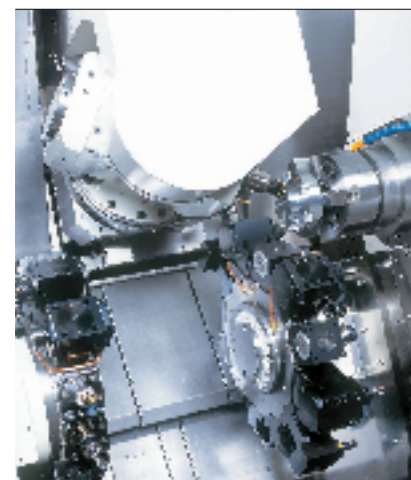
Super NTM <sup>3</sup>	
Multi Turrets (Upper L / R and Lower Turret) and Multi spindle High productivity and excellence in High precision machining.	
Super NTM <sup>3</sup>	
L / R Spindle	Chuck size 6" Bar capacity 51mm (65mm op. L) Spindle motor 15 / 11kW, 11 / 7.5kW Spindle speed 5000min <sup>-1</sup> (4500 op.) Spindle distance 970mm
Turret	type 12 station x 3 Milling motor 5.5 / 3.7kW Y-axis stroke +/-41mm (Upper x 2)



Super NTY <sup>3</sup>	
Multi-Turret (Upper L / R and Lower Turret) and Multi-spindle. Y-axis on all 3 Turrets	
Super NTY <sup>3</sup>	
L / R Spindle	Chuck size 6" Bar capacity 42mm Spindle motor 11/7.5kW Spindle speed 6000 min <sup>-1</sup> Spindle distance 820mm
Turret	type 12 station x 3 Milling motor 7.1 / 2.2kW Y-axis stroke +/-31 / -3mm (x 3)



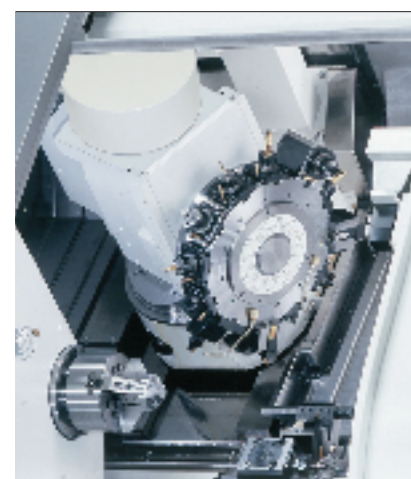
WTS-150	
Wide machining range with 3-Turrets model	
WTS-150	
L / R Spindle	Chuck size 6" Bar capacity 51mm (65mm op.) Spindle motor 15 / 11kW Spindle speed 5000min <sup>-1</sup> (4000 op.) Spindle distance 1070mm
Turret	type 12 station x 3 Milling motor 3.7 / 2.2kW Y-axis stroke +/-30mm (Upper x 2)



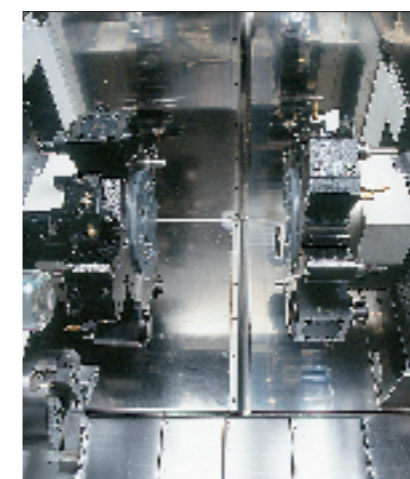
Super NTX, STW-40		
1 lower Turret version is available Super NTX (S), STS-40		
Super NTX STW-40		
L / R Spindle	Chuck size 8"Chuck (10"/12"op.) 10"Chuck (12"/15"op.) Bar capacity 65mm (71mm op.) 71mm (88mm op.) Spindle motor 22 / 18.5kW 22 / 15kW (30 / 22kW op.) Spindle speed 4500 min <sup>-1</sup> (3500 op.) 3500min <sup>-1</sup> (2500 op.) Spindle distance 1400mm 1900mm	
Tool spindle	Tool size KM63 or CAPTO C6 KM63 (CAPTO C6 op.) Magazine 24 tools (40, 80, 120 op.) 40 tools (80, 120 op.) Motor 18.5 / 11kW 15 / 11kW Spindle speed 8000 min <sup>-1</sup> (12000 op.) 6000min <sup>-1</sup> (12000 op.) Y-axis stroke +/-80mm +/-110mm -90mm B-axis range +/-115 deg. +/-110 deg.	
Turret	Type 12 station Turret 12 station Turret Milling motor 5.5 / 3.7kW 5.5 / 3.7kW	



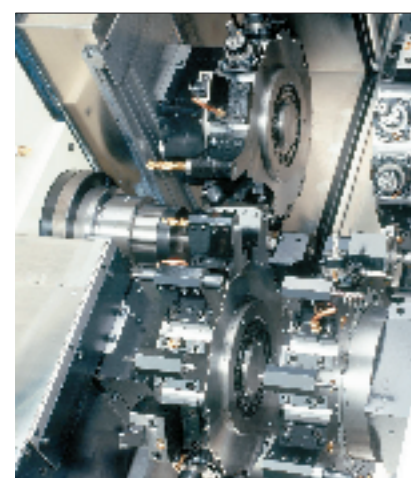
WT-series				
Multi Turrets (Upper / Lower) Multi spindle Intelligent & Flexible for maximum machining efficiency				
WT-100 WT-150 WT-250 WT-300				
L / R Spindle	Chuck size 6" 6" 6" (8" op.) 8"			
Bar capacity	42mm (26mm op.) 51mm (65mm op.L) 51mm (65mm op.) 71mm (88mm op.L)			
Spindle motor	11 / 7.5kW 15 / 11kW, 11 / 7.5kW (18.5 / 15kW, 26 / 22kW op.) 15 / 11kW (18.5 / 15kW op.)			
Spindle speed	6000min <sup>-1</sup> (8000 op.) 5000min <sup>-1</sup> (4500 op.) 5000min <sup>-1</sup> (4500 op.) 5000min <sup>-1</sup> (2500 op.)			
Spindle distance	735mm 750mm 870mm 1100mm			
Turret	type 12 station x 2 12 Station x 2 12 Station x 2 12 Station x 2			
Milling motor	7.1 / 2.2kW 5.5 / 3.7kW 3.7 / 2.2kW 5.5 / 3.7kW			
Y-axis stroke	+/-31mm (Upper) +/-35mm (Upper) +/-41mm (Upper) +/-60mm (Upper)			



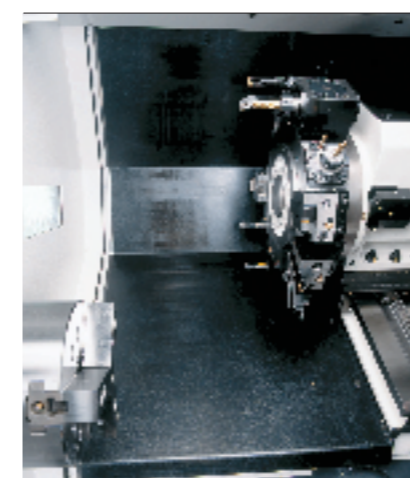
Super NTJ	
B-axis positioning range is +/-91 deg. Any angle hole / milling for Automotive parts and Medical parts	
Super NTJ	
L / R Spindle	Chuck size 6" Bar capacity 51mm (65mm op. L) Spindle motor L: 15 / 11kW R: 11 / 7.5kW Spindle speed 5000min <sup>-1</sup> (4500 op.) Spindle distance 970mm
Turret	type 12 station x 2 Milling motor 5.5 / 3.7kW Y-axis stroke +/-45mm B-axis range +/-91 degree



TW-series				
Multi Turrets (Left / Right) Multi spindle Simultaneous continuous cutting freely configurable on one machine				
TW-8 TW-10 TW-20 TW-30				
L / R Spindle	Chuck size 6" 6" 8" 10"			
Bar capacity	26mm (34mm op.) 42mm 51mm (65mm op.) 71mm			
Spindle motor	7.5 / 5.5kW 7.5 / 5.5kW 15 / 11kW (11 / 9kW op.L) (18.5 / 15kW op.L) (30 / 22kW op.L)			
Spindle speed	6000min <sup>-1</sup> (8000 op.) 5500min <sup>-1</sup> (4500 op.) 5000min <sup>-1</sup> (4500 op.) 3500min <sup>-1</sup>			
Spindle distance	735mm 870mm 1080mm 1300mm			
Turret	type 12 station x 2 12 station x 2 12 station x 2 12 station x 2			
Milling motor	1.2kW 3.7 / 2.2kW 3.7 / 2.2kW 5.5 / 3.7kW			
Y-axis stroke	N/A +/-30mm +/-45mm +/-30mm			



WTW-150	
High productivity and less set-up by 4-Turrets common tooling.	
WTW-150	
L / R Spindle	Chuck size 6" Bar capacity 51mm (65mm) Spindle motor 15 / 11kW Spindle speed 5000min <sup>-1</sup> (4000) Spindle distance 1070mm
Turret	type 12 station x 4 Milling motor 3.7 / 2.2kW Y-axis stroke +/-30mm (Upper x 2)



SC-series				
Single Turret Tailstock or Sub-spindle is available except SC450 model				
SC200 SC250 SC300/L SC450				
L / R Spindle	Chuck size 6" 8" 10" 12", 15" (op.)			
Bar capacity	65mm 51mm (op. 65mm) 71mm 80mm			
Spindle motor	11 / 7.5kW 15 / 11kW (op. 18.5 / 15)	22 / 18.5kW	30 / 22kW	
Spindle speed	4500min <sup>-1</sup> (op. 4500)	5000min <sup>-1</sup> (op. 4500)	3500min <sup>-1</sup>	2500min <sup>-1</sup>
Spindle distance	509mm 689mm	713.5mm / 1213.5mm	1035mm	
Turret	type 12 station x 1 12 station x 1 12 station x 1 12 station x 1			
Milling motor	5.5 / 3.7kW 3.7 / 2.2kW 3.7 / 2.2kW 5.5 / 3.7kW			
Y-axis stroke	+/-41mm +/-41mm +/-45mm +/-70mm			