

Double Column Type Five-Face Milling Machine

# MVR-Cx



**NIDEC MACHINE TOOL CORPORATION**

[www.nidec.com/en/nidec-machinetool/](http://www.nidec.com/en/nidec-machinetool/)

Easy operability and maintainability  
**Simple and easy to use**

Minimum non-cutting time  
**Highly efficient processing of  
various large parts**

Compact packaging  
**Smooth Delivery**

A new model MVR-Cx has been added to the traditional MVR series. This machine efficiently performs single-item and high-mix, low-volume production in the machining of general large parts such as can structures.

A simple and easy-to-use machine that has all the functions required for five-face machining from the perspective of the user. MVR-Cx has incorporated operational support functions that are useful in each process up to machining, a structural design that facilitates installation work, and energy saving.

The new and powerful MVR-Cx will streamline and maximize your manufacturing process.



NOTE : The photo includes optional equipment

# Simple and easy to use

Efficient processing of single-item and high-mix, low-volume production



# Simple and easy to use

Efficient processing of single-item and high-mix, low-volume production



- Large operation panel with 15" touch screen
- Ergonomic button layout and screen design
- Equipped with the latest NC FANUC 32i-B Plus control system

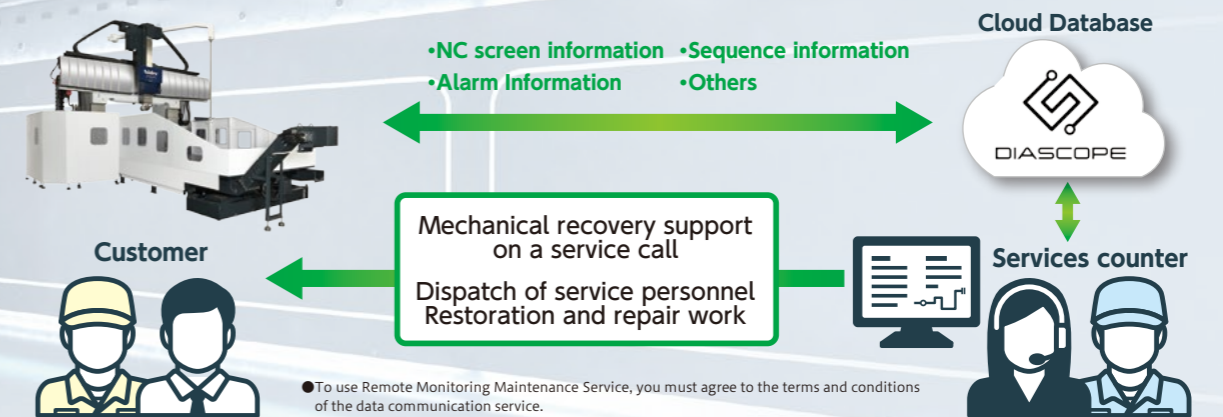


Easy operability and maintainability make it easy to use even for first-time users.

The area around the column is protected by oil pans, making it easy to clean chips. The coolant guard has a shape that makes it easy to install the work while preventing chips from scattering.

## Remote Monitoring Maintenance Service

- Continuous monitoring with Nidec's DIASCOPE IoT Platform
- In response to reports of trouble, the support center provides remote access to the machine to instantly grasp the machine status. Based on monitor information, we will guide you to the correct solution to minimize machine downtime.



**Nidec Navi** Nidec Navi streamlines the work of the operator at each process leading up to machining.

### Programming

- **Machining program creation support**  
You can easily create complicated machining programs by simply responding to the explanations on the user screen.
- **Program examples that can be created**  
Startup macro\*, Unequally spaced line at angle, Bolt hole circle, Pocket machining, Half-Circle milling, etc.

\* Startup macro; Regardless of whether you use an extension head or a right angle head, all you have to do is enter this G code and it will perform the specified positioning operation.

### Centering

- **Manual centering**  
With the use of a commercially available touch probe, this function will display step-by-step guidance on the screen.
- **Automatic centering (opt.)**  
When using the touch probe of the menu option, centering is possible by inputting the parameters in response to the explanation on the screen.

### Tool measurement

- **Tool measurement**  
When using "Automatic tool length measurement and compensation and tool breakage monitor" (opt.), tool measurement is possible by inputting the parameters as prompted by the explanation on the screen.

### Program debugging

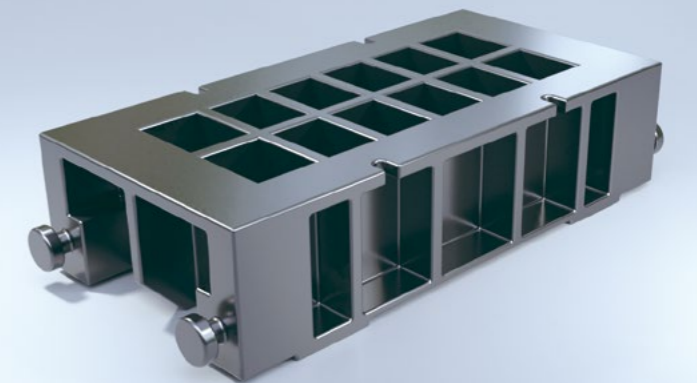
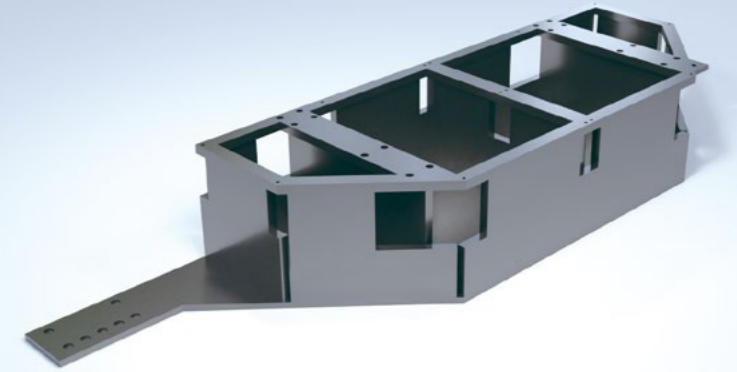
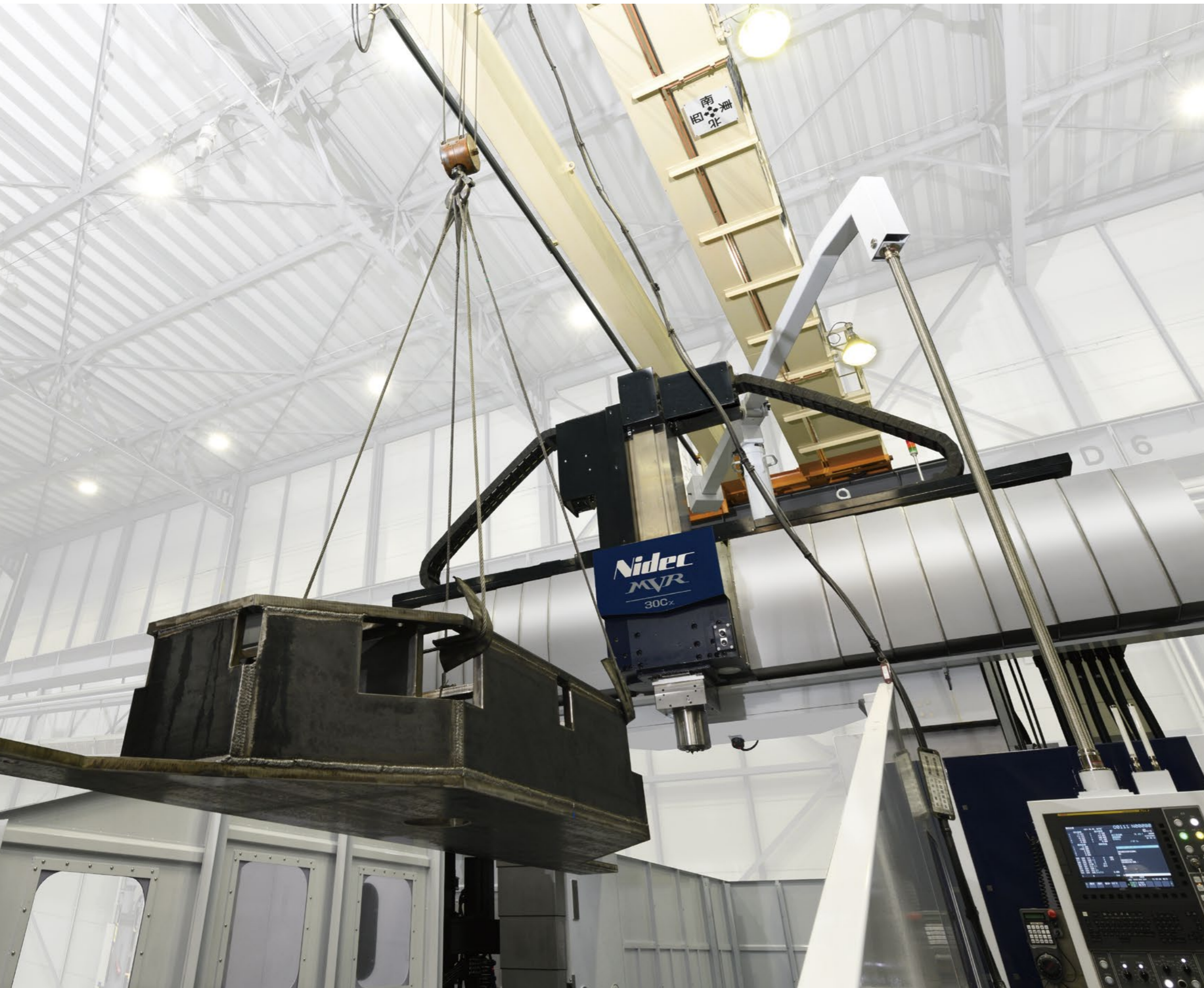
- **Easy collision prevention (opt.)**  
If the spindle invades a certain area around the work during manual intervention\*, the alarm will stop before it occurs to prevent a collision accident.

\* Manual intervention; rapid traverse and return to origin in manual mode and MDI mode

### Recovery from alarm stop

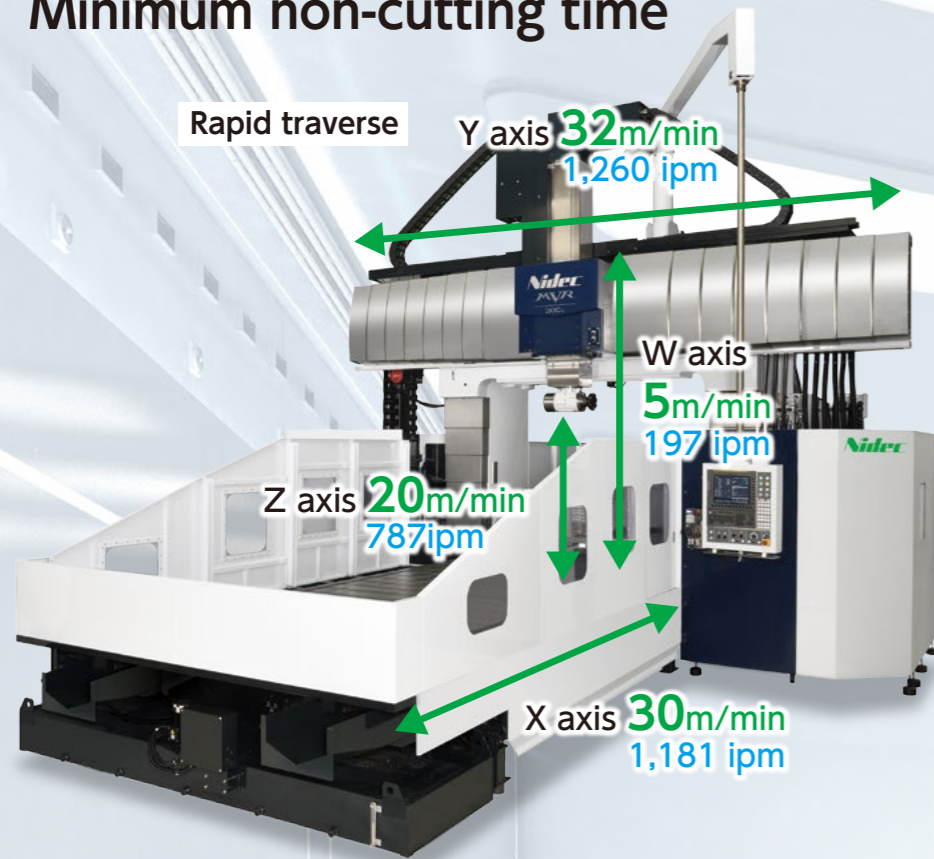
- **Visual Guidance**  
When an alarm occurs, the corrective action is visually displayed in 3D. We will guide you through each operation and support quick recovery.

## Highly efficient processing of various large parts



## Highly efficient processing of various large parts

### Minimum non-cutting time



■ ATC (Automatic Tool Changer)  
ATC is compatible with Extension Head and Right Angle Head.



■ AAC (Automatic Attachment Changer) and AAI (Automatic Attachment Indexing)

\*Indexing each 5 degree (Std.), 1 degree (Opt.)

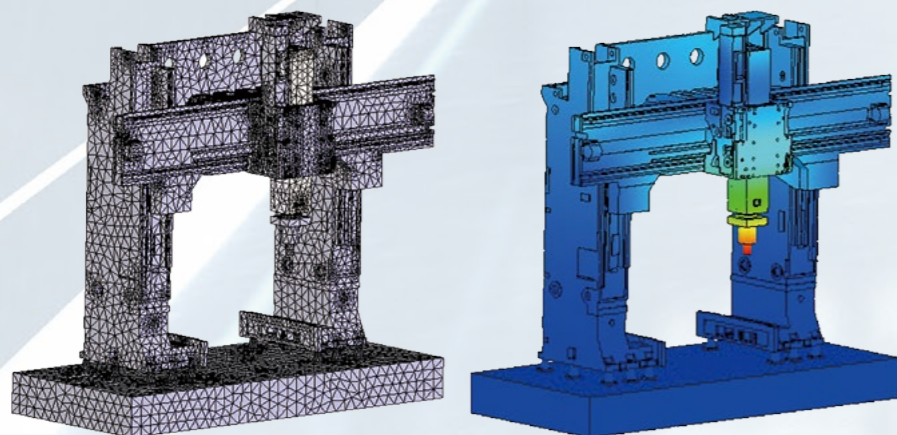
### Convenient attachment as standard equipment

Coolant/air supply system through the spindle can be selected as an optional specification. The extension attachment ( $\phi 220\text{mm}$  7.87in) provides excellent accessibility to complex workpieces.



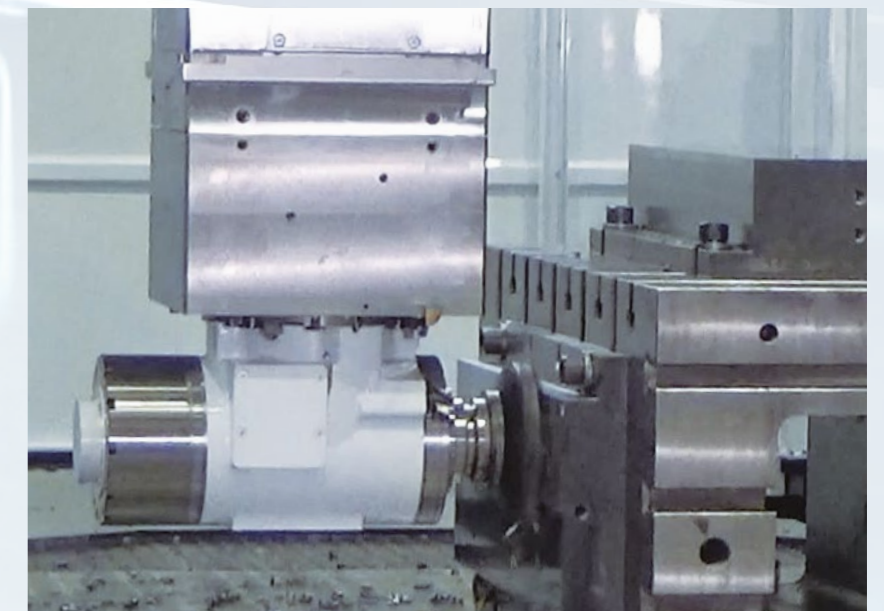
The rigid Right Angle Head provides highly efficient five-face machining.

### Rigidity to respond to various machining



Optimal rib shape and thickness are designed by 3D FEM analysis.

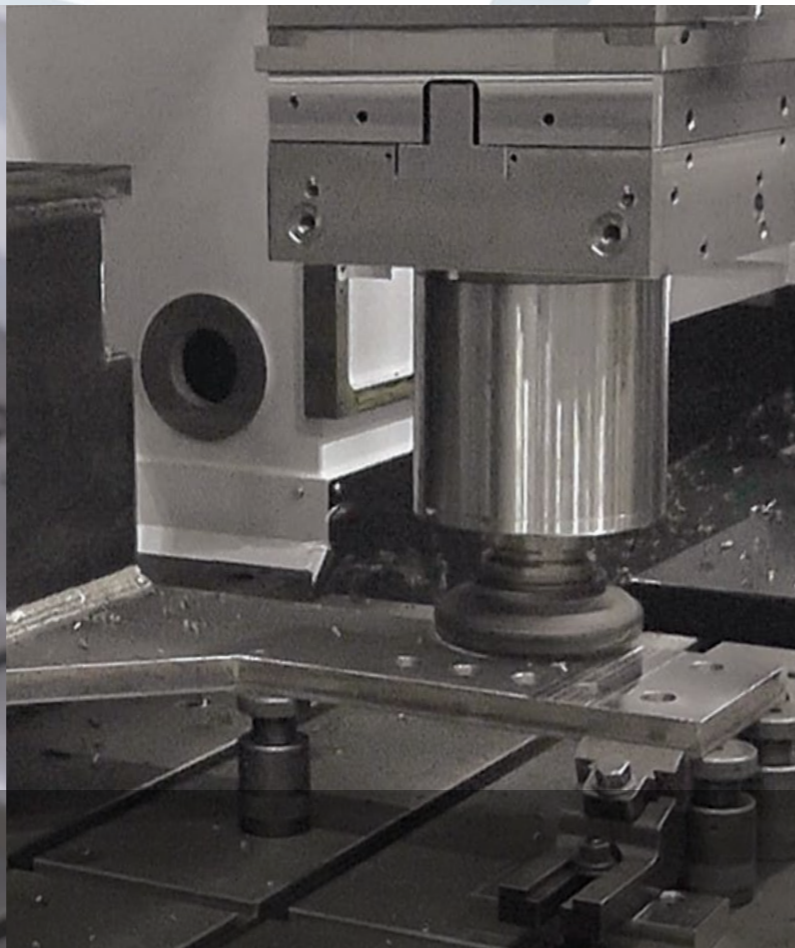
Machine rigidity resists cutting reaction force and maintains stable machining quality.



# Powerful spindle for various high performance machining

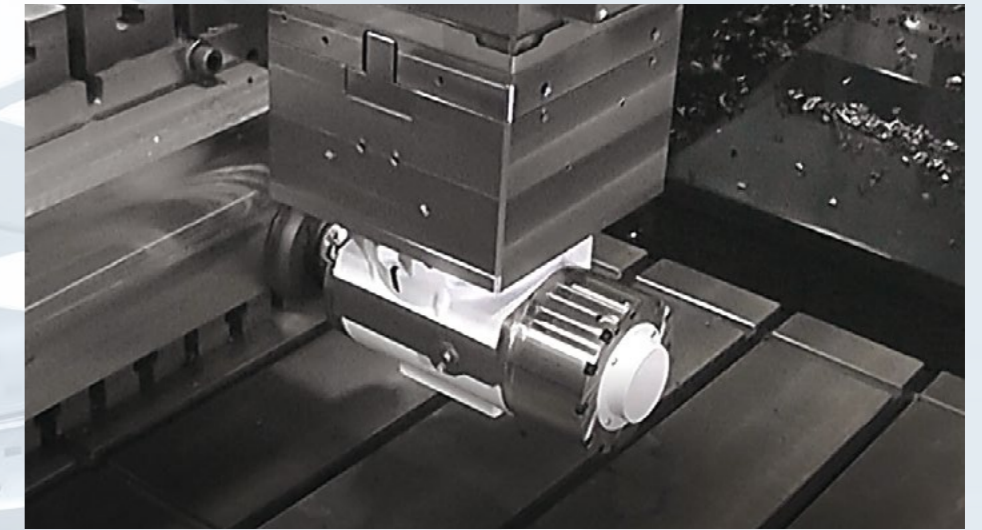
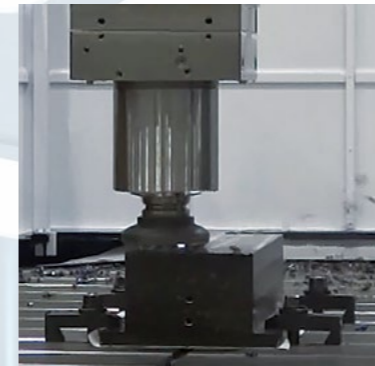


Built-in high speed motor  
4,000min<sup>-1</sup> (Std.), 6,000min<sup>-1</sup> (Opt.)  
High output machining is possible



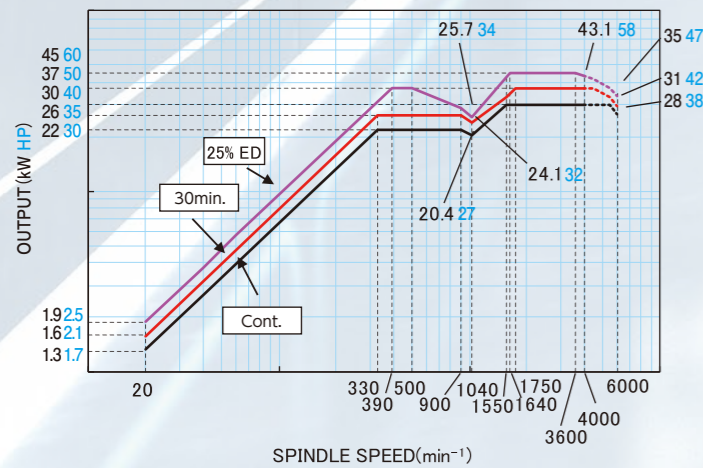
## Milling

Heavy milling is possible for both Extension head and Right Angle Head.

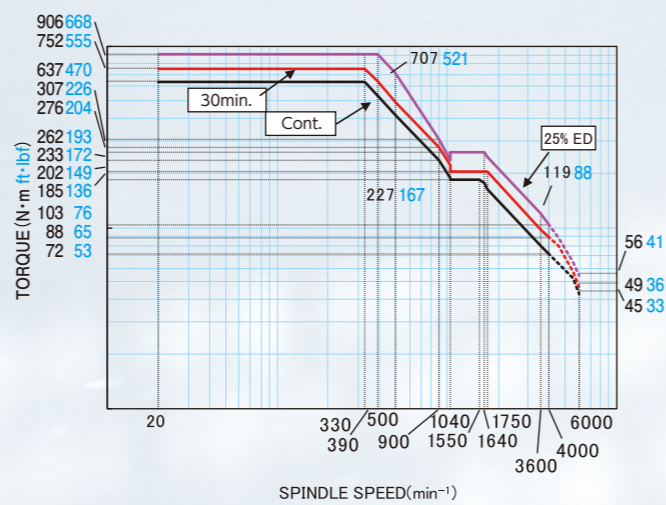


Material: S45C  
Tool Diameter:  $\phi$ 160mm  $\phi$ 6.3in  
Spindle Speed: 420min<sup>-1</sup>  
Feedrate: 1,000mm/min 39.3ipm  
Cutting Depth: 5mm 0.20in

### SPINDLE OUTPUT CHART



### SPINDLE TORQUE CHART



## Large Diameter drilling



$\phi$ 75mm  $\phi$ 2.95in Drill  
Material: S45C  
Spindle Speed: 90min<sup>-1</sup>  
Feedrate: 30mm/min 1.18ipm

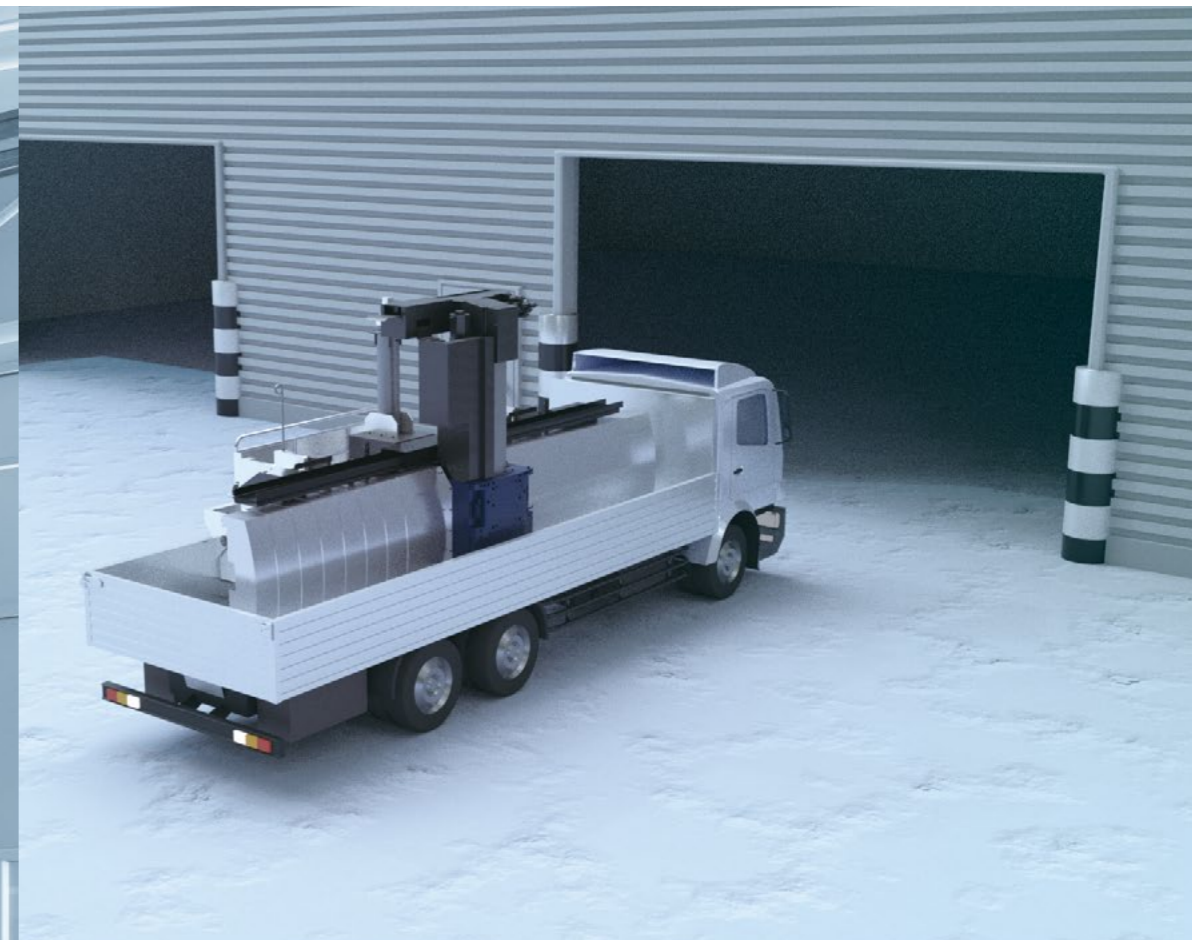
## Large Diameter Tapping



M64 Tap  
Material: S45C  
Spindle Speed: 50min<sup>-1</sup>  
Feedrate: 300mm/min 11.8ipm

The above specifications are reference examples based on test cut results and theoretical values to demonstrate the maximum capacity of each machining method. The described machining conditions may vary depending based on the work material, shape, work mounting condition, tool type, insert wear, etc.

## Effective use of factory space



NOTE : The photo includes optional equipment



## Effective use of factory space

### Large Machining Area

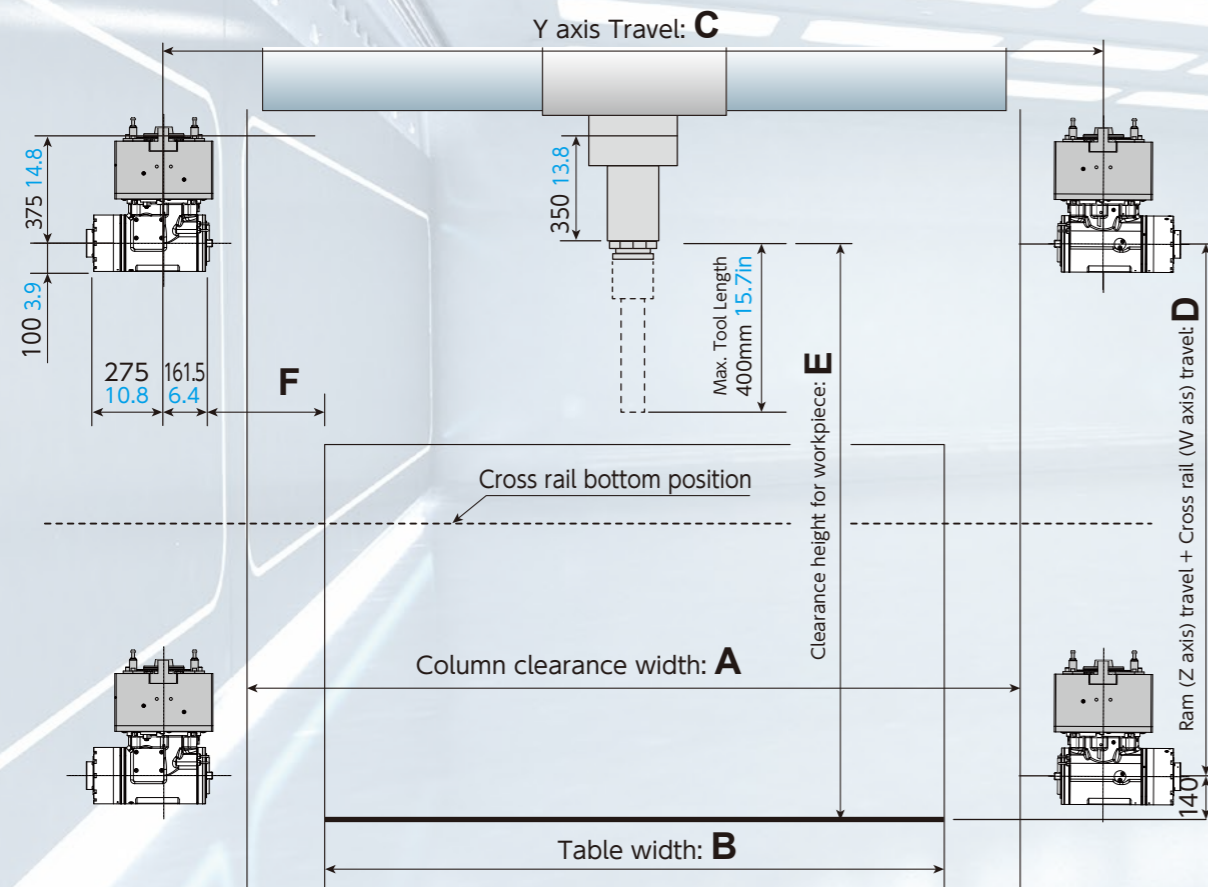
Ideal for large-scale processing and multi-setup machining



## Smooth part loading with compact packaging

### Even in places where space is limited

The compact packaging makes it easy to move and position. The aging equipment in the back of the factory can be updated smoothly with MVR-Cx.

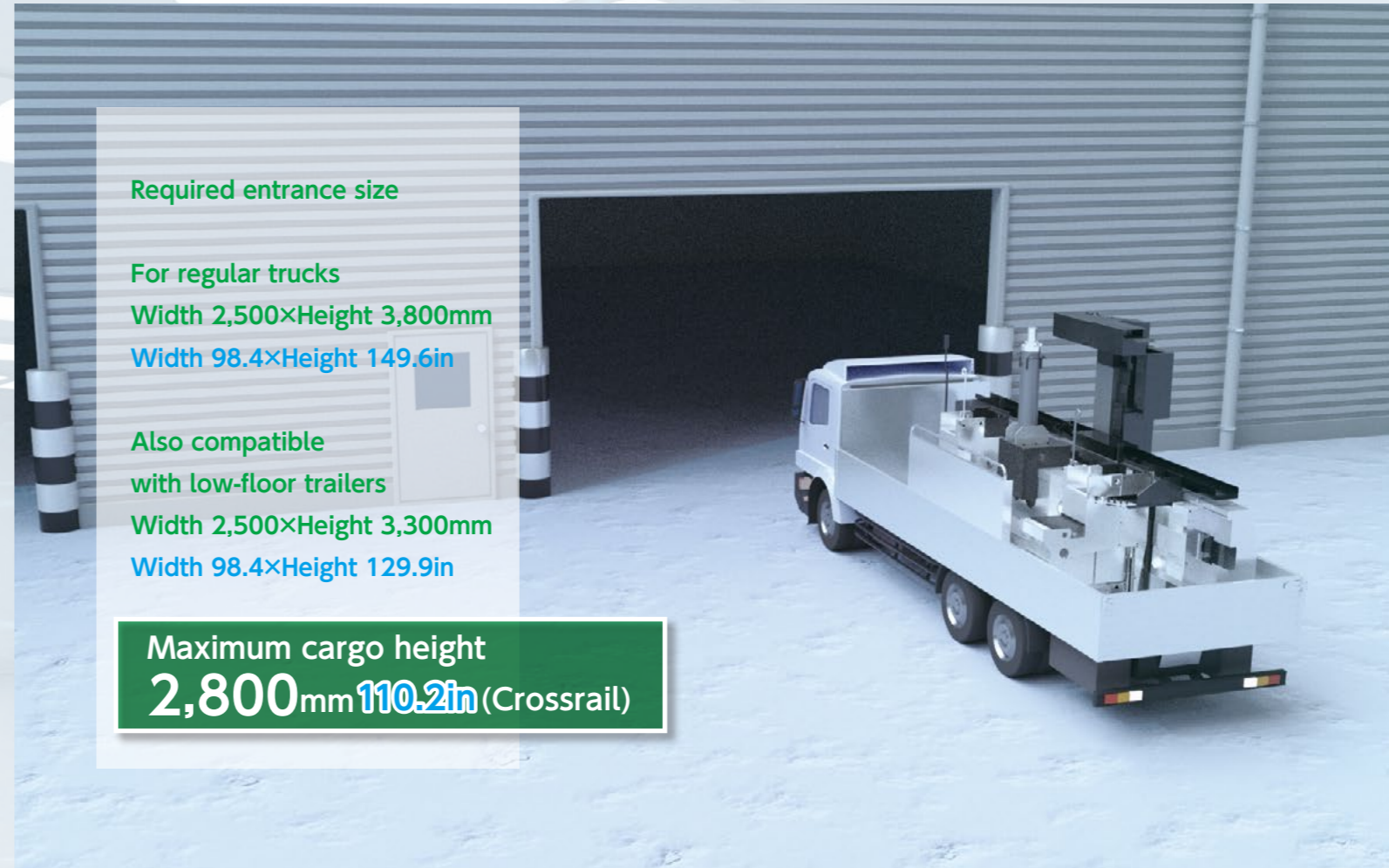


#### Required entrance size

For regular trucks  
Width 2,500×Height 3,800mm  
Width 98.4×Height 149.6in

Also compatible with low-floor trailers  
Width 2,500×Height 3,300mm  
Width 98.4×Height 129.9in

Maximum cargo height  
**2,800mm 110.2in** (Crossrail)



Smooth installation and launch will have you up and running quickly.

Model	A	B	C	D	E	F
MVR25Cx	2,050 80.7	1,500 59.1	2,500 98.4	1,160 45.7	1,650 64.9	338.5 13.3
MVR30Cx	2,550 100.3	2,000 78.7	3,000 118.1			

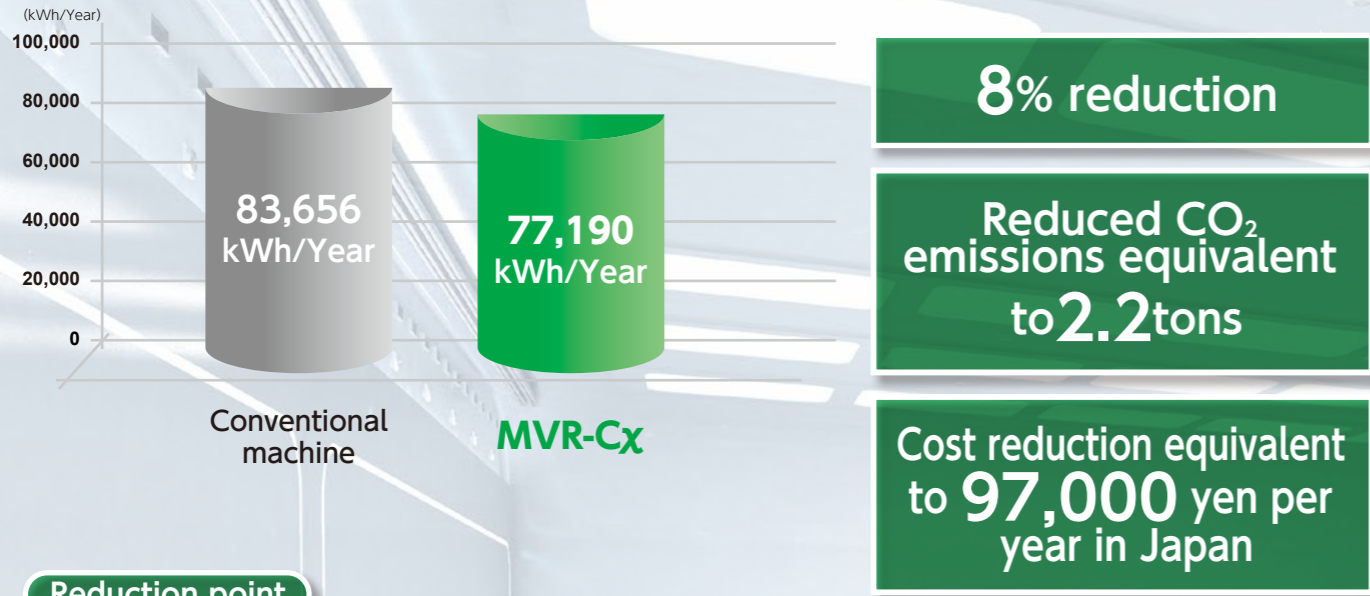
mm in

# Global Environmental Consciousness

## Reduce resource consumption

\* Numerical values were calculated using the conventional model as a comparison target.

### Power consumption



\* Trial calculation under the following conditions  
 Factory operating days are 260 days  
 the electricity bill is 15 yen per kWh  
 CO<sub>2</sub> emissions 0.339 tons per kWh

#### Reduction point

Optimizing the specifications of the feed motor and cooling unit

### Air consumption

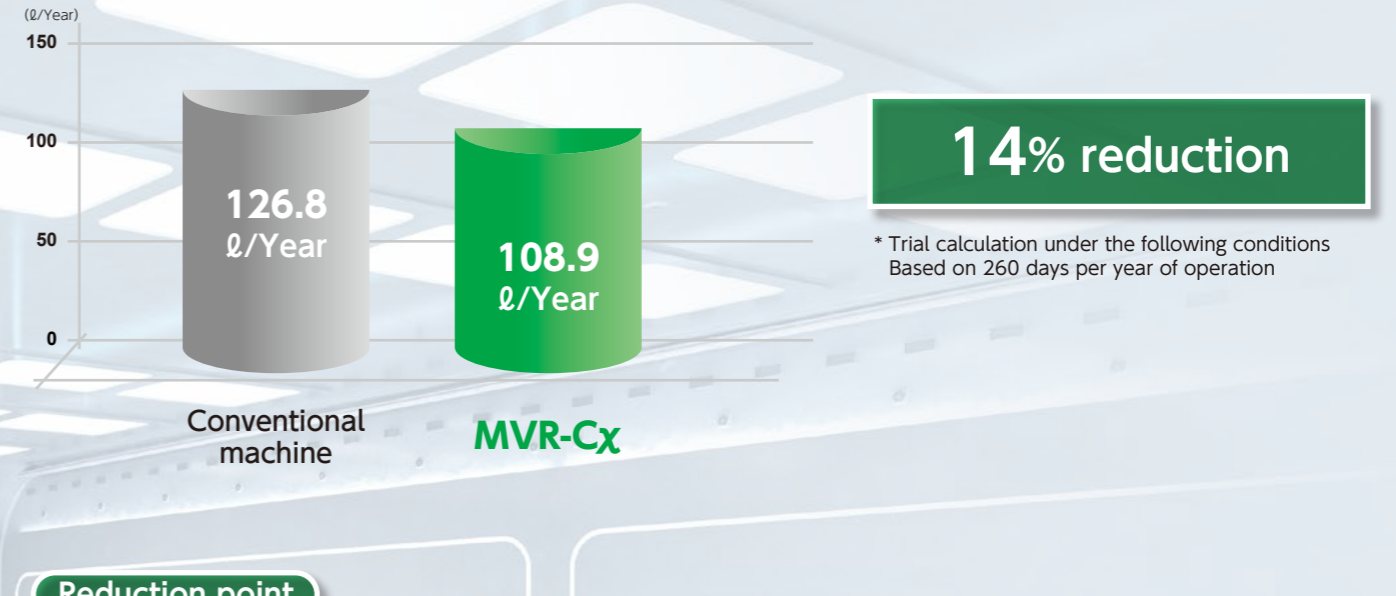


\* Trial calculation under the following conditions  
 Based on 260 days per year of operation

#### Reduction point

Uses grease for spindle bearing lubrication and right angle head gear lubrication

### Lubricant consumption

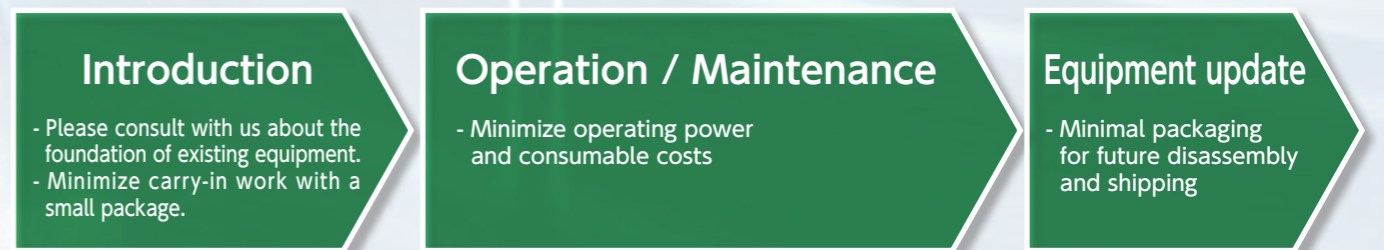


\* Trial calculation under the following conditions  
 Based on 260 days per year of operation

#### Reduction point

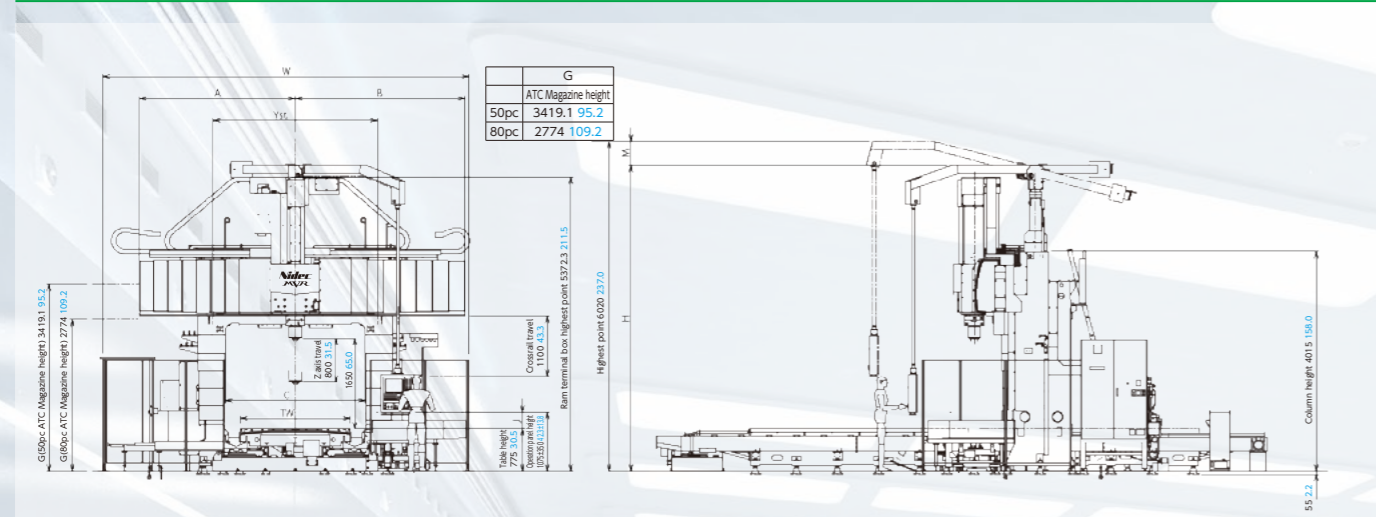
Uses grease for spindle bearing lubrication and right angle head gear lubrication

### Reduce life cycle costs throughout the life of the machine



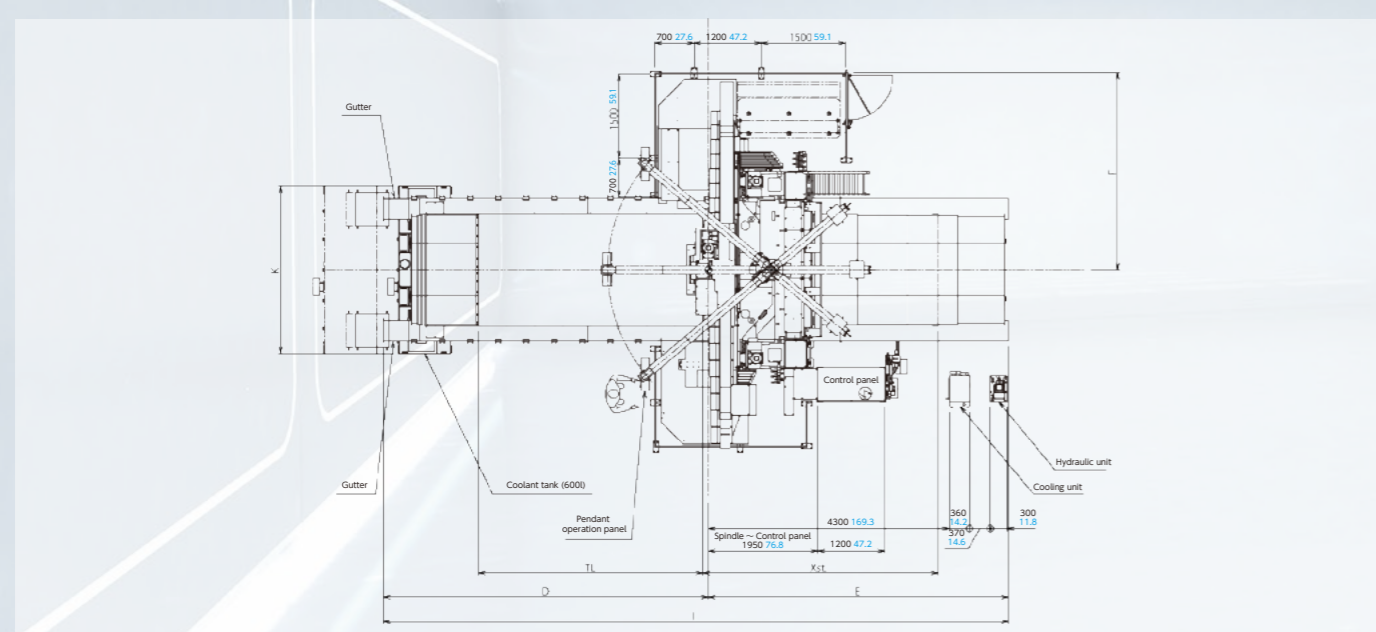
### Specification drawing

mm in



### Machine Layout

mm in



mm in

	L	W	H	A	B	C	D	E	F	X	Y	TL	TW	TH	J	K	M
	Full length of gutter	Full width	Height	Width on the left side of the machine	Width on the right side of the machine	Throat clearance between columns	Spindle -Front end of gutter	Spindle -Rear end of gutter	Spindle-Magazine fence	X axis travel	Y axis travel	Table length	Table width	Table height	Operator panel height	Coolant tank width	Highest point
MVR25Cx Table 1,500 x 3,000mm 59.1 x 118.1 in	9150 360.2	6190 243.7	5585 220.0	2596 102.2	2851 112.2	2050 80.7	4800 189.0	4350 171.3	3270 128.7	3200 126.0	2500 98.4	3000 118.1	1500 59.1				
MVR25Cx Table 1,500 x 4,000mm 59.1 x 157.5 in	11150 439.0						5800 228.3	5350 210.6		4200 165.4		4000 157.5		775 30.5	from table surface 300 11.8	3000 118.1	435 17.1
MVR30Cx Table 2,000 x 4,000mm 78.7 x 157.5 in		6690 263.4		2846 112.0	3101 122.0	2550 100.3			3520 138.6		3000 118.1		2000 78.7				
MVR30Cx Table 2,000 x 5,000mm 78.7 x 196.9 in	13150 517.7						6800 267.7	6350 250.0		5200 204.7		5000 196.9					

### Specifications

Item	Model	MVR25Cx	MVR30Cx
Throat clearance between columns	mm in	2,050 80.7	2,550 100.4
Disrance from spindle end to table surface	mm in	1,650 65.0	
Table	Working Area	Width	1,500 59.1
		Length	2,000 78.7
Axis Travel	Loading Capacity	ton lb	15 33,000
	Table longitudinal (X axis)	mm in	3,200 126.0   4,200 165.4
	Saddle crosswise (Y axis)	mm in	4,200 165.4   5,200 204.7
	Ram vertical (Z axis)	mm in	2,500 98.4   3,000 118.1
Spindle	Crossrail vertical (W axis)	mm in	800 31.5
	Ram Size	mm in	1,000 39.4
	Diamater of Vertical spindle tip	mm in	350 13.8
	Spindle Speed	min <sup>-1</sup>	20~4,000 (opt.20~6,000)
Cutting feedrate	Spindle motor output	kW HP	22/30 30/40 :Cont. Low/High
	X, Y & Z axes	mm/min ipm	1-10,000 0.04-393.7
Rapid traverse	Table longitudinal (X axis)	mm/min ipm	30,000 1,181
	Saddle crosswise (Y axis)	mm/min ipm	32,000 1,260
	Ram vertical (Z axis)	mm/min ipm	20,000 787
	Crossrail vertical (W axis)	mm/min ipm	5,000 197
Tool storage capacity (ATC)		50(std.) 80(opt.)	
Machine weight		kg lb	34,670 76,700   38,190 84,200   41,690 92,000   45,210 99,700

NOTE: The photo includes optional equipment.



NOTE : The photo includes the following optional equipment.

- Coolant splash guard
- Coolant supply system including the tank
- Hinged steel belt chip conveyor parallel to table longitudinal direction
- Hinged steel belt chip conveyor orthogonal to table longitudinal direction

## Standard Equipment

The items with  may not be selected when optional equipments are selected.

- Dual Contact Spindle(BIG-PLUS)
- Air blow system
- Cooler unit for spindle housing
- Indication lamp (Red/Yellow/Green LED)
- Work light (LED) under the crossrail: 10 W × 2 pcs
- Machine installation (installation on the floor)
- Attachment storage rack on the floor
- Crossrail way cover: telescopic steel way covers
- Column way covers Lower half: Steel telescopic type
- Table bed telescopic steel way cover
- T-slots on the table surface (T-slot width 22mm)
- Leveling blocks and anchor bolts
- A set of oil pans below ATC and AAC
- Display language (NC, Name plate, Instruction manual): Japanese
- Tool attachment / detachment assist device for magazine
- Linear scale feed back for W and V axes
- Counterweight balanced type pendant control box
- Automatic tool changer (ATC) with 50 tools magazine
- Standard painting color
- Linear scale feed back for W and V axes
- Full length gutter :on both sides of the table bed
- Hydraulic pump unit
- Intermittent lubrication and spindle oil-air lubrication units

## Optional Equipment

- Electric pendant operation panel
- Change the height of the operation panel
- Feeding buttons: left "+" right "-"
- MP scale feed back for X,Y and Z axes
- Automatic tool changer (ATC) with 80 tools magazine
- Test bar
- Red warning light
- Chip box
  - for the parallel conveyors (2pc)
  - for the orthogonal conveyor (1pc)
- Air compressor
- Air drier
- Yearly check
- Special custom macro (please consult us)
- Spare parts
- Machine layout drawing
- Inverter control type hydraulic pump unit
- Witnessing of the completion at the factory
- NAS machining accuracy verification at the factory
- Five-face machining accuracy verification at the factory
- Operation Instruction
- Electric cabinet cooling system
- Machine instruction manual (1 book)
- Parts list (1 book)
- FANUC overseas maintenance contract (confirmation required as some countries cannot be contracted)
- Compliance with standards
  - GB standards
  - KCS standards
- Display language (NC, Name plate, Instruction manual)
  - English
  - Chinese
- Paint color designation

## Monitoring function

- Cutting condition monitoring
- Overload monitor
- Easy collision prevention
- Tool monitoring
- Tool life monitor
- Automatic tool length measurement and compensation & Tool breakage monitoring
- Automatic measuring
- Automatic workpiece measuring
- Preparation for Automatic workpiece measuring
- Data print-out function & printer
- Manual workpiece measuring
- Production monitoring
- Operation time accumulation
- Production number control
- Automatic reset
- Spare tool automatic replacement
- Automatic power OFF
- Automatic power ON

## Electrical standard specifications

- NC (FANUC Series 32i-B Plus)
- Remote monitoring system
- Earth leakage breaker: Sensitivity current 200 mA
- Main operation panel and ATC operation panel
- Manual pulse generato
- Linear scale feed back for W and V axes
- 5-face machining software
- Relocation detection
- Operator friendly function
- Tool management function

## NC Specifications FANUC Series 32i-B Plus (For detailed specifications, refer to the NC operation manual.)

### Standard Specifications

Item	Description
<b>Controlled axis</b>	
Stored stroke check 1	
Stroke limit check before move	
Mirror image	X, Y axes
Inch/metric conversion	G20, G21
Stored stroke check 2,3	

Operation	
Program/Sequence number search	
Sequence number comparison stop	
Program restart	
Jog feed	0~4,000 mm/min. 157.5 ipm (22 step)
Manual reference position return	
Manual handle feed	Portable type manual handle (×1, ×10, ×100)
3-dimensional handle feed	Tool direction + normal direction
Manual handle interruption	One dimensional

Interpolation functions	
Single direction positioning	G60
Exact stop mode/Exact stop	G61/G09
Dwell (in second)	G04
Helical interpolation	G02, G03 Circular interpolation+max. 2 axes linear interpolation
Reference position return/check	G28/G27
2nd reference position return	G30 (P2)
3rd/4th reference position return	G30 (P3, P4)
Tapping mode/Cutting mode	G63/G64
High speed skip	G31, This function is required for automatic workpiece measurement/Tool breakage monitor/Automatic tool length measurement

Feed function	
Feed per minute	G94, mm/min. ipm
Tangential speed constant control	
Cutting feedrate clamp	
Automatic acceleration/deceleration	Rapid traverse: linear, Cutting feed: linear+exponential
Override cancel	M17: Enable, M18: Disable

Program input	
Optional block skip	Total 3
Decimal point programming/Pocket calculator type decimal point programming	
Input unit 10 time multiply	0.01 mm, 0.01deg, 0.001 inch
Plane selection	G17, G18, G19
Coordination system setting	
Automatic coordination system setting	
Workpiece coordinate system	G54~G59, 6 pairs
Workpiece coordinate system preset	G92.1
Manual absolute on and off	
Optional chamfering/corner R	
Programmable data input	G10
Sub program call	M98 (10 told nested)
Custom macro	G65,G66,G66.1 (5 told nested)
Coordinate system rotation	G68, G69 (this function is required for 5-face machining software)
3-dimensional coordinate conversion	600 (total), #100~#199, #500~#999
Addition of custom macro common variables	
Canned cycles	G73, G74, G76, G80~G89
Circular interpolation by R programming	12-digit, 999999999.999mm, 99999999.999inch
Addition of workpiece coordinate system pair	G54.1, 48 pairs
Interruption type custom macro	
Program format for FS15	

Auxiliary/Spindle speed function	
2nd Auxiliary function	B3-digit, For attachment index
Spindle speed function	S4-digit, binary output
Rigid tapping	Including 3-dimensional rigid tapping

Tool function/Tool compensation Including 3-dimensional rigid tapping	
Tool offset pairs	
Tool offset memory C	±7-digit 200
Tool length compensation	Distinction between geometry and wear,or between cutter and tool length compensation
Tool offset	G43, G44, G49
Cutter dia. compensation C	G45, G46, G47, G48
Tool management system	
Automatic tool length measurement	T8-digit 240, Including management function for large diameter tools

DIASCOPE	
<input checked="" type="checkbox"/> Monitoring system "DIASCOPE"	
<input type="checkbox"/> Monitoring system "DIASCOPE": Remote monitoring and operation monitoring	
<input checked="" type="checkbox"/> Monitoring system "DIASCOPE": Remote monitoring and operation monitoring (Non-communication specifications)	

Item	Description
<b>Editing operation</b>	
Part program storage capacity	4 Mbyte (10,240m <b>33,600 ft</b> )
Number of registerable program	Number of program: 1,000 (512 Kbyte)
Program editing	
Background editing	Including Extended program editing function
Program protect	
Play back	

Setting and display	
Status/Clock/Cutting position display	
Program display	Program name 31 characters
Self diagnosis function	Self diagnosis in NC system
Alarm display/Alarm history display	
Graphic function	
Actual cutting federate display	
Multi-language display	English /Japanese /Chinise /Korean (Please select when ordering)
Data protection key	1 type
Erase CRT screen display	
Run hour and parts count display	This function is required for operation time accumulation.
Dynamic graphic display	This function include "Background display"

Data input/output	
USB memory input / output	Program, NC data
Embedded ethernet interface	100 base-T(1ch)

Others	
CRT character display	15" color LCD

## FANUC Optional Specifications

Items with  are included as MVR-Cx standard

Item	
<input checked="" type="checkbox"/> Reader/puncher interface	RS232C in control panel
<input checked="" type="checkbox"/> Reader/puncher interface	RS232C on control panel door
<input checked="" type="checkbox"/> Data server(1Gbyte) and Program transfer tool	
<input checked="" type="checkbox"/> Tool retract and recover	
<input checked="" type="checkbox"/> Positioning, Single direction positioning, Exact stop mode/Exact stop, Linear interpolation, Circular interpolation, Dwell	
<input checked="" type="checkbox"/> Helical interpolation, Skip, High speed skip, Reference position return/check	
<input checked="" type="checkbox"/> 2nd reference position return, 3rd/4th reference position return, Tapping mode/Cutting mode	
<input checked="" type="checkbox"/> Conical/spiral interpolation	<input checked="" type="checkbox"/> Polar coordinate interpolation
<input checked="" type="checkbox"/> Threading, synchronous cutting	<input checked="" type="checkbox"/> Multi step skip
<input checked="" type="checkbox"/> Normal direction control	<input checked="" type="checkbox"/> OT area avoidance function
<input checked="" type="checkbox"/> One-digit F code feed	
<input checked="" type="checkbox"/> Plane selection, Coordination system setting, Automatic coordination system setting, Workpiece coordinate system preset, Addition of workpiece coordinate system pair 48 pairs	
<input checked="" type="checkbox"/> Workpiece coordinate system, Programmable data input, Manual absolute on and off, Optional chamfering/corner R	
<input checked="" type="checkbox"/> Sub program call, Custom macro, custom macro common variablesAddition of custom macro common variables 600(total)	
<input checked="" type="checkbox"/> Interruption type custom macro, Canned cycles, Canned cycles, Coordinate system rotation, 3-dimensional coordinate conversion, Program format for FS15	
<input checked="" type="checkbox"/> Polar coordinate command	<input checked="" type="checkbox"/> Speed control by circular interpolation acceleration
<input checked="" type="checkbox"/> Scaling	<input checked="" type="checkbox"/> Programmable mirror image
<input checked="" type="checkbox"/> Figure copy	<input checked="" type="checkbox"/> Retrace (Reverse)
<input checked="" type="checkbox"/> Auxiliary function, 2nd Auxiliary function, Spindle speed function, Spindle override, Rigid tapping	
<input checked="" type="checkbox"/> Rigid tapping by manual handle	
<input checked="" type="checkbox"/> Rigid tap back	
<input checked="" type="checkbox"/> 3-dimensional Rigid tapping	
<input checked="" type="checkbox"/> Tool function, Tool length compensation, Tool offset, Tool offset memory C, Tool management system, Automatic tool length measurement	
<input type="checkbox"/> Tool offset pairs ±7-digit 400	<input checked="" type="checkbox"/> Tool offset pairs ±7-digit 999
<input checked="" type="checkbox"/> Tool life management 240 pairs	<input checked="" type="checkbox"/> Tool life management 1,000 pairs
<input checked="" type="checkbox"/> Number of registerable program expansion 1, Program editing, Background editing, Extended program editing.	
<input checked="" type="checkbox"/> Program protect, Play back	
<input type="checkbox"/> Part program storage capacity 4Mbyte(10,240m <b>33,595 ft</b> )	<input checked="" type="checkbox"/> Part program storage capacity 8 Mbyte (20,480m <b>67,200 ft</b> )
<input checked="" type="checkbox"/> Machining time stamp	
<input checked="" type="checkbox"/> Power failure back up module	
<input checked="" type="checkbox"/> NC Instruction manual	
<input checked="" type="checkbox"/> Addition of NC Instruction manual	
<input checked="" type="checkbox"/> Addition of NC Instruction manual (DVD)	
<input checked="" type="checkbox"/> Addition of Data server user's manual	

- Program extension package 1**
  - 1) Threading, synchronous cutting
  - 2) Normal direction control
  - 3) One-digit F code feed
  - 4) Polar coordinate command
  - 5) Scaling
  - 6) Programmable mirror image
- Program extension package 2**
  - 1) Tool retract and recover
  - 2) Conical/spiral interpolation
  - 3) Polar coordinate command
  - 4) Figure copy
  - 5) Retrace (Reverse)
  - 6) Rigid tapping by manual handle
  - 7) Rigid tap back
  - 8) 3-dimensional Rigid tapping



Inquiry

## NIDEC MACHINE TOOL CORPORATION

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### Global Group

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#### NIDEC MACHINE TOOL CORPORATION

##### TAIPEI BRANCH

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#### NIDEC-SHIPMO KOREA CORPORATION

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<https://www.nidec-machinetoolamerica.com>

#### NIDEC DRIVE TECHNOLOGY DE MEXICO, S. de R.L. de C.V.

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#### Nidec-Shimpo do Brazil Imp., Exp. e Com. de Equip. Ltda.

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#### Nidec-Shimpo GmbH

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### Manufacturing bases

#### Federal Broach & Machine Company, LLC

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#### Southeast Broach Company - South Carolina LLC

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<https://www.sebroach.com/index-2.html>

#### Nidec India Precision Tools Ltd.

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#### Nidec Machine Tool (Changshu) Corporation

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Machine specifications such as dimensions etc., are fixed using SI units including the metric system.  
In case data are shown in other units in blue, such as inches, pounds and gallons etc. they are for reference only and the formal data in black supersedes any equivalent data given in blue when fractions caused by conversion become an issue.  
Specifications are subject to change without prior notice.  
The export of this product is subject to Japanese Governmental approval.